THE IMPACT OF TOURISM SUPPORT APPLICATIONS ON MOBILE DEVICES (TOURISM APPS) ON TOURISTS’ INTENTION TO VISIT A TOURIST DESTINATION

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Abstract

The prevalence of science and technology and its application in life has attracted the attention of academia over the years in technology applications. However, there is still no research on the impact of mobile applications on the destination choice behavior of tourists. This study aims to find out the impact of travel apps on tourist destination choice behavior in Ho Chi Minh City. The results show that 5 factors: perceived ease of use, perceived usefulness, perceived flexibility, subjective standards and diversity of mobile applications have a positive impact on the decision to choose a tourism application affects the intention to visit the tourist destination. The study shows that the efforts of technology companies and leaders to raise people's awareness about the application of technology for tourism will contribute to the intention to choose a destination in the future.

Keywords: Mobile application, Perceived ease of use, Subjective standards, Tourist destination, Tourism support application.

1. Introduction

1.1. Introduction

Currently, there are still many difficulties for tourists when deciding on a tourist destination. Inconvenience for even the most basic and essential needs such as choosing a destination, motel, restaurant, etc. For example, it is very difficult to carry a backpack to China because of the language barrier, in addition to that, people here cannot use popular search engines, namely Google, Youtube, etc. The rapid development of mobile applications (technology applications) has helped users, especially tourists easily search information to
travel. Therefore, it is more necessary than ever to bring technology applications to social launch on mobile devices to support the travel needs of tourists.

As society becomes more easily connected, the internet becomes more popular through the use of mobile devices, the basic activities of today's society are being transformed by the emergence of mobile applications. The use of technology and the tourism sector is no exception to that change. Nowadays, mobile phones have become extremely popular among all social. Mobile devices generally refer to mobile phones, smartphones, or tablets. Depending on the context, the term may include laptops or other portable electronic products.

1.2. Literature Review

Previous studies have shown a number of important factors affecting the intention to use mobile applications, thereby affecting the intention to visit the destination of tourists such as: eWOM, environment, etc. E-Service scape (Kuo et al., 2019); Perceived usefulness (PU), perceived ease of use (PEU) (Kim et al., 2017; Chung & Koo, 2015; Kuo et al., 2019); Social norms (SN) (Oanh & Uyen, 2017). However, studies often focus on only one or two influencing factors according to the theoretical technology acceptance model (TAM) - focusing on attitude or satisfaction leading to intention. This paper combines both the theory of the TPB Planned Behavior Model and the theory of tourist destination choice. Technology acceptance model (TAM) to further analyze the influencing factors of mobile applications for tourism, thereby influencing tourists to choose destinations, and at the same time exploiting new influencing factors to perfecting the scale.

1.3. Definitions of Construct

**Mobile applications:** According to Islam & Mazumder (2010) mobile applications consist of software/set of programs that run on mobile devices and perform certain tasks for the user. Mobile Application is a new and rapidly growing Segment of Global Information and Communication Technology. The mobile app is easy to use, user-friendly, inexpensive, downloadable, and can run on most mobile phones including entry and entry-level phones. The mobile application has many functions for its wide operating area such as calling, messaging, web browsing, chatting, social networking, audio, video, games, etc.

**Tourism Destinations:** According to Beirman (2003), a tourist destination is a city, town, or other areas that depend to a substantial extent on revenue from tourism, or "a country, state, region, city or town is sold or marketed as a place for tourists to visit.

The tourist destination is a place for tourists to visit and stay, be it a country, state, region, or city - often due to cultural values or its natural (Piechotka et al., 2017). It is a place or area that offers a collection of tourism-related products and attractions, providing a travel experience for individuals or groups traveling away from home or their place (Jalis, 2019).

