

pISSN: 1906 - 6406 The Scholar: Human Sciences
eISSN: 2586 - 9388 The Scholar: Human Sciences
<http://www.assumptionjournal.au.edu/index.php/Scholar>

Tourism Mobile Applets: Factors Affecting Tourists' Behavioral Intention and Use Behavior in Shanghai, China

Zibiao Cheng*

Received: September 17, 2023. Revised: October 30, 2023. Accepted: November 8, 2023.

Abstract

Purpose: This study aimed to investigate the factors influencing the behavioral intention and use behavior of Shanghai tourists towards Tourism Mobile Applets. The research framework focused on exploring the impact of trust, facilitating conditions, social influence, perceived ease of use, perceived usefulness, use behavior, and behavioral intention. **Research design, data, and methodology:** A quantitative research approach was employed, involving a sample of 500 tourists in the region. Sampling techniques, including judgment sampling and quota sampling, were utilized. Prior to data collection, the index of item-objective congruence (IOC) was assessed by three experts. Additionally, the Cronbach's alpha coefficient values were calculated based on 30 participants. Statistical analyses were conducted using Confirmatory Factor Analysis (CFA) and Structural Equation Model. **Results:** The study revealed that the most significant factors influencing the behavioral intention to use tourism mobile applets were facilitating conditions and trust. Moreover, social influence, perceived ease of use, and perceived usefulness were found to be important factors affecting the behavioral intention to use tourism mobile applets. Furthermore, behavioral intention emerged as a crucial factor impacting the use behavior of tourism mobile applets. **Conclusions:** It is recommended that enterprises prioritize improving the facilitating conditions, trust, social influence, perceived ease of use, and usefulness of tourism mobile applets.

Keywords : Social Influence, Behavioral Intention, Use Behavior, Tourism Mobile App, Shanghai

JEL Classification Code: E44, F31, F37, G15

1. Introduction

With the development of the national economy and the progress of the Internet, smartphone applets continue to grow stronger, and tourism mobile applets had emerged as a new and booming market. Mobile tourism applets as the future direction of tourism marketing had begun to rise sharply (Pan, 2020). The COVID-19 pandemic significantly affected the progress of international and domestic tourism. But as an important part of tourism, mobile travel applets were becoming increasingly popular. How to maintain a high level of customer intention to use and satisfaction with the tourism applets to improve user stickiness and corporate profits has

gradually become a topic of common concern among the business community and scholars.

Velazquez et al. (2018) pointed out that behavioral intention had a significant impact on usage behavior. Urvashi et al. (2016) analyzed the impact of perceived ease of use and perceived usefulness on Indian customer satisfaction. Namahoot and Laohavichien (2015) analyzed the impact of trust on willingness to use online banking.

In summary, the above research provides a certain basis for analyzing the user intention and usage behavior of mobile tourism maps. However, the factors that affect user intention and behavior are diverse and require comprehensive analysis. Shanghai, referred to as Hu, also known as Shen, is a

*Zibiao Cheng, School of Financial Management, Sichuan Institute of Arts and Science, China. Email: zbcheng@foxmail.com

© Copyright: The Author(s)

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/4.0/>) which permits unrestricted noncommercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

municipality directly under the central government of the People's Republic of China, a national central city, a megacity, a core city of Shanghai metropolitan area, a center of China's international economic, financial, trade, shipping, scientific and technological innovation approved by The State Council of the People's Republic of China, a famous historical and cultural city in China, and a first-tier city in the world. Shanghai is an important component of China's economic development and plays an important role in leading the economic development of the China. It is of great significance to systematically study the usage intention and behavior of mobile mini programs in Shanghai tourism.

2. Literature Review

2.1 Perceived Usefulness

Septiani et al. (2017) believed that perceived usefulness was used to evaluate the extrinsic features of m-commerce and to help users complete task-related goals, such as emphasizing efficacy and efficiency. Mahmood et al. (2000) defined perceived usefulness as a course based on the extent to which IS supports users' decisions. Palvia (1996) proved that perceived usefulness was the strongest motivation for system acceptance. Previous research demonstrated that high perceived usefulness levels typically generate effective user achievement relationships (Ong & Lai, 2006). In several previous studies, the strength of perceived usefulness was considered the dominant factor in identifying users' willingness to accept the target system (Guritno & Siringoringo, 2013). It was perceived usefulness that was a vital factor impacting the use of information systems (Lee & Lehto, 2013). Accordingly, the following hypotheses are obtained:

H1: Perceived usefulness has a significant effect on behavioral intention.

2.2 Perceived Ease of Use

Chen and Wu (2017) defined perceived ease of use as the degree to which consumers found it easy to carry out M-payment transactions. Zahra et al. (2017) defined perceived ease of use as the availability and suitability of a system. Chong (2013) defined perceived ease of use as the degree to which users believed in using mobile commerce, which needed minimal effort to handle. Mahmood et al. (2000) believed that if users regarded the system as easy to use, they would need less effort and more time to work on other activities, which might improve overall job performance. Agarwal and Prasad (1999) argued that ease of use significantly affected intent. Based on the above discussion, hypotheses are proposed:

H2: Perceived ease of use has a significant effect on behavioral intention.

2.3 Trust

Interpersonal trust was defined as an individual's widespread expectation of the reliability of oral commitments and written statements in interpersonal communication, and organizational trust was defined as a kind of emotion that people have confidence and support for the organization (Morgan & Hunt, 1994). Rahimnia and Hassanzadeh (2013) regarded trust as a choice of cooperation in the competition. Trust was the determining factor in the progress of the sharing economy (Ert et al., 2016). A lack of peer trust was seen as an obstacle to collaborative consumption (Mohlmann, 2015). Website content dimensions and online trust will affect the effectiveness of online marketing (Rahimnia & Hassanzadeh, 2013). Thereby, H3 is set:

H3: Trust has a significant effect on behavioral intention.

