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A Study of The Effects of Affordances and Constraints on User's Usage of Travel-related WeChat Mini Programs

Research-in-Progress

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Abstract

WeChat has been integrated into the daily lives of Chinese people, including travel. This study adopts affordance theory to examine the influences of affordances and constraints on users' usage of travel-related WeChat mini programs. We plan to conduct a survey of users who have used at least one travel-related mini program. We hope this research can provide both theoretical implications to tourism literature and practical implications for tourism service providers as well as designers of travel-related mini programs.

Keywords: WeChat, travel-related WeChat mini programs, affordance theory, constraint

Introduction

Smartphones have completely blended in our daily lives, including travel (Wang, Xiang, and Fesenmaier, 2016). Along with the rapid development of smartphones, various APPs began to spring up, among which travel-related APPs are very popular. Travel-related APPs ranked 7th in the mobile APPs download ranking (Slideshare.net, 2018), three fifth smartphone users have downloaded travel-related APPs and 45% of them intend to plan their trips using those APPs (GoodWorkLabs, 2016). Several recent studies have investigated the influences of mobile devices such as the smartphone in tourism context (Wang et al., 2016; Yovcheva, Buhalis, and Gatzidis, 2012; Tussyadiah and Zach, 2012; Mataram, and Mandiri, 2015). These researches have explored the effects of smartphone on the aspects of tourism such as tourist satisfaction, information search, decision making, and experience sharing (Wang et al., 2016). However, among those previous researches, there are some researches focused on travel-related APPs (Dickinson, Ghali, Cherrett, Speed, Davies, and Norgate, 2014; Wang and Xiang, 2012; Lai, 2015; Lu, Mao, Wang, and Hu, 2015). Based on a review of smartphone APPs, Dickinson et al. (2014) studied the functionalities used in the UK tourism travel area and examined the mediation role in tourism travel decision making. Wang and Xiang (2012) classified the types of information services and design features of travel-related iPhone APPs and users' evaluation and reviews of the Apps. Lai (2015) identified antecedents and determinants that influence travelers' technological

acceptance of an APP-based mobile tour guide. The results suggest that informativeness, performance expectancy, effort expectancy, social influence, and facilitating conditions have significant impacts on the behavioral intention. Lu et al. (2015) studied the factors that could affect travel-related APPs adoptions by tourist visiting rural tourist attractions in China.

Although a variety of travel APPs have changed the way we travel, we have to admit that travel-related APPs are used less frequently and development costs are quite high (Cheng, Ren, Hong, Nam, and Koo, 2019). According to reports of mobile APPs analytics firm Flurry, travel APPs are used an average of only 2.6 times per week and keep 45 percent of their users over a 90-day period (Michelle Saettler, 2018). In the face of such a situation, we associate the WeChat mini program, which was released by WeChat, the giant in the field of instant messaging in China. Basically, WeChat is a free instant messaging service provider released by Tencent in 2011. As of the second quarter of 2016, WeChat has covered more than 94% of smartphones in China, with monthly active users reached 806 million (Tencent Big Data, 2016). Based on the huge number of uses of WeChat, the content is very easy to spread within WeChat. The travel industry itself has strong social and content attributes. Often, visitors would like to share with others when they found a discount flight ticket or be deeply impressed by a post about a specific trip. Therefore, the ecosystem built by WeChat is very conducive to the development of tourism.

Mini program was released by WeChat in 2017, it looks similar to a general APP. Yet, it also has several features that are very different from an APP. First of all, mini program does not need to be installed or uninstalled. It is embedded in WeChat and does not take any mobile storage, and WeChat users can access to the mini program they want to enter (Cheng et al., 2019). From this point of view, the travel related mini program does meet the characteristics of the mini program. It is fast and lightweight, and there is no complicated features and advertisement push. For people who travel 1-2 times a year, travel related mini program can fits the needs of such travelers.

Affordance theory was proposed by Gibson in 1977 and then developed by several other scholars. Most researches based on affordance theory have been studied for information system design (Maier and Fadel, 2009; Beynon-Davies and Lederman, 2017; Lintern, 2000) and social media (Treem and Leonardi, 2013; Majchrzak, Faraj, Kane, and Azad, 2013; Cabiddu, De Carlo, and Piccoli, 2014). In tourism field, there are not many studies that have been explored. Since the mini program has just been released, functional aspects may not be complete. Meanwhile, it is also full of unknowns for those who are used to using general APPs. Therefore, the purpose of this study is to explore the influences of affordances provided by travel related mini programs and constraints while using those mini programs on user's usage behavior.