1.4. Definition Of Theories

**Theory of Planned Behavior (TPB):** Theory of Planned Behavior (TPB) (Ajzen, 1985, 1991) is an extension of the theory of reasoned action (TRA) (Ajzen & Fishbein, 1980), made necessary by the latter model's inability to deal with behaviors over which individuals
have incomplete volitional control. According to TPB, an individual's performance of a certain behavior is determined by his or her intent to perform that behavior. For TPB, attitude towards the target behavior, subjective norms about engaging in the behavior, and perceived behavior control are thought to influence intention and internet purchasing behavior (George, 2002; Jarvenpaa & Todd, 1997; Khalifa & Limayem, 2003; etc)

**Technology Acceptance Model (TAM)** (Davis, 1989) or TAM proposes specifically to explain the determinants of information technology enduser’s behavior towards information technology (Saade et al., 2007). In TAM, (Davis, 1989) proposes that the influence of external variables on intention is mediated by perceived ease of use (PEU) and perceived usefulness (PU). TAM also suggests that intention is directly related to actual usage behavior (Davis et al., 1989). TAM acknowledged that the acceptance using the product or service information is determined by the intended use (BI) and BI is determined by the attitude towards the use (Attitude - A) under the influence of two factors: perceived usefulness (PU) and perceived ease of use (PEU). The service how is dependent on external factors (such as system quality, installation service, training service, or various concepts in the system used) as a worldview that influences the person's perception.

**1.5. Some Previous Research**

The research *Adoption of mobile applications for identifying tourism destinations by travellers: an integrative approach* (Chung & Koo, 2015) is to provide an assessment of both how consumers adopt mobile tourism apps and how consumers use those apps to orient customer intentions to visit tourism destinations. Perceived ease of use and perceived usefulness tend to be moderators of the effects of the e-servicescape environment and e-word-of-mouth communication on attitudes towards using apps. The results may be important references to conduct further validations, and critical for marketing managers when designing specific criteria to enhance mobile apps and their adoption.

The research *The impact of mobile tour information services on destination travel intention* (Kim et al., 2017) is to provide functions of mobile tour information services are important and how mobile tour information services affects tourists’ intention to travel to a destination. According to the results of the analysis, system quality, history and cultural knowledge quality, and interface design quality, which are major functions affecting mobile tour information services, had significant effects on tourists’ continuance intention to a travel destination. In addition, this study empirically showed that as tourists’ expectations of the performance of these functions are confirmed, they form perceived usefulness and satisfaction with mobile tour information services in forming continuance intention to a travel destination.

The research *Factors influencing the intention to use mobile commerce services of consumers in An Giang province* (Oanh & Uyen, 2017) aims to measure factors influencing the intention to use mobile commerce services of consumers in An Giang province. The research result shows five factors affecting the intention to use mobile commerce services of consumers in An Giang province namely (1) Mobility, (2) Variety of services, (3)
Perceived usefulness, (4) Perceived trust, and (5) Perceived ease of use. In particular, Mobility is the most influential factor towards consumers’ intention to use mobile commerce services. Mobility is the most influential factor towards consumers’ intention to use mobile commerce services. This research has contributed and improved the measurement of consumers’ intention to use mobile commerce services in Vietnam. It also confirms the necessity to extend the traditional Theory of Reasoned Action and Technology Acceptance Model. In addition, this research provides some managerial implications for telecommunications companies, mobile commerce companies and marketers to shape their marketing strategies and improve their mobile commerce services.

1.6. Theoretical Model And Hypothesis Development

![Conceptual model](image)

**Figure 2: Conceptual model**

**Hypothesis Development:**

**Perceived Ease of Use (PEU):** Perceived ease of use (PEU) has been identified as an important external factor that can influence a users' intention to adopt technology (Davis, 1989). PEU refers to “individuals” who believe that using a particular product/service will make an effort (Davis, 1989). Applying the same concept in the context of Application technology, PEU is understood as the extent to which users perceive the ease of interaction with the Application allowing them to receive relevant and useful information they need.

**H1:** Perceived ease of use (PEU) will have a positive effect on intention to travel-enabled apps.

**Perceived Usefulness (PU):** Perceived usefulness (PU) relates to the degree to which a person believes that using a particular system will enhance their job performance (Davis et al., 1989). Research by Kim; Park; Morrison (2008) applied the TAM technology acceptance model and showed that perceived usefulness (PU) affects the intention to use mobile devices in the travel context. Applied in mobile commerce, research by Oanh & Uyen
(2017) also proves that the higher the perceived usefulness (PU), the higher the intention to use mobile commerce services.

