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STUDY ON Users' Continuance Intention of Mobile Check-In service

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Abstract: User adoption and continued use is the key to successful application of mobile check-in service. The study builds a research framework based on Expectation Confirmation Theory, combining Technology Acceptance Model and Switching Cost. The empirical results show that perceived usefulness, perceived ease of use, perceived playfulness, customer satisfaction and switching costs are positively affect mobile check-in users' continuance intention. They are also influenced positively by expectation confirmation in addition to switching cost. Perceived usefulness has significant impact on satisfaction and then has an indirect effect on continuance intention. Finally, suggestions are proposed for mobile check-in operators, including optimizing user experience, improving compatibility and convenience, enhancing the playfulness and interaction, offering customized services and establishing mature score mechanisms

Keywords: Location-based Services; Mobile check-in; Continuance intention; ECM-ISC

1. INTRODUCTION

With the development of Mobile Communications Technology (MCT) and the acceptable price of mobile terminals such as smart phones and tablet PCs available to consumers, the combination of location-based service (LBS), mobile Internet and social networks have become a trend. Compared to traditional mobile applications, LBS-based applications, based on original user information and relationship, adds the dimension of user location, so that the offline businesses and the online users will be connected. By introducing discounts information, game props and other factors, LBS form an incentives mechanism to rise user's activity and stickiness [1]. Among them, mobile check-in is an emerging in LBS which exhibits a new trend in mobile business. It was the success of the American LBS supplier Foursquare (https://foursquare.com/) mobile check-in service set off the boom of Chinese electric commercial enterprises' application of mobile LBS. Various types of applications and websites applying the user interaction method are trying to encourage users to take the initiative to share their location information and check-in, in order to improve users and their stickiness.

The mobile check-in refers to the user applications through smart phones, tablet PCs and other mobile equipment, release and recording their own location with the positioning function to share their consumption experience and get discount information[2]. As an emerging mobile service, mobile check-in not only pays more importance on the registered user number but also on the number of active users. IResearch data shows that the growth of China's mobile service users using check-in is slow, contrasting hard with the enthusiasm of Chinese electricity commerce suppliers towards this service. By second quarter of 2014, China mobile Internet users reached 838 million and the market size reached 51.56 billion Yuan, a year-on-year growth of 93.4%. However, mobile check-in service users is less than 30% of whole mobile Internet users and active users are even fewer [3].

According to Expectation Confirmation Theory, customer loyalty comes from their high recognition and commitment to products or services, which may contribute to second use and consumption. And for mobile check-in service, the confirmation between users' experience after the initial adoption and their expectation for

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service is undoubtedly the key to users' continuance intention. Then whether the users' experience the initial adoption match their previous expectation, how will these affect the degree of the user's continuance intention and what are other factors influencing this intention? This paper will explore factors affecting users' continuance intention and their interaction mechanism based on Expectation Confirmation Theory, combining related theories like Technology Acceptance Model and Switching Cost, which will not only enrich the study of user behavior in the LBS field, but also provide a theoretical basis for the mobile check-in service providers to improve product functions, retain customers and enhance user stickiness.

2.   LITERATURE REVIEW

2.1 Research on IS continuance intention

In the past two decades, personal Information System (IS) usage behavior has always been a hot studying area which scholars focus on. IS usage behavior can be divided into pro- adoption and post-adoption behavior, of which the former gets the attention of scholars firstly, forming the theories like Technology Acceptance Model [4], Theory of Planned Behavior [5], innovation diffusion theory [6] and other theoretical schools. Although these theoretical models have well explained the major effects of individual users' adoption on IS, the initial adoption does not mean the continued usage. Without long-term, sustained and effective usage, initial adoption of IS cannot bring expected business value to IS providers [7]. Therefore, more and more scholars realize the importance of post-adoption behavior. Initial adoption of IS is the first step to success and continued usage is the key to long-term survival and ultimate success [8].

On the basis of the initial adoption theory, Bhattacherjee built a brand-new model of continued usage of information systems-Expectation Confirmation Model of IS Continuance (ECM-ISC) by introducing expectation confirmation theory. Bhattacherjee considered satisfaction as a critical factor for measuring IS continuance intention, as well as the user cognition after the usage. Besides, the user satisfaction depends on two factors-perceived usefulness and expectation confirmation [8]. Lin et al increased factor of perceived playfulness and result showed that perceived playfulness also has a significant impact on the continuance intention [9]. Thong et al introduced perceived ease of use and perceived playfulness on the basis of ECM, which improve the explanation degree of continuance intention, indicating that the expansion of the ECM is reasonable [10]. There are also scholars trying to integrate ECM with TAM, namely to combine the major factors in ECM and TAM theories, individual satisfaction, expectation confirmation, perceived usefulness and perceived ease of use after initial usage, in order to make empirical study on post-adoption and continued usage behavior of IS[11-12].