2.4 Social Influence

Dwivedi et al. (2016) explained social influence as the extent to which an individual perceives the beliefs of others. Tarhini et al. (2015) explained social influence as the influence of the surrounding social environment on a customer's intention to use the relevant. Islam et al. (2018) argued that social influence relied on whether people's goals were interdependent. Zhou et al. (2015) believed social influence influenced the behavioral intention to use m-Health services. Gifford and Nilsson (2014) pointed out that social influence might also make consumers regain their desire to buy. Hence, H4 is set:

H4: Social influence has a significant effect on behavioral intention.

2.5 Facilitating Conditions

Facilitation conditions were defined as the extent to which a person believed that the use of AR was supported by the organizational and technical infrastructure (Chen & Chan, 2014). Mahardika et al. (2019) believed that facilitating conditions used to be defined as whether the user had control over the available resources. Facilitating conditions refer to the ease with which consumers access the necessary resources to facilitate the use of technology (Venkatesh et al., 2003). Sun et al. (2013) believed that convenience facilitating conditions were one of the core determinants of users' willingness to adopt mHealth services. Some previous studies had also found that convenience was positively correlated with behavioral intention (Teo, 2009). Therefore, hypotheses are obtained:

H5: Facilitating conditions have a significant effect on behavioral intention.

2.6 Behavioral Intention

Behavioral intention was widely considered the precursor to true technological behavior (Awang et al., 2020). Usefulness increases their confidence in their mobile system usage behavior (Amin et al., 2014). User behavior is the set of actions and patterns that users demonstrate when interacting with your product (Hooda et al., 2022). BI had a very important impact on the use of new facilities (Ajzen, 1991). The UTAUT model was often used to explain usage behavior (Kaplan & Gurbuz, 2021). The use of mobile applets has to do with how users want to be perceived in their social circles (Zolkepli, 2016). Thus, a significant relationship between behavioral intention and use behavior is found:

H6: Behavioral intention has a significant effect on use behavior.

2.7 Use Behavior

Behavioral intention was widely considered the precursor to true technological behavior (Awang et al., 2020). Usefulness increases their confidence in their mobile system usage behavior (Amin et al., 2014). User behavior is the set of actions and patterns that users demonstrate when interacting with your product (Hooda et al., 2022). BI had a very important impact on the use of new facilities (Ajzen, 1991). The UTAUT model was often used to explain usage behavior (Kaplan & Gurbuz, 2021). The use of mobile applets has to do with how users want to be perceived in their social circles (Zolkepli, 2016).

3. Research Methods and Materials

3.1 Research Framework

In this study, the researcher developed an empirical framework for examining the behavioral use intention of individuals in the Shanghai area towards mobile tourism applets. The core theories utilized in this study were the Technology Acceptance Model (TAM), the Unified Theory of Acceptance and Use of Technology (UTAUT), and the Decomposed Theory of Planned Behavior Model (DTPB). Additionally, four representative articles in the field were selected for reference.

According to Neuman et al. (1992), a conceptual framework is a tool used by both media and individuals to convey, interpret, and evaluate information. Figure 1

illustrates the conceptual framework employed in this study. The framework consisted of independent variables and dependent variables. The independent variables included facilitating conditions (FC), trust (TR), social influence (SI), perceived ease of use (PEOU), and perceived usefulness (PU). The dependent variables were behavioral intention (BI) and use behavior (UB).

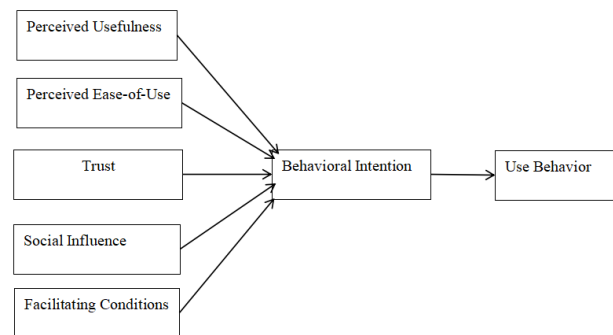


Figure 1: Conceptual Framework

H1: Perceived usefulness has a significant effect on behavioral intention.

H2: Perceived ease of use has a significant effect on behavioral intention.

H3: Trust has a significant effect on behavioral intention.

H4: Social influence has a significant effect on behavioral intention.

H5: Facilitating conditions have a significant effect on behavioral intention.

H6: Behavioral intention has a significant effect on use behavior.

3.2 Research Methodology

In this study, researchers used quantitative research and nonprobability sampling methods to determine the wide range and limitations of using tourism mini-programs in Shanghai, China, especially the top three users of tourism mobile mini-programs. The questionnaire consists of three main parts: screening questions, demographic information, and factors that affect tourist behavior intentions and mobile app usage behavior. Firstly, screening questions help ensure that only capable respondents can fill out the questionnaire, as evidenced by Visram et al. (2018). Secondly, according to Miles and Huberman (1994), population information will make it easier to construct successful studies considering various target populations. Finally, a five-point Likert scale was used to measure respondents' attitudes toward each variable (Lavrakas, 2008).

