

Vol:2, Issue: 5 pp:11-15

JEL Codes: O3, O33, O36

Lin, Shen, Hsieh, Liu (2021). "The Impact of Technology Acceptance Model of Users' Intention to Uses (Ctrip APP Case study)", Vol: 2 Issue: 5 pp: 11-15

Keywords: *Technology acceptance model, Users' Intention, User's Interface Design*

Article Type Research Article

**The Impact of Technology Acceptance Model of Users' Intention to Uses
(Ctrip APP Case study)**

Arrived Date
12.01.2021

Accepted Date
26.01.2021

Published Date
31.01.2021

Lin, Shen, Hsieh, Lu *

ABSTRACT

The two dimensions of perceived usefulness and perceived ease of use in the technology acceptance model theory are used as influencing factors to verify the impact on users' intentions. According to the characteristics of Ctrip APP, the two influencing factors of system interface design and perceived risk have been added, and the influence of these four influencing factors on user intention of Ctrip APP is discussed, and the attitude of use in the technology acceptance model is retained as the four basic variables and use Mediating variables of intent. Collect data in the form of questionnaires and use SPSS and AMOS to analyze the reliability and validity of the collected data, and construct structural equations to verify research hypotheses. Finally, this article draws the following conclusions: (1) Perceived ease of use, perceived usefulness, and system interface design are positively correlated with users' attitudes; (2) Perceived risks significantly negatively affect users' attitudes and intentions; (3) Perceptions Usefulness and perceived ease of use are positively correlated with users' intentions; (4) Usage attitudes positively affect users' usage intentions; (5) Usage attitudes play an intermediary role between the four major influencing factors and users' intentions.

INTRODUCTION

As one of the leading online travel agencies worldwide, Ctrip launched its Ctrip app with the increasing usage of mobile internet. By March 2019, more than 350 million Android smartphone users have downloaded the app on their devices. Compared to the number of downloads of other travel apps, Ctrip has a huge advantage in terms of the number of users. However, in recent years, as the market share of the Ctrip app has been gradually stable, its advantage has been less obvious. In addition, with the iterative and rapid development of the mobile internet, traffic is no longer a constraint for users to choose apps. Users have more and more choices, which brings new challenges to the Ctrip app. From the perspective of mobile operators of travel apps, one of the main concerns is how to optimize the performance of the apps and influence users' behavioral intentions to use with the aim of serving users in a smarter form.

Based on the technology acceptance model, existing studies mostly focused on the application of the model on mobile devices. In contrast, few studies have investigated the impacts of specific mobile travel apps on users' behavioral intentions to use under the technology acceptance model. By analyzing the research results on the technology acceptance model and app users' behavior characteristics, and considering the development trend of travel apps, this paper builds a model for influencing travel app users' behavioral intentions to use. By using the technology acceptance model to study user behaviors,



* Chih-Te Lin is an Associate Professor of College of Tourism and Historical Culture, Zhaoqing University, China, thomsonhua@qq.com

Corresponding author: Sheng-Lun Shen is an Associate Professor of Business School, City College of Dongguan University of Technology, Guangdong, China, shensl@ccdgut.edu.cn

Tsuifang Hsieh is an Associate Professor of Department of Culinary Arts, Nanya Institute of Technology, thsieh@nanya.edu.tw

Xiao-Jun Lu is a student of College of Tourism and Historical Culture, Zhaoqing University, China, thomsonhua@qq.com

this model is conducive to understanding users' behavioral and psychological changes so as to provide users with products and services that meet their needs and improve user experience. Since the key influencing factors are identified, the travel agencies can adjust and guide the operation in a targeted way, which will further bring some inspiration for the overall development of the travel industry in terms of management. Therefore, this paper builds a structural equation modeling of user behaviors for specific apps and provides practical insights into the overall development of the travel industry by understanding the underlying interaction mechanism between influencing factors. All in all, the main research objectives of this paper are:

- (1) To study the reasons for the behavioral and psychological changes of users in using the app, and to explore the factors that influence users' behavioral intentions to use.
- (2) To construct a model of the impacts of travel apps on users' behavioral intentions to use.
- (3) To provide some suggestions for the Ctrip app operator to optimize its app and improve users' willingness to use.

LITERATURE

Technology Acceptance Model

Based on the theory of rational behavior, Davis (1989) proposed the Technology Acceptance Model (TAM). The model attempts to explain the extent to which individuals accept or use new information technologies by measuring variables such as consumers' perceived usefulness, perceived ease of use, attitudes toward using, and behavioral intentions to use. Based on the original model, Venkatesh and Davis (2000) proposed an extended TAM (TAM2) that integrates social influence and cognitive instrumental processes. Based on the empirical analysis of eight models, including the TAM, the Theory of Planned Behavior (TPB), and the Diffusion of Innovation (DOI) Theory, Venkatesh and Davis (2003) constructed the integrated TAM. Venkatesh and Bala (2008) then delineated the factors that influenced perceived ease of use in detail and proposed TAM 3, which suggested that there were two factors that affected perceived ease of use, that is, anchor factors and adjustment factors. Also, the adjustment weight was inversely proportional to the anchor.