Although IS continued use behavioral research has been relatively mature, with considering satisfaction, perceived usefulness, perceived ease of use and many other cognitive factors that influences continuance intention, most of these are capable factors to promote users' sustainable use of the service, rarely involving the inhibiting factor hinders users to change services, which is also the main reason for introducing the variable of switching cost in this study.

2.2 Research on LBS usage behavior

With rapid growth of mobile networks, Location-based service (LBS) has received more and more attention from scholars at home and abroad in recent years. Many researches focus on LBS's market status and prospects and business development mode. However, the study on LBS user motivation and continued use behavior is few, which is the key to the success of LBS services [13]. LBS services are application service closely related to users' life and convenience of LBS services is the important reason for users to use them. Minna's studies show that the condition value and convenience value of LBS have a significant positive impact on the using intention [14]. To get discount, keep the visit as a souvenir and make friends are the main purposes for users to share location information [15]. Users are willing to share location information with their families and friends,

if their privacy is well guaranteed [16]. In addition, whether LBS's function is able to meet the needs of users under different motivations namely whether LBS is useful for users and whether it is able to improve users' efficiency have an important impact on the user's intention to use. Junglas' study show that perceived usefulness is positively correlated to use intention [17]. With the integration of LBS service and mobile commerce, a good user experience will have a positive effect on both the LBS users' continued use and reputation of LBS service. He Zhenyu proved that user experience and performance expectations have a positive impact on intention to adopt LBS service form perspective of the performance expectations, consumer experience and path dependence [18].

As a newly emerging LBS application, the popularity of mobile check-in service has been a trend, which may not only meet the users' demand for discounts information, location information sharing and other functional requirements, but also satisfy user's hedonic demand for social interaction, making friends, emotional communication and games or other entertainment. At the same time, in the context of data mining, mobile check-in services can offer real-time push according to user's specific information needs, which provides users a brand-new service experience. It enhances customer satisfaction as well as expands target consumption group, satisfaction precisely being the important factor affecting user's continuance intention [8].

2.3 ECM-ISC model

Oliver put forward Expectation Confirmation Theory (ECT) in 1980 [19]. As far as he concerned, the loyalty of customer comes from their high recognition and commitment to the product or service, which will lead to their second use and consumption [20]. On the basis of ETC, the model of Expectation Confirmation Model of IS Continuance (ECM-ISC) holds the viewpoint that user's continuance intention is influenced by perceived usefulness and satisfaction. Satisfaction is affected by perceived usefulness and expectation confirmation, while expectation confirmation also has an impact on perceived usefulness [8].

ECM-ISC model has made seminal contributions to the research on IS continued use. Since the proposition of ECM-ISC, many scholars have studied users' continued use of different information systems with ECM-ISC model, including knowledge management system [21], website [9], e-learning systems [22], social networking platforms [23] and mobile network services [10] etc., achieving rich theoretical and practical results. During this process, ECM-ISC model has also been enriched and improved. With the introduction of perceived ease of use and perceived playfulness, self-efficacy, as well as other contributing factors [24], applicability and explanation of ECM-ISC has been significantly enhanced.

3. RESEARCH MODEL AND HYPOTHESES

According to Van der Heijden's research, information system can be divided into hedonic and functional information system from the perspective of users' using motivation. Hedonic information system is designed for users to have pleasure, as well as experience and stimulate enjoyment in leisure time, paying attention to the emotional interaction between users and emphasizing "fun" in order to attract users to use and be infatuated with the system. Functional information system is designed for the occasions of working or studying, focusing on the interaction and function matching with users, so as to improve users' performance, which mainly emphasizes the "usefulness" [25]. Mobile check-in owns the characteristics of hedonic information system and functional information system at the same time. On the one hand, it provides users with fast access to discount, real-time location information even works attendance checking. On the other hand, social network games and other entertainment properties in mobile check-in also bring more fun for users. Therefore, considering the characteristics of hybrid system for mobile check-in service, the paper selects the ECM-ISC model as the main research framework and introduces perceived ease of use, perceived playfulness and switching costs in addition to the classic variables like perceived usefulness, expectation confirmation and satisfaction, so as to explore

network users' continuance intention to mobile check-in service and its interaction mechanism.