In order to test the effectiveness of the scale items and truly reflect the survey purpose, three tourism management

project experts were invited to evaluate the questionnaire's effectiveness. After receiving the results of the experts, calculate the sum and average of their ratings for each scale item. For content validation using three expert rating results, an IOC value of approximately 0.67 is considered statistically significant (Rovinelli & Hambleton, 1977). Before collecting data for the preliminary study, researchers suggest conducting a pilot study as a preliminary investigation (Khan & Qudrat-Ullah, 2021). In order to obtain accurate survey data, pilot testing is considered key to successfully conducting the survey (Lavrakas, 2008). In this study, 30 Shanghai tourists with experience using travel mobile mini-programs were selected as pilot participants, and Cronbach's alpha coefficient was measured with an acceptance coefficient of 0.7 or above (Tavakol & Dennick, 2011).

During the formal data collection process, 500 Shanghai tourists using three major mobile mini-programs were selected as the target group. Researchers used statistical software to analyze the data. Confirmatory factor analysis (CFA) evaluates factor load, T-value, and reliability. CR), Mean-Variance Extraction (AVE), and Discriminant Effectiveness. Structural equation modeling (SEM) tests the meaning of hypotheses and the direct, indirect, and overall impact of relationships in hypothesis testing.

3.3 Population and Sample Size

This study focuses on tourists in Shanghai, China, who utilize three specific tourism mobile apps: the Ctrip mini-app, the Qunar mini-app, and the Mafengwo mini-app. The selection of these three mini-programs was based on several reasons. Firstly, as Shanghai is a prominent municipality directly under the central government of China, it can serve as a representative location for studying tourist behavior related to tourism mobile mini apps. Secondly, these three travel mobile apps have garnered the highest downloads among travel-related apps. Thirdly, these three-travel mobile mini apps are extensively used by tourists.

Typically, a sample size of N=100-150 is considered the minimum requirement for Structural Equation Modeling (SEM) (Tabachnick & Fidell, 2007). However, as Perera (2013) pointed out, a more complex model, such as the one employed in this study, necessitates a larger sample size. Thus, a minimum sample size of 500 was appropriate (Williams et al., 2010). By utilizing judgment sampling and quota sampling techniques, this study ultimately selected 500 customers as the final sample.

3.4 Sampling Technique

The researchers employed three sampling techniques: judgmental, stratified, and convenience. Firstly, a judgmental sampling method was utilized to select users of tourism

mobile apps in Shanghai from the top three available options. Following stratified sampling principles, 500 individuals were selected as the final sample, representing three distinct subgroups (as outlined in Table 1). Lastly, a convenience sampling approach was employed to contact potential respondents who had the time and willingness to participate in the survey when distributing the questionnaire.

Table 1: Sample Units and Sample Size

Grade	Population Size	Proportional Sample Size
Ctrip applets	50	250
Qunar applet	30	150
Mafengwo applet	20	100
Total	100	500

Source: Constructed by author

4. Results and Discussion

4.1 Demographic Information

The survey questionnaire was distributed among Shanghai tourists using three selected travel mobile mini-programs. Among the respondents are 232 women and 268 men, accounting for 46.4% and 53.6% of the total population, respectively. One hundred forty people aged 18 to 30, 145 people aged 31 to 40, 146 people aged 41 to 50, 48 people aged 51 to 60, and 21 people aged 60 and above accounted for 28.0%, 29.0%, 29.2%, 9.6%, and 4.2% of the total population, respectively. Thirty people have a primary school education or below, 81 people have a junior high school education or below, 130 people have a high school education or above, 144 people have a bachelor's degree or above, and 115 people have a bachelor's degree or above, accounting for 6.0%, 16.2%, 26.0%, 28.8%, and 23.0% of the total population, respectively. Ninety-two people have a monthly income of 3000 to 50000 yuan, 125 people have a monthly income of 500 to 70000 yuan, 116 people have a monthly income of 7001 to 9000 yuan, 107 people have a monthly income of 9001 to 11000 yuan, and 60 people have a monthly income of over 1101-yuan, accounting for 18.4%, 25.0%, 23.2%, 21.4%, and 12.0% of the total population, respectively. (See Table 2).

Table 2: Demographic Profile

Demographic and General Data (N=500)		Frequency	Percentage
Gender	Male	232	46.4%
	Female	268	53.6%
Age	0-30 years old	140	28.0%
	31-40 years old	145	29.0%
	41-50 years old	146	29.2%
	51-60 years old	48	9.6%
	More than 61 years old	21	4.2%

Demographic and General Data (N=500)		Frequency	Percentage
Education Level	Primary school or below	30	6.0%
	Junior middle school	81	16.2%
	Senior middle school	130	26.0%
	Bachelor	144	28.8%
Monthly Income	Bachelor above	115	23.0%
	3000-5000 RMB	92	18.4%
	5001-7000 RMB	125	25.0%
	7001-9000 RMB	116	23.2%
	9001-11000 RMB	107	21.4%
	More than 11001 RMB	60	12.0%

Source: Constructed by author

4.2 Confirmatory Factor Analysis (CFA)

In this study, Confirmatory Factor Analysis (CFA) was employed as a statistical tool. CFA is a versatile and robust technique widely used in various research fields (Teo, 2013).

It is a specific advanced factor analysis approach that aids in identifying and validating factor structures underlying phenomena of interest (Huang & Yuan, 2020). The assessment of the CFA model's goodness of fit involves evaluating the reliability of individual indicator variables and latent variables, also known as composite reliability or structural reliability (Murugesan & Jayavelu, 2015).

According to the predefined criteria for this study, the Cronbach's Alpha value is considered acceptable when it exceeds 0.70. Moreover, the acceptable threshold for factor loading is set at 0.5 or higher. Additionally, following the criteria outlined by Fornell and Larcker (1981), both the Composite Reliability (CR) and Average Variance Extracted (AVE) values are deemed acceptable when they reach or exceed 0.6 for CR and 0.4 or higher for AVE. These established benchmarks ensure the strength and reliability of the measurement instruments utilized in this study.