Theoretical Background

WeChat and WeChat Mini Program

China has become a huge tourism market in the world. With the economic development, China's tourism market will continue to grow (Cheng et al., 2019). Interestingly, Chinese travelers are mostly like to use APPs to design their trips. According to Travelport, they use an average of 20 APPs while traveling. As one of the giants in China's Internet industry, Tencent is also playing a very important role in the tourism industry.

WeChat is a free application that Tencent launched in 2011 to provide instant messaging services to users. WeChat can provide a variety of functions, including public platform, moments, messaging, payment, and so forth. In 2018, WeChat monthly active users has reached 1.082 billion (2018 WeChat Annual Data Report, 2019). WeChat is fully integrated into the lives of Chinese domestic netizens to become a way of life. In the use of mobile APPs, WeChat accounted for 23.8% of the time, and the second-ranked Tencent video only took for 4.9% (China Industry Information Network, 2018). WeChat has cultivated a high degree of user dependence.

Mini program was released in 2017, is one of the many functions provided by WeChat. As mentioned in last section, mini programs are embedded in WeChat and users can use them directly through WeChat and do not need to download any installation packages. Moreover, mini programs do not need to be

uninstalled if the user intends to stop using a specific mini program. Since mini programs do not need to be installed, they do not occupy the phones' memory and storage.

Affordance Theory

The concept of affordance was proposed by Gibson in 1977, which contain not only the individuals and the environment, but also the interactions between them. As Norman (1999) pointed out, "Gibson sees an affordance as a physical relationship between an actor (e.g., user) and physical artefacts in the world reflecting possible actions on those artefacts" (Hartson, 2003: 316).

Based on Gibson's research, many scholars later proposed new thoughts. For example, Norman (2013) firstly adopted the affordance theory into human-computer interaction field. In his study, he believes that affordance should be classified as real affordance and perceived affordance. Real affordance refers to the physical features of a device or interface that allow its operation. On the contrary, perceived affordance is the feature of the appearance of the device that offer clues for its operation (Hartson, 2003).

On the basis of previous studies, Hartson (2003) classified the affordance as 4 kinds of affordances according to the role they play in supporting users during interactions. They are cognitive affordance, physical affordance, sensory affordance, and functional affordance.

Cognitive Affordance

Hartson (2003: 319) defined the cognitive affordance as "a design feature that helps, aids, supports, facilitates, or enables thinking and/or knowing about something". For example, when you move the mouse cursor over a button, and a message notification will appear, prompting you what the button means and what will happen when you click on the button. This kind of affordance can be regarded as cognitive affordance.

Physical Affordance

The physical affordance was defined by Hartson (2003: 319) as "a design feature that helps, aids, supports, facilitates, or enables physically doing something". As an example, when users are using online travel agency, the button on the webpage should be in an easy-to-access location and the size should be a suitable size that enable user can click on the button easily. This affordance can be seen as physical affordance.

Sensory Affordance

Hartson (2003: 322) defined the sensory affordance as "a design feature that helps, aids, supports, facilitates, or enables the user in sensing something". Hartson (2003) argued that sensory affordance can be viewed as an attribute of cognitive and physical affordance since users must be able to sense cognitive and physical affordance before they support users' cognitive and physical actions. For instance, the font size on the button should be large enough for users to read it easily. This affordance can be regarded as sensory affordance.

Functional Affordance

Functional affordance was defined as "an affordance helps or aids the user in doing something" by Hartson (2003: 321). For example, when you are using booking.com to book a hotel, you will see a list of hotels after entering a location keyword. Then you can click on the sort button to list the hotels again in order of price level or distance. Therefore, this kind of affordance can be known as functional affordance.

In the context of WeChat and WeChat mini program, WeChat can be viewed as an affordance provider, which essentially is an instant messaging tool. According to Norman's (2013) point of view, mini program can be regarded as a kind of perceived affordance provided by WeChat. Interestingly, WeChat mini program has been extended to other purposes by the interaction between Chinese social networks, which can be considered as an affordance sub-provider. WeChat mini program provides a platform for

enterprises to release their own mini programs to access the huge amount of WeChat users. Simultaneously, it also offers a channel for WeChat users to achieve their goal more easily. For example, travelers can easily book hotel and traffic tickets through specific interaction via mini program without downloading and installing kinds of APPs.