Specifically, considering the mobile check-in's social services like 'shake' and 'people nearby', entertainment community and online games, this paper introduces perceived playfulness to analyze user viscosity of mobile check-in. In addition, because mobile check-in is a mobile internet based terminal service, convenient operation, platform compatibility is also an important factor to affect user's continuance intention, therefore, perceived ease of use introduced into the research as well. Finally, taking low loyalty and fierce market competition in Chinese market into account, the paper not only pays attention to the enabling factors, but also takes full account of the switching cost as the inhibiting factors, which also makes the whole research system more scientific and perfect.

3.1 Perceived usefulness

Perceived usefulness is the subjective evaluation of users whether the information systems or information technology is helpful to the study and life. The higher subjective evaluation is, the stronger user's willingness to use continuously will be [26]. The main function of the mobile check-in services is to help users express consumer demand, obtain preferential discount information, share the consumption experience, broaden channel to gain business information and improve the efficiency of screening all kinds of information. After the functions above meet users' demand well, user experience will be enhanced and satisfaction will also increase [8]. That is to say if the mobile check-in will bring benefits to users' study and life, their satisfaction to mobile check-in will be improved. Their continuance intention to mobile check-in service will be stronger as result. Therefore, this paper put forward the following hypotheses.

H1: User's perceived usefulness for mobile check-in will be positively correlated with user's continuance intention

H2: User's perceived usefulness for mobile check-in will be positively correlated with user's satisfaction

3.2 Perceived ease of use

Like perceived usefulness, perceived ease of use also comes from Davis's TAM model, used to express the difficulty or ease degree of using information system. Generally speaking, before using mobile check-in services, users have to download and install mobile check-in software and QR code software in order to enjoy the service, which has a high requirement for the APP's compatibility in different operating system. At the same time, the operation of check-in should be as easy as possible to attract and maintain more users. Bhattacherjee believes that in the process of continuous use of information systems, user's improving operating proficiency may overcome the problems of usability gradually [8], thus he didn't introduce the perceived ease of use as influencing factors in his research. However, in the following researches, it has been proved that user's perceived ease of use has positive influences on perceived usefulness and continuance intention [27]. Therefore, this paper put forward following hypotheses.

H3: User's perceived ease of use for mobile check-in will be positively correlated with user's continuance intention

H4: User's perceived ease of use for mobile check-in will be positively correlated with user's perceived usefulness

3.3 Perceived playfulness

Perceived playfulness comes from Flow Theory. As an important surface structure to analyze immersion, perceived playfulness is used to measure the pleasure brought by the system itself instead of external performance in the process of information system using [28]. With the development of mobile check-in services, mobile check-in operators started to cooperate with many social networking platform and game operators, in order to insert mobile check-in into their products or services. In this way, users or player's reality feeling will be increased as well as interest of service. Besides, through mutual check-in, user location information may be

disclosed to friends so as to increase trust between friends. Some users of mobile check-in use the service based on the purpose of interpersonal and emotional communication, while mobile check-in's 'moment', 'shake' and many other entertainment function highlight the characteristics of playfulness, which is the key to maintain these customer groups.

As one of the important sentiment index, perceived playfulness was demonstrated to have a significant effect on the continuance intention, especially in hedonic information system. When using an information system allows users to feel the fun and pleasure, he would enhance the satisfactory degree of the system and will be more willing to continue to use this system from the emotional level [9]. Therefore, as a combination of hedonic and functional information system, mobile check-in's playfulness may have positive effect on user's satisfaction and continuance intention. Therefore, this paper put forward following hypotheses.

H5: User's perceived playfulness for mobile check-in will be positively correlated with user's continuance intention

H6: User's perceived playfulness for mobile check-in will be positively correlated with user's satisfaction

3.4 Expectation confirmation

According to the Expectation Confirmation Theory, expectation confirmation is results of comparing post purchase product performance and expectation before purchasing, which reflects users' psychology perception gap before and after use. Expectation confirmation is an important factor in the formation of user satisfaction. When the product performance is better than expected, user's satisfaction will be enhanced, otherwise it will reduce user satisfaction [19]. Therefore, quality service and pleasurable experience of mobile check-in is the key to improve the degree of user's expectation confirmation [29]. If users' demand for business preferential discount, emotional communication, games and entertainment and information push are not well met, user may be disappointed in the mobile check-in service, perceived usefulness and satisfaction reduced indirectly as well. From the perspective of users' using motivation, when user's expectations for mobile check-in service are not met, it will also be reflected in the perceived playfulness, due to people may be affected by intrinsic and extrinsic motivations at the same time [30]. Thong et al also introduced perceived ease of use and perceived playfulness when using ECM-ISC model to study the mobile web service continuance intention, which confirmed the significant influence of expectation confirmation on both of them [10]. Therefore, this paper put forward following hypotheses.