Table 3: Confirmatory Factor Analysis Result, Composite Reliability (CR) and Average Variance Extracted (AVE)

Variables	Source of Questionnaire (Measurement Indicator)	No. of Item	Cronbach's Alpha	Factors Loading	CR	AVE
Trust (TR)	Rather et al. (2019)	4	0.815-0.871	0.876	0.906	0.706
Facilitating Conditions (FC)	Hu et al. (2019)	5	0.812-0.858	0.859	0.917	0.689
Social Influence (SI)	Hu et al. (2019)	4	0.788-0.819	0.841	0.875	0.637
Perceived Usefulness (PU)	Suki and Suki (2019)	4	0.803-0.920	0.887	0.913	0.725
Perceived Ease of Use (PEOU)	Suki and Suki (2019)	3	0.724-0.794	0.825	0.802	0.575
Use Behavior (UB)	Hu et al. (2019)	4	0.830-0.856	0.878	0.908	0.713
Behavioral Intention (BI)	Lin et al. (2020)	5	0.832-0.860	0.871	0.925	0.712

The model fit of the measurement model in this study is deemed acceptable based on the fit indicators. The statistical values of each indicator were compared against established standards. The values obtained are as follows: CMIN/DF = 2.258, GFI = 0.899, AGFI = 0.876, NFI = 0.915, CFI = 0.950, TLI = 0.944, and RMSEA = 0.050. No modifications were necessary for the measurement model as the original model demonstrated a good fit.

When the square root of AVE is greater than the coefficient of any related structure, the effectiveness of the decision is confirmed (Fornell & Larcker, 1981). As shown in Table 5, the square roots of each structure on the diagonal are 0.840, 0.830, 0.798, 0.851, 0.758, 0.844, and 0.844, respectively, which are greater than the inter-meter coefficient. Therefore, the effectiveness of discrimination is guaranteed.

Table 4: Goodness of Fit for Measurement Model

Fit Index	Acceptable Criteria	Statistical Values
CMIN/df	< 5.00 (Al-Mamary & Shamsuddin, 2015; Awang, 2012)	2.258
GFI	≥ 0.85 (Sica & Ghisi, 2007)	0.899
AGFI	≥ 0.80 (Sica & Ghisi, 2007)	0.876
NFI	≥ 0.80 (Wu & Wang, 2006)	0.915
CFI	≥ 0.80 (Bentler, 1990)	0.950
TLI	≥ 0.80 (Sharma et al., 2005)	0.944
RMSEA	< 0.08 (Pedroso et al., 2016)	0.050
Model Summary		In harmony with empirical data

Remark: CMIN/DF = The ratio of the chi-square value to degree of freedom, GFI = goodness-of-fit index, AGFI = adjusted goodness-of-fit index, NFI = normalized fit index, CFI = comparative fit index, TLI = Tucker Lewis index and RMSEA = root mean square error of approximation

Table 5: Discriminant Validity

	TR	FC	SI	PU	PEOU	UB	BI
TR	0.840						
FC	0.422	0.830					
SI	0.379	0.473	0.798				
PU	0.414	0.383	0.369	0.851			
PEOU	0.313	0.320	0.257	0.333	0.758		
UB	0.492	0.509	0.409	0.415	0.357	0.844	
BI	0.507	0.540	0.477	0.465	0.359	0.581	0.844

Note: The diagonally listed value is the AVE square roots of the variables

Source: Created by the author.

4.3 Structural Equation Model (SEM)

Following the completion of Confirmatory Factor Analysis (CFA), Structural Equation Models (SEM) were applied to estimate specific systems of linear equations and validate the model fit. Shelley (2006) argued that SEM evaluates the linear causality between variables and accounts for error specifications. It is akin to return evaluation but may hold more influence than regression assessment. The results of the adjustments using statistical software, including CMIN/DF, GFI, AGFI, CFI, TLI, and RMSEA, are presented in Table 6. These results demonstrate that the goodness-of-fit index verified by SEM is deemed acceptable.

Table 6: Goodness of Fit for Structural Model

Index	Acceptable	Before Adjustment Statistical Values	Before Adjustment Statistical Values
CMIN/df	< 5.00 (Al-Mamary & Shamsuddin, 2015; Awang, 2012)	3.504	2.983
GFI	≥ 0.85 (Sica & Ghisi, 2007)	0.827	0.851
AGFI	≥ 0.80 (Sica & Ghisi, 2007)	0.798	0.821
NFI	≥ 0.80 (Wu & Wang, 2006)	0.862	0.886
CFI	≥ 0.80 (Bentler, 1990)	0.897	0.921
TLI	≥ 0.80 (Sharma et al., 2005)	0.888	0.911
RMSEA	< 0.08 (Pedroso et al., 2016)	0.071	0.063
Model Summary		Not in harmony with Empirical data	In harmony with Empirical data

Remark: CMIN/DF = The ratio of the chi-square value to degree of freedom, GFI = goodness-of-fit index, AGFI = adjusted goodness-of-fit index, NFI = normalized fit index, CFI = comparative fit index, TLI = Tucker Lewis index and RMSEA = root mean square error of approximation

4.4 Research Hypothesis Testing Result

The results were derived from the analysis of standardized coefficient value and t-value per demonstrated in Table 7. Subsequently, all hypotheses were supported.

