

An Influence Study on Adopting Will of Tourism Mobile E-commerce by the Perceived Risk and Trust

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ABSTRACT

With the rapid development of China's tourism e-commerce and sophisticating mobile technologies, more and more Chinese tourists, with online shopping experience and mobile devices usage, have accepted the this newly emerging mode---tourism mobile e-commerce. However, the perceived risk and lack of trust are still the main factors impeding its growth. By exploratory factor analysis, the perceived risk in this paper is divided into four dimensions, personal risk propensity, product risk, technical risk and environmental risk. With them as the antecedents, a hypothesis model is established among perceived risk, trust and adopting will of tourism mobile e-commerce. It turns out that tourists' personal risk propensity has a positive correlation with product risk, technical risk and environmental risk, while the perceived risk has a negative one with trust, through which it indirectly affects the adopting will.

Keywords: Adoption; Tourism Mobile E-commerce; Trust; Perceived Risk

1. Introduction

According to the 29th China Internet Development Statistics Report released by China Internet Network Information Center in January, 2012, the number of Chinese netizens has reached 513 million by the end of 2011. Of those, mobile phone users, a crucial component of the overall Internet users, have amounted to 356 million, accounting for 69.4%. Furthermore, the number of consumers by mobile terminals is also embracing a explosive growth. The major tourism e-commerce sites have launched their own mobile e-commerce websites or mobile phone clients. Compared with the traditional tourism e-commerce, tourism mobile e-commerce is of a more pertinency, timeliness, convenience and localizability (Chaoju Hu, 2009), and these advantages help tourists enter the network of mobile e-commerce in a more flexible and convenient way. Generally speaking, services by the traditional tourism e-commerce can only provide some help for the tourists' preparations before traveling, but without concerns during and after the travel. However, tourism mobile e-commerce, along with the moving tourists, is able to offer personalized real-time services around the clock. As a result, it will make up for the shortcomings of traditional tourism e-commerce out of the time and geographical constraints. Meanwhile, we have to stress it is the user needs but the mature information and communication technologies that form the core

pusher for development of tourism mobile e-commerce. Among the related studies on tourists' needs and attitudes in tourism mobile e-commerce, models based on the Technology Acceptance Model (TAM) have been used frequently, but with less theories or models concerning Theory of Reasoned Action (TRA), and Social Comparison Theory (SCT). On account of the fact that the perceived risk and lack of trust are still major hindering factors in the development of tourism mobile e-commerce, this paper, by the exploratory factor analysis, makes the perceived risk flow into four dimensions of personal risk propensity, product risk, technical risk and environmental risk. Taking them as antecedents of trust, it then establishes a relationship model among the perceived risk, trust and adopting will of tourism mobile e-commerce.

2. Literature Review and Hypotheses

2.1. Tourism Mobile E-commerce

Tourism mobile e-commerce refers to transaction activities between tourism service consumers and suppliers by mobile devices via wireless and wired integrated network, with certain means of payments (Siqing Liu, 2005). During the early developing period of tourism mobile e-commerce, the contents of traditional e-commerce websites were simply transferred into mobile sites, which were actually original websites or their corresponding

mobile web pages. This unfiltered contents caused problems like unnecessary and harder reading, and poor pertinence (Xingyang Lv, 2009). With the increase in the number of mobile Internet users and the developing intelligent platforms for mobile phones, tourism sites have launched their own mobile e-commerce websites or mobile phone clients. Since their column and layout arranged specific to characteristics of mobile devices, the mobile sites are more convenient to use with more reasonable contents, and a collection of unique features of mobile devices. However, Internet users are still far from at ease with tourism mobile e-commerce, which is subjected to limiting factors, like mobile devices, mobile communication network, and tourism mobile business operators, etc. This worry discourages their using wish of this new consumption mode to a certain extent.

