

# Study on the Continued Use Intention of Comprehensive Booking Tourist APP—The Moderating Effect of the Big Five Personality Traits

Yang Li<sup>1,a,\*</sup>, Ke Wangyu<sup>1</sup>, Li Panpan<sup>2</sup>

<sup>1</sup>School of Tourism, Xinjiang University, Urumqi, China

<sup>2</sup>School of Economics and Management, Guangxi Normal University, Guilin, China

<sup>a</sup>stellake327@163.com

\*Corresponding author

**Abstract:** A theoretical model based on the UTAUT 2 model was developed to explore the influencing factors of sustained use intention of a comprehensive booking travel app and to explore the moderating effect of the Big Five personality. The results show that user satisfaction is influenced by need satisfaction, effort expectation and perceived quality, and continued use intention is influenced by the other four variables except perceived quality; satisfaction has a mediating role; all four personality traits have a moderating effect except openness. This study provides theoretical references for the personalized development and design of comprehensive booking travel APPs, promoting users' continuous use and tourism marketing.

**Keywords:** integrated booking travel app; big five personality; continuous use intention; UTAUT2 model

## 1. Introduction

With the continuous development of information technology, tourism APP has been widely used, and the focus of tourists' demand has changed with the development of time to the pursuit of personalization, and personalized demand is closely related to the unique psychology of tourists, therefore, if tourism APP can provide tourism products and services that fit the unique psychological needs of users, it will be greatly beneficial to its own development and marketing and publicity.

"Personality traits" can influence people's outward behavior and perception to a certain extent, and can better explain travelers' behavioral intentions<sup>[1]</sup>. In the process of using travel APP, users with different personality traits have different perceptions of travel APP, which in turn affects their willingness to continue using it.

This study attempts to use the extended integrated technology acceptance and use theory (UTAUT 2) as the theoretical basis and introduce variables consistent with the study in order to explore the influence of variables in the model on the intention to continuously use tourism app and the moderating effect of the Big Five personality to provide a reference basis for tourism app development and design and tourism destination marketing.

## 2. Study design and data sources

### 2.1. Research Hypothesis

In the satisfaction index model, consumer perceived quality includes the quality of products and services. Luan Bia<sup>[2]</sup>'s study, the satisfaction factors that influence the use of mobile audiobook platforms include perceived quality. In addition, a large number of empirical studies have been conducted to demonstrate the relationship between satisfaction and intention to continue using. Accordingly, the hypothesis is proposed:

H1: Perceived quality positively affects user satisfaction

H2: User satisfaction positively influences intention to continue using

According to the use satisfaction theory, people will approach the use of media when they have a need, and their willingness to continue using the media is reinforced when their needs are satisfied. When a series of users' needs are satisfied when they use the travel app, then they will feel satisfied<sup>[3]</sup> or directly generate the willingness to continue to use<sup>[4]</sup> The hypothesis is that Accordingly, it is hypothesized that

H3: Needs satisfaction positively affects user satisfaction

H4: Demand satisfaction positively influences the willingness to continue using

In the UTAUT2 model, the effort expectation reflects the individual's perception of the ease of operation of the system when using it, and the easier the travel app is to operate, the stronger the user's satisfaction and willingness to continue using it. Accordingly, the hypothesis is proposed:

H5: Efforts to expect positive impact on user satisfaction

H6: Effort expectation positively influences intention to continue using

In some studies, people's willingness to use or behavior is explained by "user habits", where the more frequently users use certain information systems or mobile devices, the more spontaneous their behavior becomes, and therefore user habits promote the willingness to keep using. In addition, the "incentive" in the UTAUT 2 model is defined as "point incentive" in this paper, which refers to the incentive effect of point accumulation in travel app on users' intention to keep using. Some studies have verified the positive effect of incentives on users' intention to continue using<sup>[5]</sup> The study verified the positive effect of incentives on users' intention to keep using. Accordingly, it is hypothesized that:

H7: User habits positively influence the willingness to continue using

H8: Points incentive positively influences the willingness to continue using

Satisfaction has a mediating effect in many tourism studies, where satisfaction positively stimulates subsequent behavioral intentions or perceptions after reaching a certain level, and the mediating effect of travel app satisfaction between different variables and continued use intentions has been verified<sup>[3, 6]</sup>. Accordingly, the hypothesis is proposed:

H9: Satisfaction has a mediating role

This study explores personality traits on various aspects of travel app perceptions and continued willingness to use because the stable personality traits of media users can regulate their usage motivations and behaviors, and its more helpful to deeply understand the usage motivations or behaviors of different types of personality users. This study will examine the role of personality traits in this study in the context of the Big Five personality, based on which hypotheses are proposed and theoretical models are constructed:

H10: The Big Five personality plays a moderating role in the process of generating the willingness to use the travel app consistently

Assume that the summary is shown in Figure 1

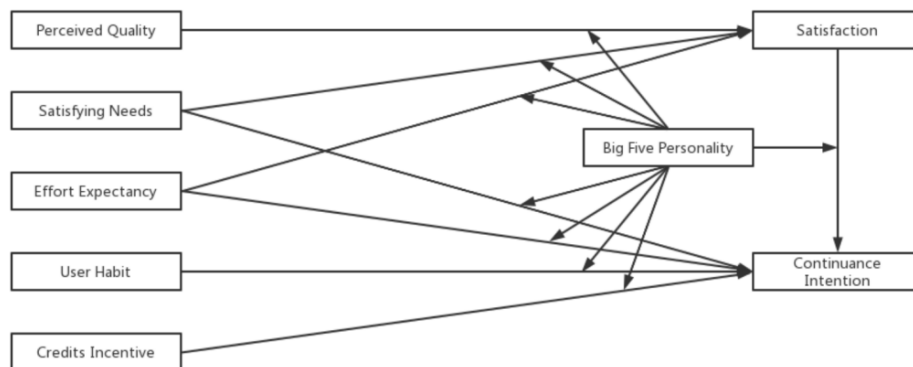


Figure 1: Theoretical model

## 2.2. Data sources and tests

This study used a questionnaire to collect the required data. The first part of the questionnaire is basic information, in which the first question is used as a screening question to screen out those who have "used a comprehensive booking travel app"; the second part is a survey on the intention to continue using the app; the third part is a Big 5 personality test.[7] The third part is the Big 5 personality test. The scales in this study were designed based on the established scales and the research content<sup>[8-11]</sup>. The reliability and validity of the questionnaires were tested using statistical software, and the results showed that the reliability and validity of the scales were within the acceptable range; the model fit was tested and the results showed that the model  $\chi^2/df=2.294$ , RMSEA=0.061, Goodness of Fit Index GFI=0.871, RMR=0.025, CFI=0.961, NFI= 0.933, IFI=0.961; all indices meet the criteria, indicating that the overall goodness of fit of the theoretical model in this paper.

In this study, 353 valid questionnaires were obtained through online distribution. Among the sample, 46.7% are male and 53.3% are female, which is a balanced proportion; 73.7% of the users are under 30 years old, which becomes the main consumer of the online travel market; from the perspective of occupation, the total proportion of students and civil servants or institutional staff is 57.2%, which accounts for more than half of the sample size; in terms of education level, 72.5% of the total are bachelor degree or above, and the overall level of users' education is The overall level of education of users is higher.

## 3. Results and Analysis

### 3.1. Relationship between each variable and satisfaction

First, the data analysis revealed that users' perception of the quality of travel APP significantly affects user satisfaction with a path coefficient of 0.237 ( $p < 0.001$ ), and a comparative analysis of the mean values of latent variables showed that: travel APP users most value the availability of quality travel information (mean 4.01), followed by access to quality word-of-mouth recommendations (mean 3.97), travel products and services (mean value 3.93) and customer service assistance (mean value 3.91). This shows how much users value the quality of each aspect of the travel app, and provides a reference for travel app optimization and destination marketing.

The path coefficient of user need satisfaction and user satisfaction is 0.247, and the two variables are positively correlated, i.e., the higher the level of need satisfaction, the higher the satisfaction. Similarly, observing the mean values of latent variables shows that: user emotional category (aesthetic) needs have the greatest impact on satisfaction (mean value 3.92); cognitive category needs (information and product integration) do not have a significant difference on user satisfaction, and it can be said that users attach almost the same importance to tourism information (mean value 3.86) and tourism products and services (mean value 3.87); and social integration category needs (social interaction) has the lowest degree of influence on satisfaction (mean 3.69), probably because users' access to social fun is a secondary purpose when using the travel app.