**H2: The perceived usefulness (PU) has a positive effect on the intention to use tourism support applications (IU).**

**Perceived of Flexibility (PF):** Consumers can now connect to the WWW on their mobile phones through a standalone piece of software commonly known as mobile applications (Hoehle & Venkatesh, 2015). Mobile apps lead to a higher level of convenience, as consumers can use the software to compare prices, get discounts, perform specialized research on products and services, and locate store location, access timeline information, restaurants, traffic, local activities and share information on social networks (H.-Y. Wang & Wang, 2010). According to Kalinić & Marinković, 2016, as technologies on mobile devices increasingly meet the needs of flexible mobility in consumers' lives, the independent use of time and space is increasingly become important to both consumers and service providers.

**H3: The perceived of flexibility (PF) has a positive effect on intention to use tourism support applications (IU).**

**Social Norms (SN)/ Social influence:** Social norms (SN) or social influence is a person's perception of social pressure to perform or not to exhibit behavior (Fishbein & Ajzen, 1975). Social influence can be understood as the influence of an individual's social or environmental circle including reference groups, family, friends, and colleagues on their intention to adopt applications. tourism support applications on smartphones (Zhou et al., 2010). Similarly, social influence was found to be a significant predictor of behavioral intentions in different contexts including: mobile payments (Oliveira et al., 2016), intention to use mobile apps (Hew et al., 2015), mobile wallets (Madan & Yadav, 2016), mobile banking (Sok Foon & Yin-Fah, 2011) and mobile applications in tourism (Tan et al., 2017), etc.

**H4: Social norms (SN)/ social influence has a positive effect on the intention to use tourism support applications (IU).**

**Mobile application variety (MAV):** Research (Chong et al., 2012) indicates that e-commerce services provided to consumers today still have many limitations aspects compared to e-commerce. Mobile commerce provides custom-designed service apps that bring a lot of different benefits such as social media, listening to music, watching videos, and games, but providing "increased" values like e-banking. , mobile shopping is limited (Wang et al., 2006). In addition, (Kurgun et al., 2018), pointed out that the use of internet technology applications to advertise a destination is seen as an important motivation to go to that destination.

**H5: The mobile application variety (MAV) has a positive effect on the intention to use tourism support applications (IU).**

**Intention to use tourism support applications (IU):** According to Tran & Thanh (2017), intention to use (IU) is an individual conscious plan to make an effort to purchase a product of a brand. Intention to use (IU) is an important indicator of consumer behavior,
representing the degree or likelihood that consumers will be willing to use it. In the field of tourism, information technology applications are successful and highly effective in identifying consumers and their intentions to visit destinations through tourism support applications.

**H6: Intention to use tourism support applications (IU) has a positive effect on intention to visit tourism destination (IV).**

**2. Method**

The data collection for this study aims to research and propose valuable solutions in determining the influence of technology applications on tourists' destination choice behavior, thereby helping tourism businesses in Vietnam improve service quality adapting with the current trends to attract tourists through media promotion on tourism applications.

Data collection lasted from January 2021 to May 2021. Including 600 (Including 200 paper surveys and 400 online surveys). After eliminating inappropriate answer sheets such as respondents who participated in a number of similar surveys about tourism apps within the past 3 months or those working in some professions related to the company or tourism organizations, or work related to the field of journalism, market research companies, etc., The number of samples remaining for analysis was 500.

Official research is carried out by a quantitative research method, conducted through the survey. The research sample is carried out through the convenience sample method (non-probability).

The research focuses on Vietnamese people and international tourists to Vietnam. The obtained results show that the majority of respondents aged 18-22 years old (49%), most of the respondents are students (42.4%), and the income level below 5 million also accounts for the largest part, 32.6%), and most of the respondents are of Vietnamese nationality (84.6%)

The results from this sample can be applied since most of young people aged 18-22 have a higher demand for tourism-entertainment at present. However, with a low budget, it is very useful for them to refer to tourism destinations or other information such as hotels, means of transport, etc on mobile applications.

The obtained data were coded and quantitatively analyzed to test the scale by Cronbach's Alpha analysis, Exploratory Factor Analysis (EFA), Model Compatibility, hypothesis testing, and evaluate impact assessment by running a Structural Equation Modeling (SEM).