2.2. Dimensions of the Perceived Risk

In 1960, Professor Bauer of Harvard University for the first time introduced the concept of perceived risk to the marketing research from psychology. He considered any purchase behavior is accompanied by unpredictable consequences, which may make consumers dissatisfied. This uncertainty is the original concept of risk which is embodied in specific dimensions later. Researches by Gronhaug (1993) showed that the perceived risk was studied from the six aspects, time risk, functional risk, physical risk, financial risk, social risk and psychological risk. With the rise of the Internet, some researches have been transferred to the field of electronic commerce. Einwiller (2003), from the perspective of sources of risk, presented the perceived risk in B2C e-commerce is attributed to the transaction subject (online suppliers and consumers) and the exchange medium (electronic trading system), and that online transaction risks can be divided into behavioral uncertainty and environmental uncertainty. Chinese scholars, Dahai Dong, Guanghui Li, and Yi Yang(2005) proposed four dimensions of the perceived risk in online shopping, risk from core services of online retailers, accompanied risk of online shopping, privacy risk and fake risk. Miao Jing (2006) further extended the perceived risk in online shopping to eight dimensions. Xiaoping Wang, and Hongxia Liu (2008), considering e-commerce features, stressed the consumer's personal risk propensity and risk from e-commerce trading environment. Based on the above literatures, and the fact of tourism mobile e-commerce 's dependence on mobile devices, and the communications and information technology, this paper understands the perceived risk from four dimensions, personal risk propensity, product risk, technical risk and environmental risk, and proposes the following hypotheses:

- H1: Personal risk propensity has a positive correlation with product risk

tion with product risk

- H2: Personal risk propensity has a positive correlation with technical risk
- H3: Personal risk propensity has a positive correlation with environmental risk

Among them, the personal risk propensity refers to tourists' risk attitudes towards the potential risks in tourism mobile e-commerce, and the product risk to the possibilities of tourism products' limited information, incomplete or distorted display on the screen of mobile devices. The technical risk may come from the instability of the mobile network, mobile equipment failure, running problems of tourism mobile clients, etc. and environmental risk from the loss of mobile devices, leakage of personal information and other such incidents in the use of tourism mobile e-commerce.

2.3. The perceived Risk, Trust and Consumer Behavior

As to e-commerce environment, scholars have done a lot of research about trust dimensions. McKnight and Chervany regard trust as a multi-dimensional concept that encompasses two interrelated dimensions, trust beliefs and trust intentions. To be more specific, Trust belief covers the ability, goodwill, integrity and predictability, while trust intention consists of the willingness and subjective probability to rely. A lot of literature suggests that the perceived risk and trust are not two independent concepts, for some definitions of the risk are related to trust and vice versa. In summary, the trust and perceived risk have a parallel relationship, both of which can influence the purchase intention. Furthermore, perceived risk is a regulating factor of the relationship between trust and purchase intention. It is said that trust is the antecedent of perceived risk, or perceived risk the antecedent of trust. Both of them directly or indirectly affect the customers' purchase intention. Besides, they also have an adversarial relationship, and purchase intention depends on the balance between consumers' perceived risk and trust. Based on the above analysis, and the Theory of Reasoned Action, the following assumptions are proposed:

- H4: Perceived product risk has a negative correlation with the trust attitude
- H5: Perceived technical risk has a negative correlation with the trust attitude
- H6: Perceived environmental risk has a negative correlation with the trust attitude
- H7: Risk propensity has a negative correlation with the trust attitude
- H8: The trust attitude has a positive correlation with the adopting will of tourism mobile e-commerce

3. Research Design and Methods

3.1. Questionnaire Design and Data Collection

On the basis of the above literature review and lots of interviews, 12 questions about the perceived risk, 2 on the trust attitude and 1 for adopting will are presented in the questionnaire. As to their scores, 1-5 Specter scale is adopted, meaning that the higher score indicates the higher level of perception. All together 330 questionnaires were distributed to middle-aged tourists (in travel then), corporate staff and college students. Among them 276 were returned valid. According to the sample structure, 64% of those surveyed are male, so the female accounts for 38%. As to the age, 21.6% of them are aged from 20 to 25 years old, 48.2% are from 26 to 35, and 30.2% are from 36 to 45. Of all the respondents, only 12% have ever used tourism mobile e-commerce, and the rest has never.