As a sub-provider, WeChat mini program also can provide the users with cognitive, physical, sensory, and functional affordance. As mentioned in the last section, because of the low use frequency of travel-related APPs, the characteristics of mini program make it very suitable for general travelers. Therefore, in this study, the authors attempt to explore the effect of affordances provided by travel-related mini programs on users' use behavior of them.

Constraint

Distrust

Trust refers to consumer's willingness to rely on the exchange partner (Moorman, Zaltman, and Deshpande, 1992). Therefore, trust in the context of smart tourism means that travelers accept to use travel related technology to design their trips or fulfill their needs and requirements during the trips. Satama (2014) argued that trust refers to users put themselves in a weak position and believe that the exchange partner will fulfill his or her part. On the contrary, Tussyadiah and Pesonen (2018) defined distrust as the lack of interpersonal trust between the guest and the host, lack of trust toward technology, and lack of trust toward Airbnb in the Airbnb context. Distrust is therefore defined for this study as the lack of trust toward travel-related mini programs. This study attempts to examine the influence of distrust toward travel-related mini programs on users' use behavior of them.

Perceived Risk

Kim, Ferrin, and Rao (2008) argued that perceived risk refers to the consumer's perception of potential uncertainty in relation with negative outcomes in a purchase activity. The perceived risk in mobile shopping is due to the inability to confirm the quality of the actual product before the consumer purchases. Although smartphones have now penetrated into many aspects of peoples' lives including travel, travelers still perceive an extent of risk while purchasing travel products (Park and Tussyadiah, 2017). Since the characteristic of intangibility of tourism product and service, perceived risk can be more crucial in travel context (Ruiz-Mafe, Sanz-Blas, and Aldas-Manzano, 2009). This study is therefore trying to examine the effect of perceived risk toward purchasing travel product via travel-related mini programs on users' use behavior of them.

Subjective Norms

The theory of planned behavior (TPB) suggests that subject norm is a determinant of behavior intention. Ajzen (1991: 188) has defined subjective norm as "the perceived social pressure to perform or not to perform the behavior by the individual". Since mini program is somehow a new product launched by WeChat, and WeChat as a social tool, the user's behavior will be affected by many social factors. For example, one of your friends thinks that a travel-related mini program is very useful and recommends it to you, you will be influenced more or less by this friend's advice when you plan your next trip. So, Oh, and Min (2018) suggested that social influence and trend affinity are two forms of subjective norms are of especially relevance to the adoption of Airbnb. Çelik (2011) found that social norms has positive influence on perceived ease of use in an online retail shopping context.

Therefore, this study will adopt both social influence and trend affinity to the research model to study the influence of subjective norms on users' use behavior of travel-related mini programs. Social influence refers to the extent to which a consumer thinks that others who are important to him feels that he or she should use a specific product (Venkatesh, Thong, and Xu, 2012). Möhlmann (2015) argued that trend affinity occurs when the consumer expects to follow current trends or seek to use some new products or service. Hence, social influence is defined as the degree to which a consumer's important others (friends, family etc.) believe he or she should use travel-related mini programs. Trend affinity is defined as the phenomenon that other travelers seeking to use travel-related mini programs.

Research Model and Hypotheses

Based on the theory and studies we provided in the last part, we propose the research model as shown in Figure 1. Therefore, research hypotheses are as follows:

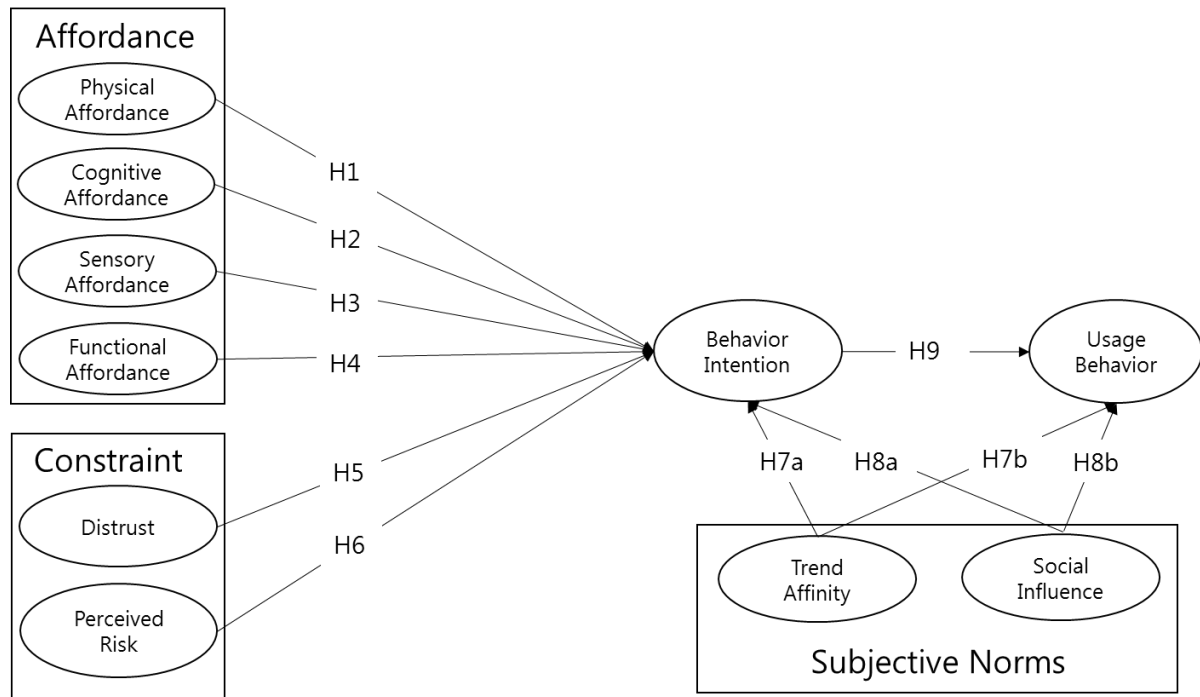


Figure 1. Research Model

H1: Physical affordance provided by travel-related mini program has a positive impact on users' behavior intention.

H2: Cognitive affordance provided by travel-related mini program has a positive impact on users' behavior intention.

H3: Sensory affordance provided by travel-related mini program has a positive impact on users' behavior intention.

H4: Functional affordance provided by travel-related mini program has a positive impact on users' behavior intention.

H5: Users' distrust toward travel-related mini program has a negative impact on users' behavior intention.

H6: Users' perceived risk toward travel-related mini program has a negative impact on users' behavior intention.

H7a: Trend affinity has a positive impact on users' behavior intention of travel-related mini programs.

H7b: Trend affinity has a positive impact on users' usage behavior of travel-related mini programs.

H8a: Social influence has a positive impact on users' behavior intention of travel-related mini programs.

H8b: Social influence has a positive impact on users' usage behavior of travel-related mini programs.

H9: Users' behavior intention has a positive impact on usage behavior.

Measurement instrument

In this study, in order to ensure the initial reliability and validity, the measurement items of the variables are derived from previous researches. The items of four types of affordances are derived from the study of Hartson (2003). Distrust and perceived risk items are adapted from studies performed by So et al. (2018) and Mao and Lyu (2017). The items of behavior intention and usage behavior are derived from the study of Venkatesh, Morris, Davis, and Davis (2003). Trend affinity items are adopted from Möhlmann (2015) and social influence items are borrowed from Venkatesh et al. (2012).

Data Collection

The data will be collected through online questionnaire service company, namely Wenjuanxing.Com. Before the main survey, a pilot test will be conducted for university students. Questionnaire items will be adjusted based on the results of pilot test. In addition, since the main survey will be conducted in China and all respondents are Chinese, the questionnaire will be translated into Chinese.

Data Analysis

The data will be analyzed by using Statistical Package for the Social Sciences (SPSS) 23 and Analysis of Moment Structure (AMOS) 21. The analysis of this dissertation is as follows. First, descriptive statistics analysis will be conducted to describe the demographic and general characteristics of the respondents. Second, exploratory factor analysis will be conducted to explore the underlying dimensions of affordance, constraint, behavior intention, usage behavior, trend affinity, and social influence. Then, reliability analysis will be used to test reliability. After that, CFA will identify the dimensions and estimate the measurement model for items on the basis of the proposed research model. Finally, structural equation modeling will be used to verify the relationships among the constructs in the research model, evaluate the structural model, and test the research hypotheses.

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