Perceived Risk Theory

The theory of perceived risk was introduced by Bauer (1960), who believed that users might feel uncertainty about the outcome of the purchase made by them. Therefore, whether or not the desirable outcome can be achieved affects the user's purchase decision. Later, Cunningham (1967) conducted an in-depth study of perceived risk and provided a more detailed definition of perceived risk, suggesting that the perceived risk would emerge as the user had a specific desired outcome in purchase decision-making. The user would feel satisfied if the desired outcome was achieved after the purchase, otherwise, the user would suffer a loss so that the perceived risk emerged. Jacoby and Kaplan (1972) divided the perceived risk into five dimensions: financial risk, performance risk, physical risk, psychological risk, and social risk.

Interface Design

The concept of interface design was proposed in Western countries. Foreign researches on related user interface design have summarized the basic theoretical knowledge and had relevant practical significance for reference. Anna Lazarova McNab (2009) elucidated the importance of interface design to information processing and its role in the process of information processing. Ioannis Xenakis emphasized the importance of improving aesthetic design through user research, highlighting the importance of the visibility of product features. In short, interface design is of great significance in application design. The user interface is the main point at which human users interact with their devices, which can not only ensure a good user experience but also improve the user application efficiency, further providing strong support for the rapid development of travel apps. Whether or not a good interface design affects users' behavioral intentions to use is one of the research objectives of this study.

Research Method

Based on the TAM and research results worldwide, the research framework of this paper is built. The TAM was used to solve the problem of whether employees in organizations would adopt and use new technologies or not, while this paper studies the users who use apps spontaneously for personal purposes and the perceived risks incurred in using are borne by themselves. This study will explore the factors that influence users' behavioral intentions to use the app from the perspective of individual app users. Three traditional TAM variables, which are perceived ease of use, perceived usefulness, and attitude toward using, are included. The main external variables that influence users' behavioral intentions to use the Ctrip app, which are interface design and perceived risk, are selected. The model of this study is shown in Figure 1.

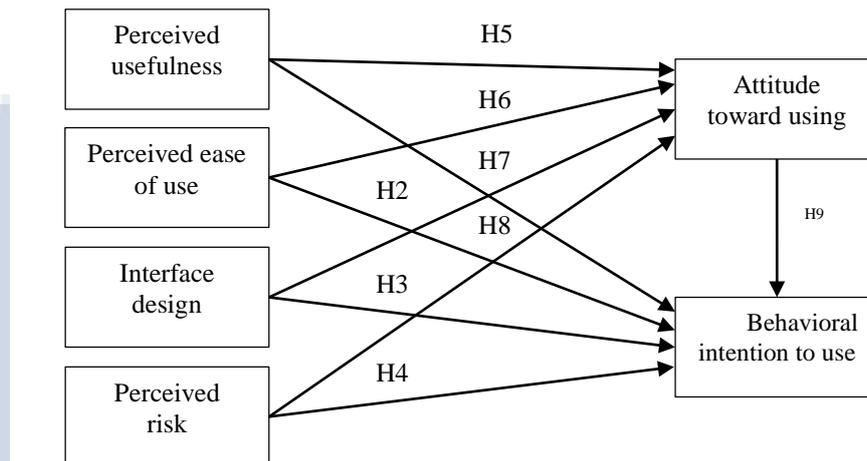


Figure 1. Research Model

Based on the TAM and domestic and foreign researches, and taking the characteristics of travel apps into consideration, this paper selected six variables, which are interface design, perceived risk, perceived usefulness, perceived ease of use, users' attitude toward using, and users' behavioral intentions to use. The former two variables are the external factors influencing users' use of the Ctrip app. The next two variables are key variables in the traditional model. The next to last variable is a mediator and the last one is a dependent variable. In the last part, this paper measured these six variables. In this study, a Likert's five-point scale questionnaire was used, where respondents checked the options that matched their internal feelings based on the questionnaire's items, and the options varied from strongly disagree to strongly agree.

Data Analysis

In this study, questionnaires were distributed through the Wenjuanxing platform. A total of 257 questionnaires was collected. After being screened on whether or not users used the Ctrip app, 28 invalid questionnaires and 229 valid questionnaires were collected, with an effective rate of 90%. The gender ratio of respondents was nearly equal. Female respondents were slightly more than male respondents, but the overall difference was not significant. In terms of age, respondents were mainly concentrated in the age group of 20-29, accounting for 76.4% of all age groups, followed by the age group of 30-39. The majority of respondents were college and bachelor's degree holders, and their education level also matched the characteristics of this age group. When it comes to occupations, most of the respondents were students, accounting for 43% of the total, followed by 34% of public institution employees. By analyzing the average monthly disposable income, the income of most respondents was less than 1,500 yuan or between 1500 yuan and 3,000 yuan. The sample structure was consistent with the occupational structure. In this study, reliability analysis was performed for each dimension of the questionnaire and each item of each dimension. The Cronbach's α values for each dimension were 0.716 for perceived ease of use, 0.709 for interface design, 0.770 for perceived usefulness, 0.855 for perceived risk, 0.754 for attitude toward using, and 0.782 for behavioral intention to use. It could be seen that the questionnaire in this study was reliable and could be used as the research data.