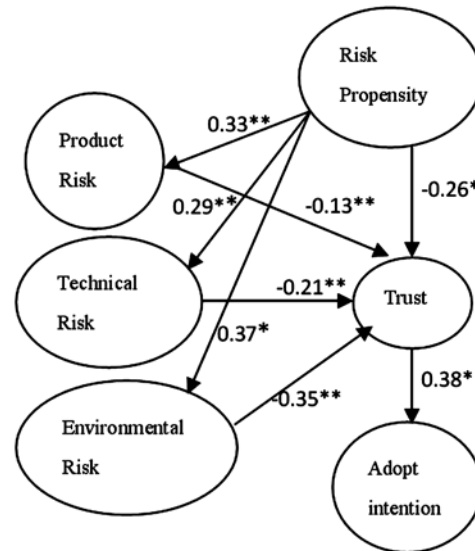
3.2. Data Analysis

1) Questionnaire Structure Testing. The SPSS statistical software was used for the questionnaire structure testing. By the KMO and Bartlett Sphericity Test of perceived risk, KMO equals 0.729, greater than 0.5, and the sig level of 0.000 illustrates the existence of common factor(s). With the Principal Component Analysis, 4 factors of perceived risk are extracted, with the cumulative contribution rates of 33.7%, 44.9%, 57.05% and 71.39%. The factor loadings and Cronbach's Alpha coefficients are shown in **Table 1**.

2) Hypothesis Testing. The AMOS software was used and the results are presented in **Figure 1**. As is shown below, the 8 hypotheses are justified. According to the path coefficient and significant level, the model fit index is acceptable.

Table 1. Construct reliability and convergent validity.

Indicator	Item	Factor loading	Cronbach's alpha
Product Risk	PR1	.849	.89
	PR2	.837	
	PR3	.852	
Technology Risk	TR1	.813	.83
	TR2	.811	
	TR3	.828	
	TR4	.806	
Environmental Risk	ER1	.737	.92
	ER2	.781	
Risk Propensity	RP1	.814	.87
	RP2	.822	
	RP3	.818	



$\chi^2/df = 2.04$, GFI = 0.92, AGFI = 0.83, CFI = 0.96, NFI = 0.94, RFI = 0.91, RMSEA = 0.05; * P<0.05; ** P<0.01

Figure 1. Results of structural modeling analysis.

4. Study Results and Implications

4.1. Study Results

Firstly, the study shows that risk lovers have a lower level of risk perception, while risk averters present a higher level. The personal risk propensity has a positive significant correlation with risk perception of tourism mobile e-commerce, and the adopting will of which is thus ultimately affected through the intermediate variable, the trust. Furthermore, Personal risk propensity is a subjective variable, whose influences on others, however, can not be ignored. For example, the increasing fear of environmental risk and product risk will definitely affect the level of trust towards travel suppliers, tourism online trading systems, mobile devices, communications and information technologies, etc. Besides, risk propensity has a direct impact on trust. Generally, consumers with strong risk propensity will undoubtedly have less trust.

Secondly, the perceived risk proves to be the antecedent of trust. The personal risk propensity, product risk, technical risk and environmental risk can respectively influence trust, and then by this influence, they will eventually affect the adopting will of tourism mobile e-commerce. For example, on tourism mobile webs or clients, if tourists find travel products described more comprehensively, and more clearly displayed. It will then mean a lower product risk, and will increase their confidence in the products provided by the suppliers, consequently followed by a stronger usage wish. On the contrary, if tourists consider the trading environment is at risk, they will be likely to distrust the using environment, and feel reluctant to use tourism mobile e-commerce. However, if tourists enjoy mobile devices with better

performance, and stable mobile communication network, they will reduce their perception of technical risks, and thus be more willing to use the tourism mobile e-commerce.

4.2. Implications

Enlightenment from the above empirical analysis can be summed up as follows.

1) Considering relevant characteristics of tourists' behaviors, Service suppliers in tourism mobile e-commerce should set up a convenient information acquisition mechanism. Restricted by the current immature mobile technology, suppliers should also reduce those items that can not be well provided. For example, the location map should be linked to more professional websites. Meanwhile, non-core contents are recommended to be simplified. As to mobile phone users, they have higher requirements for information browsing; many non-essential items can be cut off to enable them a better reading experience and a higher hit rate on more refined websites. Such unessential items like price promise, exhibition or events information in destinations, etc. can be got on related websites by computer through the broadband Internet.

2) In tourism mobile e-commerce, it is required the network facilitators provide a more stable network, and the least operating obstacles on service supplier's webs and the clients. If so, this will help to reduce the technical risk perceived by tourists, increase their trust towards related mobile technologies, and thereby to enhance their adopting will of tourism mobile e-commerce.

Compared with the traditional tourism e-commerce, mobile e-commerce has a more flexibility both in time and space, but still in a high-risk usage environment, so specific measures from two aspects, the system-building and technology, will reduce tourists' perception of environmental risk, and then promote the adoption of tourism mobile e-commerce.

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