**3. Results**

The reliability of the scale is assessed by Cronbach's Alpha analysis (Table 1) on the preliminary survey sample and the overall Cronbach's alpha coefficient is 0.890 and the Cronbach's alpha if item deleted coefficient is between 0.565 and 0.778. The final results show that the value scales of the groups of factors are reliable and the data correlation is
consistent with the built scales, satisfying the criteria and can be used for EFA which helps to assess the convergence and distinguish the value of the scale. The KMO and Bartlett test in the 1st EFA testing show that the hypothesis of correlation between variables can be rejected (Sig. = 0.000). The KMO coefficient = 0.936 (> 0.5) indicates that EFA can be used.

Analyzing factors according to Principal components with Promax rotation. The results showed that 31 observed variables were initially grouped into 5 groups. Total value of variance extracted = 61.863% > 50%: passed; then it can be said that these 5 factors explain 61.863% of the variability of the data. The Eigenvalues of the factors are all high (>1), the fifth factor has the lowest Eigenvalues of 1.956 > 1.

After removing 3 factors with factor loading less than 0.5. The results show that 29 observed variables are grouped into 05 groups. Total value of variance extracted = 60.751% > 50%: satisfactory. This proves that 60.751% of the variation of the data is explained by 5 factors. The Eigenvalues of all factors are high (>1), the 5th factor has the lowest Eigenvalues of 1.799 > 1. The factor loading coefficients of 29 observed variables are all greater than 0.5 and there is not any variable that uploads both factors at the same time with a load factor close to each other, so the factors are guaranteed to have convergent values and differentiated in EFA analysis.

<table>
<thead>
<tr>
<th>Factors</th>
<th>Cronbach’s Alpha</th>
<th>Correlation Coefficient</th>
<th>Variable type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived easy of use (PEU)</td>
<td>0.867</td>
<td>0.725-0.738</td>
<td>0/5</td>
</tr>
<tr>
<td>Perceived of Usefulness (PU)</td>
<td>0.911</td>
<td>0.722-0.777</td>
<td>0/6</td>
</tr>
<tr>
<td>Perceived of flexibility (PF)</td>
<td>0.928</td>
<td>0.652-0.778</td>
<td>0/9</td>
</tr>
<tr>
<td>Social Norms (SN)</td>
<td>0.864</td>
<td>0.647-0.688</td>
<td>0/5</td>
</tr>
<tr>
<td>Mobile application variety (MAV)</td>
<td>0.891</td>
<td>0.666-0.731</td>
<td>0/6</td>
</tr>
<tr>
<td>Intention of using (IU)</td>
<td>0.821</td>
<td>0.626-0.715</td>
<td>0/3</td>
</tr>
<tr>
<td>Intention of visiting (IV)</td>
<td>0.778</td>
<td>0.565-0.641</td>
<td>0/3</td>
</tr>
</tbody>
</table>

Bartlett’s test is significant (Sig. < 0.05), and it can be used for Confirmatory Factor Analysis (CFA). The research team obtained the results after analyzing CFA illustrated with the Table 2 below:
Table 5: Model Fit Rating Index

<table>
<thead>
<tr>
<th>Index</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi-square/df (CMIN/DF)</td>
<td>1,594</td>
</tr>
<tr>
<td>RMSEA</td>
<td>0,034</td>
</tr>
<tr>
<td>CFI</td>
<td>0,969</td>
</tr>
<tr>
<td>GFI</td>
<td>0,912</td>
</tr>
<tr>
<td>PCLOSE</td>
<td>1,0000</td>
</tr>
</tbody>
</table>

The results show that Chi square/df= 1.594 (< 2) is good; TLI = 0.966; CFI = 0.969, GFI = 0.912; RMSEA= 0.034 (<0.06). It can be said that the model is appropriate to the research data. The authors execute the analysis of Structural Equation Modeling (SEM) to analyze multidimensional relationship between dependent and independent variables in the model, the obtained result are show in Figure (2) and Table (3).

Figure 3: Final Standardized SEM Model

The factors “Perceived Ease of Use”; “Perceived Usefulness”; “Perceived of Flexibility”; “Social Norms"; “Mobile Application Variety” positively affects the factor “Intention of using”; The factor “Intention of using” has a positive influence on the factor “Intention of visiting”. All relationships have p<0.05.