Table 7: Hypothesis Results of the Structural Equation Modeling

Hypothesis	(β)	t-Value	Result
H1: PU $\rightarrow$ BI	0.255	5.004***	Supported
H2: PEOU $\rightarrow$ BI	0.116	4.055***	Supported
H3: TR $\rightarrow$ BI	0.237	7.425***	Supported
H4: SI $\rightarrow$ BI	0.197	5.857***	Supported

Hypothesis	(β)	t-Value	Result
H5: FC $\rightarrow$ BI	0.436	7.461***	Supported
H6: BI $\rightarrow$ UB	0.926	9.202***	Supported

Note: *** $p < 0.001$

Source: Created by the author

According to the data in Table 7, the research results are explained as follows:

H1 indicates that perceived usefulness affects behavioral intention in this study, with a standard value of 0.255. The results of this study are consistent with those of Stocchi et al. (2019), Dasgupta et al. (2011), Yee et al. (2019), and Visinescu et al. (2015).

H2 has been confirmed in this study that perceived ease of use is one of the important factors affecting behavioral intention, with a standard value of 0.116. This result supports the previous research by Septiani et al. (2017), Stocchi et al. (2019), and Dasgupta et al. (2011).

H3 indicates that trust has a significant impact on behavioral intention. The standardization coefficient of H3 is 0.237. This result supports Namahoot and Laohavichien's (2015) and Akbari et al. (2019) studies.

H4 indicates that social influence has a significant impact on behavioral intention. The standardization coefficient of H4 is 0.197. This result supports the previous study by Chang et al. (2015) and Yang (2010).

H5 indicates that convenience conditions have a significant impact on behavioral intention. The normalization coefficient of H5 is 0.436. This result supports Lin et al. (2020) and Pham et al. (2020).

H6 confirms that behavioral intention has a significant impact on usage behavior. The normalization coefficient of H6 is 0.926. This result supports the previous research by Velazquez et al. (2018) and Lin et al. (2020).

5. Conclusion and Recommendation

5.1 Conclusion and Discussion

This study aims to comprehensively analyze the important factors that affect the behavioral intention and usage behavior of Shanghai tourists' mobile tourism applications. The Chinese government encourages tourism mobile applications to improve the quality of tourism services. Therefore, it is necessary to understand which factors can motivate or stimulate tourists to use tourism mobile applications for travel effectively. Researchers proposed six hypotheses based on the defined research questions. They surveyed tourists' use of mobile phones from four aspects: perceived usefulness, perceived ease of use, trust, social impact, and convenience conditions. The

decisive factors of this study come from the three core theories and four theoretical frameworks of previous research. The three core theories are the Technology Acceptance Model (TAM), the Unified Theory of Technology Acceptance and Use (UTAUT), and the Decomposition Theory of Planned Behavior Model (DTPB). The object of this study is Shanghai tourists who use the top three tourism mobile applications. The sampling program adopts multi-stage sampling. In the first stage, Shanghai tourists with the top three travel mobile mini-programs will be selected for purposive or judgmental sampling. The second stage is stratified sampling, where the sample size is distributed proportionally by region.

The third is to facilitate the distribution of sampling questionnaires. Collect quantitative data through questionnaire surveys. The questionnaire includes screening questions, a Likert scale, measuring all variables from strongly disagree (1) to agree (5) strongly, and demographic questions about the respondents. Prior to a larger population distribution, project and target consistency testing was conducted on three experts, and pilot testing was conducted on 30 respondents to ensure the reliability and consistency of each measurement project. Five hundred survey questionnaires were distributed to some tourists in Shanghai. The three selected travel mobile mini-programs are the Ctrip mini-program, the Qunar mini-program, and the Mafengwo mini-program. Using the collected data, confirmatory factor analysis (CFA) is used to measure and validate the effectiveness and reliability of the conceptual model. Through comprehensive reliability and Cronbach α , the convergence effectiveness results of reliability, factor load, mean square error extraction analysis and discriminant validity are used to measure the effectiveness and reliability of the conceptual model. The structural equation model (SEM) was used to analyze and discuss the factors affecting tourists' behavioral intention and behavior of using mobile mobile phones. This is to prove the proposed research hypothesis and respond to the defined research questions. The six hypotheses proposed have been supported and proven, achieving the research objectives. The findings of this study can be summarized into two main findings.

Firstly, facilitating conditions are the strongest predictors of behavioral intention. Perceived usefulness, trust, perceived ease of use, and social influence significantly impact tourist behavioral intentions. Therefore, improving facilitating conditions is the key to enhancing behavioral intention. Secondly, behavioral intention has a significant impact on usage behavior.

Therefore, the recommendation for these two main findings is to ensure and promote the advantages or benefits of using tourism mobile applications. Enterprises should

emphasize improving convenience, trust, social influence, perceived usefulness, and perceived ease of use to facilitate users' use of the platform. This will promote tourists' behavioral intention and usage behavior of using tourism mobile mini-programs, making them willing to use them for online consultation and booking.

5.2 Recommendation

The researchers identified the key factors influencing behavioral intention and use behavior of the three most popular tourism mobile applets used by tourists in Shanghai, such as Facilitating Conditions (FC), Trust (TR), Perceived usefulness (PU), Perceived Ease-of-Use (PEOU) and Social Influence (SI).

These key factors need to be developed and promoted to enhance tourists' behavioral intentions and use of mobile mobile phones. In this study, facilitating conditions were the strongest predictors of Apple's behavioral

intention for mobile travel. Therefore, it is necessary to emphasize facilitating conditions. If tourists perceive facilitating conditions as high, they will use tourism mobile applications. Enterprises should ensure this attribute. At the same time, enterprises should make every effort to improve the trust, perceived usefulness, perceived ease of use, and social impact of tourism mobile applications and help tourists organize useful concepts of tourism mobile applications in order to improve the tourist trust, perceived usefulness, perceived ease of use, and social impact of tourism mobile applications. In summary, this study provides a detailed explanation of the factors affecting tourists' behavioral intentions and the usage behavior of mobile applications. This paper provides a basis for relevant corporate identity to identify variables that affect the behavior intention and use behavior of tourism mobile applications and can be applied to the operation and management of tourism mobile applications.