Based on the reliability and validity of the questionnaire data, it can be concluded that each dimension of the questionnaire is appropriate and acceptable in terms of these two levels. Therefore, AMOS25.0 will be used

to validate the structural equation modeling in the subsequent creation of a path diagram. Four potential variables, that is, perceived usefulness, perceived ease of use, perceived risk, and interface design, are used. Attitude toward using is taken as the mediator, and the scores of the items of each dimension are used as the observable variables. In terms of absolute fit indices, the results of the data analysis in this study were as follows: $\chi^2/d.f=3.143$, which indicates that the overall model is acceptable; GFI=0.790, which indicates that the model is less acceptable; AGFI=0.730, which also indicates that the model is less acceptable; RMSEA=0.097, which was between 0.08 and 0.10, indicating a moderate fit.

Among relative fit indices, according to the evaluation criteria in Figure 8, CFI=0.850, which is between 0 and 1 and close to 0.9, indicating that the model tends to be a good fit; NFI=0.796, indicating a good fit; TLI=0.734, also indicating a good fit. In summary, although the fit indices of this model do not reach the ideal level, they tend to be acceptable or moderate. This means that the overall fit of the model framework in this study tends to be acceptable. In order to verify the research hypothesis, the path coefficients of the overall structural equation modeling and the research hypothesis are organized as shown in the following table.

Table 1. Path Coefficient Significance and Hypothesis Testing

Variable Relationship	Path Coefficient	P	Corresponding Hypothesis	Testing Result
Perceived ease of use → attitude toward using	0.140	0.035	H1	True
Interface design → attitude toward using	0.556	***	H2	True
Perceived usefulness → attitude toward using	0.667	***	H3	True
Perceived risk → attitude toward using	-0.035	***	H4	True
Perceived ease of use → behavioral intention to use	0.205	0.009	H5	True
Interface design → behavioral intention to use	0.198	0.938	H6	False
Perceived usefulness → behavioral intention to use	0.161	0.004	H7	True
Perceived risk → behavioral intention to use	-0.054	0.036	H8	True
attitude toward using → behavioral intention to use	0.709	0.006	H9	True

***indicates $p < 0.001$

Conclusions and Recommendations

When users perceive risks in using the Ctrip app, user satisfaction will decrease, which will further reduce users' behavioral intentions to use. The possible reason is that the third-party online transaction is used in the Ctrip app. Besides, users are more concerned about the risks that the app might bring to their property and privacy information, which directly impacts users' behavioral intentions to use.

The perceived usefulness means that the Ctrip app provides convenience for users during travel. However, the perceived ease of use has fewer impacts on users' behavioral intentions to use the app, which may result from users' improved knowledge and abilities to operate applications. Owing to it, users have a lower requirement for the ease of use of the app. The perceived risk of Ctrip's users negatively affects users' behavioral intentions to use the app. In other words, users have concerns about privacy and payment security in using the Ctrip app.

When users feel satisfied with this app in use, users' attitudes toward using the app will change, which will directly contribute to users' behavioral intentions to use it. The attitude toward using plays a mediating role between the four major influencing factors and users' behavioral intentions to use. After the attitude toward using is added as a mediator, the perceived usefulness and perceived ease of use still positively influence users' behavioral intentions to use, while the perceived risk still negatively influence users' behavioral intentions to use. This confirms the mediating role of users' attitudes towards using. Meanwhile, the attitude towards using still influences users' behavioral intentions to use in a significant and positive manner.

REFERENCES

- Anna Lazarova McNab. Design interface to speed up information processing: research on information clues that color and layout serve customers.2009.
- Bauer, R. A. Consumer Behavior as Risk Taking. *Dynamic Marketing for a Changing World, Proceedings of the 43rd Conference of the American Marketing Association*, 1960, 17(5):389-398.
- Cunningham, S. M. *Perceived Risk and Brand Loyalty in Risk Taking and Information Handling in Consumer Behavior*. Donald F. Cox, Cambridge, MA: Harvard University Press, 1967.
- Davis F D. Perceived usefulness, perceived ease of use and user acceptance of information technology. *MIS quarterly*, 1989, 30(4):319-340.
- Ioannis Xenakis. The relationship between Aesthetics and functional visibility in interaction Design.
- Jacoby J & Kaplan B. The Components of Perceived Risk and Association for Consumer Research, 1972. p. 382-386.
- Venkatesh V, Bala H. Technology acceptance model 3 and a research agenda on interventions, *Decision sciences*, 2008, 39(2): 273-315.
- Venkatesh V, Morris M G, Davis G B, et al. User acceptance of information technology toward a unified view. *MIS quarterly*, 2003, 17(1): 425-478.
- Venkatesh V. Determinants of perceived ease of use: integrating control, intrinsic motivation and emotion into the technology acceptance model. *Information systems research*, 2000, 11(4):342-365.