Thus, it can be concluded that the above relationships are statistically significant, or accepted at the 95% statistical reliability.
<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Equation</th>
<th>Estimate</th>
<th>P-Value (Sig)</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>H3</td>
<td>Intention of using ( \leq ) Perceived of Flexibility</td>
<td>0.100</td>
<td>0.002</td>
<td>Accept</td>
</tr>
<tr>
<td>H2</td>
<td>Intention of using ( \leq ) Perceived of Usefulness</td>
<td>0.107</td>
<td>0.002</td>
<td>Accept</td>
</tr>
<tr>
<td>H5</td>
<td>Intention of using ( \leq ) Mobile application variety</td>
<td>0.221</td>
<td>0.000</td>
<td>Accept</td>
</tr>
<tr>
<td>H1</td>
<td>Intention of using ( \leq ) Perceived Ease of Use</td>
<td>0.148</td>
<td>0.000</td>
<td>Accept</td>
</tr>
<tr>
<td>H4</td>
<td>Intention of using ( \leq ) Social Norms</td>
<td>0.193</td>
<td>0.000</td>
<td>Accept</td>
</tr>
<tr>
<td>H6</td>
<td>Intention of visiting ( \leq ) Intention of using</td>
<td>0.851</td>
<td>0.000</td>
<td>Accept</td>
</tr>
</tbody>
</table>

The independent variable “Mobile application variety” (MAV) has the strongest impact on the dependent variable, followed by the independent variable “Social Norms” (SN) and finally the variable “Perceived Ease of Use” (PEU). In fact, it is only those who have the need to visit tourist attractions that they intend to find and use mobile applications. Research results show that it is necessary to propose more solutions to help mobile applications meet more needs. The role of mobile applications affects a significant part of tourists' decision to choose a destination, so there need to be many improved solutions for businesses operating mobile applications to attract tourists. People intend to visit more tourist attractions. And reach people who intend to visit at tourist sites through mobile applications.

The R2 value of the dependent variable IU, executed based on SEM analysis, is 0.639. Thus, the independent variables explain 63.9% of the variation of the IU variable. The R2 value of the dependent variable IV is 0.587. Thus, the independent variable IU explains 58.7% of the variation of variable IV.

4. Discussion and Conclusion

Combined model of TPB and TAM (Taylor & Todd, 1995), the authors propose a model of six influencing factors of tourism support applications to tourists' behavior of visiting destination: Perceived Ease of Use (PEU); Perceived Usefulness (PU); Perceived of Flexibility (PF); Social Norms (SN); Mobile Application Variety (MAV) and Intention to Use tourism support application (IU).

According to the analysis results from the SEM model, the factor "Mobile Application Variety (MAV)" is the factor having the strongest impact on the Intention of Using tourism support applications (IU) to select destinations. come. At the same time, the results also test the influence of the factors on the Intention to Visit tourism destinations (IV) according to the equation below:

\[
IV = 0.851IU + 0.193SN + 0.148PEU + 0.221MAV + 0.107PU + 0.100PF
\]
From there, the authors make four priority recommendations as below:

*Firstly*, mobile-commerce companies should regularly update new versions for tourism applications. In addition, in order to catch up with the current trend, mobile commerce companies should apply more diverse and intelligent technologies to technology applications.

*Secondly*, the enterprises should pay more attention to the user's feelings in the journey of using mobile applications, regularly have customer loyalty programs, remind customers about the application.

*Thirdly*, the enterprises that need to design a website and mobile application interface for tourism that is friendly, easy to understand, and easy to use for users.

*Last*, the enterprises should promote the promotion of outstanding features of tourism applications for consumers such as helping customers save their time, convenience for booking hotel, train tickets, air tickets. At the same time, special attention should be paid to compatibility so that the application can operate smoothly on different mobile devices.

When the Covid-19 pandemic is strictly controlled, the authors expect to expand the survey objects, especially foreign tourists and continue to develop and research complementary topics such as "Factors affecting tourists' intention to visit destinations in Vietnam", to correct shortcomings or points that the group's main topic has not explored. The authors hope that the results of this study will be applied in practice, as a reference for other topics in the future, and contribute to the development and launch of tourism support applications in the future.

5. References


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