Correspondingly, the less effort users put into learning to use the travel app and the easier it is to use, the higher the satisfaction level will be. Therefore, hypotheses H1, H2, and H5 hold.

### 3.2. Relationship between each variable and continued use intention

Table 1: Path coefficients

path	hypothesis	Non-standardized path coefficient	P	result
Satisfaction←perceived quality	H1	0.237	***	hold
Continuous use intention←Satisfaction	H2	0.489	***	hold
Satisfaction←Demand satisfaction	H3	0.247	***	hold
Continuance intention←Demand satisfaction	H4	0.095	0.033	hold
Satisfaction←Effort Expectation	H5	0.417	***	hold
Continuance intention←effort expectation	H6	0.179	***	hold
Continuance willingness←User habits	H7	0.226	***	hold
Continued use intention←points incentive	H8	0.077	0.008	hold

Many studies have demonstrated the relationship between satisfaction and willingness to

continuously use, and the path coefficient of this hypothesis in this study is 0.489, indicating that users' willingness to continuously use a comprehensive booking travel app will arise after they generate satisfaction, and hypothesis H2 holds. Both demand satisfaction and effort expectation positively affect users' willingness to continue to use, and hypothesis H4 and H6 hold. User habits refer to users' habits and familiarity with a comprehensive booking travel APP, and the path coefficient is 0.236, which indicates that user habits can strengthen the willingness to use continuously, and hypothesis H7 holds. The path coefficient of H8 is 0.077, which indicates that the incentive of points positively affects the intention of continuous use. The path coefficients are summarized in Table 1.

### **3.3. Satisfaction intermediary test**

The intermediate effect was determined using Bootstrap's trust interval in AMOS software. In this study, the indirect effect of satisfaction exists and  $p < 0.05$  between perceived quality and willingness to continue using, the upper and lower bounds of the direct effect contain 0. The indirect effect of satisfaction exists and is significant between need satisfaction and willingness to continue using, and effort expectation and willingness to continue using, the interval of the direct effect does not contain 0. Therefore, there is a mediating effect of satisfaction and hypothesis H9 holds.

### **3.4. Personality traits moderating effect test**

This study used Model 1 and Model 59 of Process in SPSS 26.0 to test the moderating effect of Big Five personality.

In the perceived quality→satisfaction→intention to continue using (path 1), only neuroticism personality trait plays a negative moderating role in the relationship between perceived quality and satisfaction. Users with high levels of neuroticism perceived the overall quality of the travel app as low compared to those with low levels of neuroticism.

In demand satisfaction→satisfaction→willingness to continue using (path 2), neuroticism plays a negative moderating role in the first half of the path, and under the same conditions, individuals with high neuroticism are less satisfied than users with low neuroticism because they demand more and higher things. Meanwhile, the interaction term between demand satisfaction and extroversion negatively predicts continued use intention, while the interaction term between satisfaction and extroversion positively predicts users' continued use intention.

In the path of effort expectancy→satisfaction→willingness to continue using (path 3), three personality traits, namely, dutifulness, agreeableness, and neuroticism, have moderating effects. Dutifulness positively moderates the first and second half of the pathway, and negatively moderates the relationship between effort expectancy and intention to continue using. The mediating role of satisfaction plays an important role in these moderating effects. Neuroticism negatively moderates the relationship between effort expectancy and persistence, with low-level users of this personality being more adaptive and more likely to find the travel app easy to use, thus reinforcing persistence; this trait also positively moderates the second half of path 3.

The study shows that there is no moderating effect of "Big 5 personality" on the relationship between user habits and point incentives and continued usage intention, while there is no moderating effect of open personality in all the paths of this study, probably because the concept of "openness" did not originate in China and was later described as "openness" in localized studies. This may be because the concept of "openness" was not created in China and was later described as "openness characteristics" in localized studies<sup>[12]</sup>. Perhaps because of the openness of the respondents. Perhaps because the openness of the respondents was not fully reflected, the moderating effect was not observed.