5.3 Limitation and Further Study

It is worth noting that this study has some limitations. The following are suggestions for further research.

Firstly, seven factors were selected as variables in the model, which do not fully represent all the factors that affect user behavior intention. Therefore, this study's selection of influencing factors may need to be more comprehensive. Secondly, in terms of data collection, this study analyzed the factors that affect tourism application users' continued use of questionnaires. During the questionnaire distribution process, most respondents had close relationships with classmates or young people, resulting in a younger age structure that

needed to be more comprehensive. Finally, this study only selected the three most widely used tourism mobile applications, and their scope needs further expansion.

Further research may involve e-commerce platforms in other regions like Beijing and Xinjiang. Exploring the use of e-commerce in different regions may lead to different findings, improve the universality of research models, and obtain more general results. Further research should expand the research scope of tourism mobile apps and strive to include more. At the same time, further, select research variables and respondents to make the research results more scientific and accurate.

References

- Agarwal, R., & Prasad, J. (1999). Are Individual Differences Germane to the Acceptance of New Information Technologies? *Decision Sciences*, 30(2), 361-391. <https://doi.org/10.1111/j.1540-5915.1999.tb01614.x>
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211. [https://doi.org/10.1016/0749-5978\(91\)90020-t](https://doi.org/10.1016/0749-5978(91)90020-t)
- Akbari, M., Ardekani, Z. F., Pino, G., & Maleksaeidi, H. (2019). An extended model of Theory of Planned Behavior to investigate highly-educated Iranian consumers' intentions towards consuming genetically modified foods. *Journal of Cleaner Production*, 227, 784-793. <https://doi.org/10.1016/j.jclepro.2019.04.246>
- Al-Mamary, Y. H., & Shamsuddin, A. (2015). Testing of the technology acceptance model in context of yemen. *Mediterranean Journal of Social Sciences*, 6(4), 268-273. <https://doi.org/10.5901/mjss.2015.v6n4s1p268>
- Amin, M., Rezaei, S., & Abolghasemi, M. (2014). User satisfaction with a mobile website: The impact of perceived usefulness (PU), perceived ease of use (PEOU) and trust. *Nankai Business Review International*, 5(3), 258-274.
- Awang, Z. (2012). *A Handbook on SEM Structural Equation Modelling: SEM Using AMOS Graphic* (5th ed.). Kota Baru: Universiti Teknologi Mara Kelantan.
- Awang, Z., Aziz, R. C., Yusoff, A. M., & Naw, N. M. (2020). Grab Pay App: The Factors Influencing Tourists' Behavioral Intention-to-Use. *Talent Development and Excellence*, 12(3), 820-828. <https://doi.org/10.9734/bpi/nicst/v7/1580c>
- Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, 107(2), 238-246. <https://doi.org/10.1037/0033-2909.107.2.238>
- Chang, I.-C., Chou, P.-C., Yeh, R. K., & Tseng, H.-T. (2015). An Exploratory Study on Factors Influencing Chinese Tourists' Intention to Use the Taiwan Medical Travel applets. *Telematics, and Informatics*, 33(2), 401-409. <http://dx.doi.org/10.1016/j.tele.2015.09.007>
- Chen, K., & Chan, A. H. S. (2014). Predictors of geotechnology acceptance by older Hong Kong Chinese. *Technovation*, 34(2), 126-135. <https://doi.org/10.1016/j.technovation.2013.09.010>
- Chen, L. Y., & Wu, W. N. (2017). An exploration of the factors affecting users' satisfaction with Mobile payments. *International Journal of Computer Science & Information Technology (IJCSIT)*, 9(6), 97-105. <https://doi.org/10.5121/ijcsit.2017.9308>
- Chong, A. Y.-L. (2013). A two-staged SEM-neural network approach for understanding and predicting the determinants of m-commerce adoption. *Expert Systems with Applications*, 40(4), 1240-1247. <https://doi.org/10.1016/j.eswa.2012.08.067>
- Dasgupta, S., Paul, R., & Fuloria, S. (2011). Factors Affecting Behavioral Intentions towards Mobile Banking Usage: Empirical evidence from India. *Romanian Journal of Marketing*, 3(1), 6-28.
- Dwivedi, Y. K., Shareef, M. A., Simintiras, A. C., Lal, B., & Weerakkody, V. (2016). A generalised adoption model for services: A cross-country comparison of mobile health (m-health). *Government Information Quarterly*, 33(1), 174-187. <https://doi.org/10.1016/j.giq.2015.06.003>
- Ert, E., Fleischer, A., & Magen, N. (2016). Trust and reputation in the sharing economy: The role of personal photos in Airbnb. *Tourism Management*, 55, 62-73. <https://doi.org/10.1016/j.tourman.2016.01.013>
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39-50.
- Gifford, R., & Nilsson, A. (2014). Personal and social factors that influence pro-environmental concern and behavior: a review. *International Journal of Psychology*, 49(3), 141-157. <https://doi.org/10.1002/ijop.12034>
- Gurino, S., & Siringoringo, H. (2013). Perceived Usefulness, Ease of Use, and Attitude Towards Online Shopping Usefulness Towards Online Airlines Ticket Purchase. *Procedia-Social and Behavioral Sciences*, 81(1), 212-216. <https://doi.org/10.1016/j.sbspro.2013.06.415>
- Hooda, A., Gupta, P., Jeyaraj, A., Giannakis, M., & Dwivedi, Y. K. (2022). The effects of trust on behavioral intention and use behavior within e-government contexts. *International Journal of Information Management*, 67(12), 143-155. <https://doi.org/10.1016/j.ijinfomgt.2022.102553>
- Hu, W., Alam, M. Z., Hoque, M. R., & Kaium, M. A. (2019). Adoption intention and usage behavior of mHealth services in Bangladesh and China A cross-country analysis. *International Journal of Pharmaceutical and Healthcare Marketing*, 14(1), 37-60. DOI 10.1108/IJPHM-03-2019-0023
- Huang, G., & Yuan, X. (2020). *New edition Tutorial of Education Statistics and Measurement Evaluation*. (1st ed.). East China Normal University Press.
- Islam, J. U., Rahman, Z., & Hollebeek, L. D. (2018). Consumer engagement in online brand communities: a solicitation of congruity theory. *Internet Research*, 28(1), 23-45. <https://doi.org/10.1108/intr-09-2016-0279>
- Kaplan, H. E., & Gurbuz, E. (2021). An extended utaut2 perspective- determinants of mobile banking use intention and use behavior. *Ömer Halisdemir Üniversitesi iktisadi ve idari Bilimler Fakültesi Dergisi*, 14(1), 1334-134.
- Khan, R. A., & Qudrat-Ullah, H. (2021). *Adoption of LMS in higher educational institutions of the Middle East* (1st ed.). Springer.
- Lavrakas, P. J. (2008). *Encyclopedia of survey research methods* (1st ed.). Sage Publications.

- Lee, D. Y., & Lehto, M. R. (2013). User acceptance of YouTube for procedural learning: An extension of the Technology Acceptance Model. *Computers & Education*, 61, 193-208. <https://doi.org/10.1016/j.compedu.2012.10.001>
- Lin, W. R., Lin, C. Y., & Ding, Y. H. (2020). Factors Affecting the Behavioral Intention to Adopt Mobile Payment: An Empirical Study in Taiwan. *Mathematics*, 8(10), 1-19. <https://doi.org/10.3390/math8101851>
- Mahardika, H., Thomas, D., Ewing, M. T., & Japutra, A. (2019). Experience and facilitating conditions a simple dements to consumers' new technology adoption (Article). *International Review of Retail Distribution and Consumer Research*, 29(1), 79-98. <https://doi.org/10.1080/09593969.2018.1556181>
- Mahmood, M. A., Janice, M., & Leopoldo, A. (2000). Variables affecting information technology end-user satisfaction: a meta-analysis of the empirical literature. *International Journal of Human-Computer Studies*, 52(4), 751-771.
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative Data Analysis: A Sourcebook of New Methods* (2nd ed.). Sage.
- Mohlmann, M. (2015). Collaborative consumption: Determinants of satisfaction and the likelihood of using a sharing economy option again. *Journal of Consumer Behaviour*, 14(3), 193-207.
- Morgan, R. M., & Hunt, S. D. (1994). The commitment-trust theory of relationship marketing. *Journal of Marketing*, 58(3), 20-38. <https://doi.org/10.1177/002224299405800302>
- Murugesan, R., & Jayavelu, R. (2015). Testing the impact of entrepreneurship education on business, engineering and arts and science students using the theory of planned behavior: A comparative study. *Journal of Entrepreneurship in Emerging Economies*, 7(3), 256-275. <https://doi.org/10.1108/jeee-12-2014-0053>
- Namahoot, K., & Laohavichien, T. (2015). An Analysis of Behavioral Intention to use Thai Internet Banking with Quality Management and Trust. *Journal of Internet Banking and Commerce*, 20(3), 119-130.
- Neuman, W. R., Just, M. R., & Crigler, A. N. (1992). *Common knowledge: news and the construction of political meaning* (1st ed.). University of Chicago Press. <https://doi.org/10.2307/2074663>
- Ong, H., & Lai, Y. (2006). Gender Differences in Perceptions and Relationships Among Dominants Of E-Learning Acceptance. *Computers in Human Behavior*, 22(5), 816-829. <https://doi.org/10.1016/j.chb.2004.03.006>
- Palvia, P. C. (1996). A model and instrument for measuring small business user satisfaction with information technology. *Information and Management*, 31(3), 151-163. [https://doi.org/10.1016/s0378-7206\(96\)01069-5](https://doi.org/10.1016/s0378-7206(96)01069-5)
- Pan, L. (2020). *Fingers Open the New World: User adoption of tourism applets* (1st ed.). Beijing: Travel Education Press.
- Pedroso, R., Zanetello, L., Guimaraes, L., Pettenon, M., Goncalves, V., Scherer, J., Kessler, F., & Pechansky, F. (2016). Confirmatory factor analysis (CFA) of the crack use relapse scale (CURS). *Archives of Clinical Psychiatry*, 43(3), 37-40. <https://doi.org/10.1590/0101-60830000000081>
- Perera, H. N. (2013). A novel approach to estimating and testing specific mediation effects in educational research: Explication and application of Macho and Ledermann' s (2011) phantom model approach. *International Journal of Quantitative Research in Education*, 1(1), 39-60. <https://doi.org/10.1504/ijqre.2013.055640>
- Pham, T. T., Dang, L. A., Le, T. M., & Le, T. H. (2020). Factors affecting teachers' behavioral intention of using information technology in lecturing-economic universities. *Management Science Letters*, 1(2), 2665-2672. <https://doi.org/10.5267/j.msl.2020.3.026>
- Rahimnia, F., & Hassanzadeh, J. F. (2013). The impact of website content dimension and e-trust on e-marketing effectiveness: the case of Iranian commercial saffron corporations. *Information and Management*, 50(5), 240-247. <https://doi.org/10.1016/j.im.2013.04.003>
- Rather, R. A., Tehseen, S., Ito, M. H., & Parrey, S. H. (2019). Customer brand identification, affective commitment, customer satisfaction, and brand trust as antecedents of customer behavioral intention of loyalty: An empirical study in the hospitality sector. *Journal of Global Scholars of Marketing Science*, 29(2), 196-217. <https://doi.org/10.1080/21639159.2019.1577694>
- Rovinelli, R., & Hambleton, R. (1977). On the use of content specialists in the assessment of criterion-referenced test item validity. *Dutch Journal of Educational Research*, 2, 49-60.
- Septiani, R., Handayani, P. W., & Azzahro, F. (2017). An empirical examination of factors affecting the behavioral intention to use online transportation service: A case study of GRAB. *International Conference on Advanced Computer Science and Information Systems*, 17, 93-98. <https://doi.org/10.1109/icacsis.2017.8355017>
- Sharma, G. P., Verma, R. C., & Pathare, P. (2005). Mathematical modeling of infrared radiation thin layer drying of onion slices. *Journal of Food Engineering*, 71(3), 282-286. <https://doi.org/10.1016/j.jfoodeng.2005.02.010>
- Shelley, M. C. (2006). *Structural Equation Modeling* (1st ed.). Encyclopedia of Educational Leadership and Administration.
- Sica, C., & Ghisi, M. (2007). *The Italian versions of the Beck Anxiety Inventory and the Beck Depression Inventory-II: Psychometric properties and discriminant power*. Nova.
- Stocchi, L., Michaelidou, N., & Micevski, M. (2019). Drivers and outcomes of branded mobile applets usage intention. *Journal of Product & Brand Management*, 28(1), 28-49. <https://doi.org/10.1108/JPBm-02-2017-1436>
- Suki, N. M., & Suki, N. M. (2019). Examination of peer influence as a moderator and predictor in explaining green purchase behavior in a developing country. *J. Clean. Prod.*, 228, 833-844.
- Sun, Y., Wang, N., Guo, X., & Peng, Z. (2013). Understanding the acceptance of mobile health services: a comparison and integration of alternative models. *Journal of Electronic Commerce Research*, 14(2), 183.
- Tabachnick, B. G., & Fidell, L. S. (2007). *Experimental designs using ANOVA* (1st ed.). Duxbury Press.