## **4. Suggestions and Reflections**

First, tourism APP development and design should be diversified to expand innovative ideas to enhance competitiveness. Tourism activity itself will involve many elements, traveler needs present diversity, personalized and detailed characteristics, therefore, tourism APP development and design should be involved in understanding multiple fields of knowledge, expand new ideas. For example, through the development of cell phone APP development and design exchange meeting for multi-industry exchange and learning, learning from the successful software design and development

experience and ideas, and in turn find a "new way" for tourism APP development and design, improve the current design ideas to further enhance market competitiveness.

Second, insight into the new market demand, overall enhance user satisfaction. When updating and optimizing travel APP, it should timely insight into market demand changes, regularly conduct user research, supplement and improve products and services that meet new user needs according to user feedback, pay attention to quality, improve operational friendliness, optimize the rules of points rebate, enhance the attractiveness of points to users, enhance user satisfaction as a whole, and promote the generation of users' continuous willingness to use.

Third, the application of modern information technology, identify the user personality, to achieve accurate marketing. In the development and design of tourism APP, first of all, there are differences in user personality traits, different users have different prominent personality traits, and users belonging to the same personality traits have different levels, and these differences will affect their cognitive differences of comprehensive booking type tourism APP, and then further affect user satisfaction and their continued use willingness.

When carrying out software optimization and enhancement, big data calculation and user survey can be used to identify user personalities. Then, according to the identification results for categorization and analysis, including travel information query keywords, product selection bias, travel frequency, etc., and then summarize the various types of personality user demand preferences, perception, etc., targeted optimization and enhancement of APP. Extroverted users prefer adventure, socialization, etc., so the APP can focus on pushing the corresponding products and strengthen the social interaction function of the travel APP; dutiful individuals act in an organized manner, so they can reasonably recommend the destination accommodation, entertainment and other products on the page where the booking and settlement are completed; users with pleasant traits are more inclusive, users with neurotic traits are more sensitive to negative emotions, and users with stronger openness prefer to try According to these characteristics, targeted design and improvement can be made to improve service quality and tourism marketing effect.

Fourth, tourism destinations and tourism APP developers integrate edge computing technology with tourism APPs when improving smart tourism. Edge computing technology has the advantages of processing data with only a single device, improving efficiency and reliability, and working normally without the Internet. If this technology is applied to the design of tourism APP development, it can reduce the risk of using security, improve the timeliness of information retrieval and the accuracy of big data push, and also ensure that users can work normally without data traffic or in areas without signal It can also make use of the role of this technology wisdom monitoring health status, increase the function of binding with the user's health bracelet, real-time detection of user health status, and timely feedback to the medical department for timely rescue when abnormalities occur.

Fifth, it should be noted that the Law of the People's Republic of China on the Protection of Personal Information was adopted on August 20, 2021, emphasizing the need to obtain consent from individuals for handling sensitive personal information, etc., and prohibiting APPs from refusing services when users do not provide personal information, etc. Travel APP should strictly comply with the legal requirements in the process of using personal information for the purpose of providing better services to users, and carry out relevant development and design and tourism marketing with the consent and knowledge of users.

## 5. Conclusions

This study explores the effects of perceived quality, need satisfaction, effort expectation, user habits and point incentive mechanism on the willingness to consistently use travel APPs, and the results show that all the above five variables have positive effects on the willingness to consistently use, while the Big Five personalities have different moderating effects in the theoretical model. Therefore, it can be concluded that personality traits play a role in the process of generating willingness to continuously use tourism APP, which reveals that the importance of user personality should not be ignored in the development and design of tourism APP, and the role of traveler personality traits can also be explored as a variable in other tourism studies in the future.

## Acknowledgements

Research on the Influence Mechanism of Xinjiang Tourism Destination Symbols in Image Communication" (21BGL108), a project of the Social Science Foundation of Xinjiang Autonomous Region; Xinjiang Tourism Geography" (LY2020-02), a project of the Key Laboratory of Sustainable Development of Xinjiang Historical and Cultural Tourism.

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