- Tarhini, A., Hone, K., & Liu, X. (2015). Factors affecting students' acceptance of e-learning environments in developing countries: A structural equation modeling approach. *International Journal of Information and Education Technology*, 3(1), 54-59. <https://doi.org/10.7763/ijiet.2013.v3.233>
- Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International journal of medical education*, 2, 53-55.
- Teo, T. (2009). Modeling technology acceptance in education: A study of preservice teachers. *Computers & Education*, 52(2), 302-312.
- Teo, T. (2013). *Handbook of Quantitative Methods for Educational Research*. Sense Publishers.
- Urvashi, T., Ravi, K., & Ash, N. S. (2016). Customer satisfaction using website functionality, perceived usability, and perceived usefulness towards online shopping in India. *Information Development*, 32(5), 1657-1673.
- Velazquez, G., Kaplan, S., & Monzon, S. (2018). Ex-Ante and Ex-Post Evaluation of a New Transit Information applets: Modeling Use Intentions and Actual Use. *Transportation Research Record*, 2, 50-55.
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425-478. <https://doi.org/10.2307/30036540>
- Visinescu, L. L., Sidorova, A., Jones, M. C., & Prybutok, V. R. (2015). The influence of website dimensionality on customer experiences, perceptions, and behavioral intentions: An exploration of 2D vs. 3D web design. *Inf. Manag.*, 52, 1-17. <https://doi.org/10.1016/j.im.2014.10.005>
- Visram, S., Smith, S., Connor, N., Greig, G., & Scorer, C. (2018). Examining associations between health, well-being, and social capital: findings from a survey developed and conducted using participatory action research. *Journal of Public Mental Health*, 17(3), 122-134. <https://doi.org/10.1108/jpmh-09-2017-0035>
- Williams, B., Brown, T., & Onsmann, A. (2010). Exploratory factor analysis: A five-step guide for novices. *Australasian Journal of Paramedicine*, 8(3), 1-13. <https://doi.org/10.33151/ajp.8.3.93>
- Wu, J. H., & Wang, Y. M. (2006). Measuring KMS success: A respecification of the DeLone and McLean's model. *Information and Management*, 43(6), 728-739. <https://doi.org/10.1016/j.im.2006.05.002>
- Yang, K. (2010). Determinants of US consumer mobile shopping services adoption: implications for designing mobile shopping services. *Journal of Consumer Marketing*, 27(3), 262-270. <https://doi.org/10.1108/07363761011038338>
- Yee, T. S., Seong, L. C., & Chin, W. S. (2019). Patient's Intention to Use Mobile Health App. *Journal of Management Research*, 11(3), 18-20. <https://doi.org/10.5296/jmr.v11i3.14776>
- Zahra, F., Hussain, A., & Mohd, H. (2017). *Usability evaluation of mobile applications; where do we stand? AIP Conference Proceedings* (1st ed.). Publishing.
- Zhou, T., Lu, Y., & Wang, B. (2015). Integrating TTF and UTAUT to explain mobile banking user adoption. *Computer Human Behavior*, 26(4), 760-767. <https://doi.org/10.1016/j.chb.2010.01.013>
- Zolkepli, I. A. (2016). Domination of mobile applets market: The effect of applets value on applets rating and applets costs in determining adoption. *Proceedings of Penang International Symposium on Advanced in Social Sciences and Humanities, Royale Bintang, Penang*, 1-12.