H7: User's expectation confirmation for mobile check-in will be positively correlated with perceived usefulness

H8: User's expectation confirmation for mobile check-in will be positively correlated with perceived ease of use

H9: User's expectation confirmation for mobile check-in will be positively correlated with perceived playfulness

H10: User's expectation confirmation for mobile check-in will be positively correlated with satisfaction

3.5 Satisfaction

Oliver defined satisfaction as the consistency between actual performance of products and expectations of users when he proposed Expectation Confirmation Theory. Satisfaction takes expectation confirmation as reference and become the reference for the next purchase [19]. User satisfaction's influence on repurchase intention is also applicable in the field of information systems. When using mobile check-in service, the satisfaction gained in the early usage of information system product will also affect the continuance intention for mobile check-in. The ECM-ISC model takes customer satisfaction as key factors for the effect of continuance intention, reflecting user's continuous usage attitude towards the information system [8].

The satisfaction of mobile check-in service initial usage mainly comes from the practical sense or pleasure

after user's functional requirements or recreational demand is met. Higher user satisfaction often means a better quality of service, is a kind of affirmation to service providers. In addition to provide services like sharing location information and access to discount, mobile check-in service also introduce games, social networking tools to improve the playfulness of service, in order to improve satisfaction and attract users to use mobile check-in service again, which is consistent with Lin's research [9]. Therefore, this paper put forward the following hypothesis.

H11: User's satisfaction for mobile check-in will be positively correlated with user's continuance intention

3.6 Switching cost

Switching cost refers to the sacrifice that users have to make when switch from one mobile check-in service to another mobile check-in service, including learning cost, sunk cost and continuous cost etc. It is a feeling of being 'locked', which is based on economic, social and psychological cost [31]. Mobile check-in service has the characteristics of social interaction and user through the mobile check-in services may know many new friends and friend circle will continue to expand with the further use. Once user stops to use the mobile check-in service, it means that user has to establish social network again and re-concern related businesses to get discount information and scores, which may cost user's energy, time and money, then affecting user's continuance intention [26]. Research of Zhang et al also showed that, switching cost may hinder user's transition behavior. Users will be more inclined to continue using the product or service if the switching cost is high [32]. Therefore, this paper put forward the following hypothesis:

H12: Switching cost of mobile check-in will be positively correlated with user's continuance intention

According to the analysis above, this paper takes Expectation Confirmation Model as the theoretical framework and proposes the following research model, as shown in Figure 1:
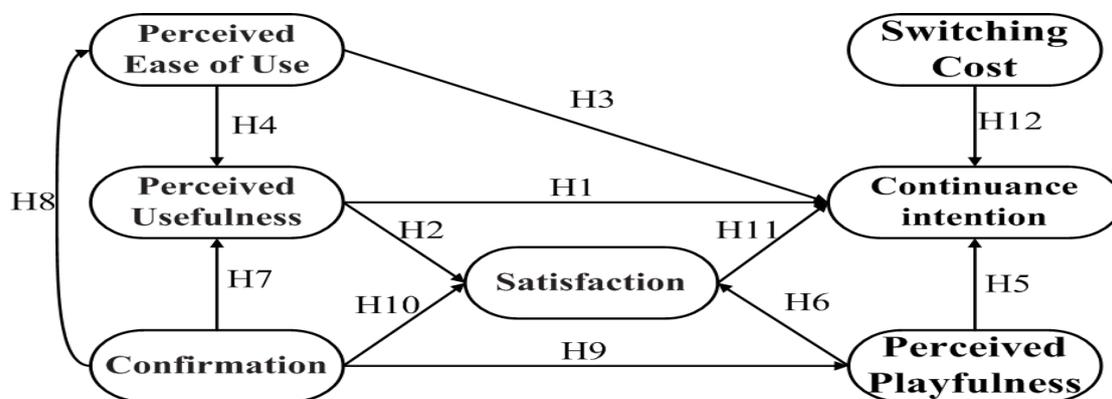

Figure 1 Research model of users' continuance intention toward mobile check-in

4. RESEARCH METHODS

4.1 Sampling and instrument

By theories and literature review above as well as taking the specific application of mobile check-in service in China into consideration, this paper develops research scale with Likert 5 scale, including a total of 7 constructs which is composed by 29 items. They are perceived usefulness (PE), perceived usefulness (PE) [4], expectation confirmation (CON), satisfaction (SA) and continuance intention (CI) [8], perceived playfulness (PP) and switching costs (SC) [26]. All the 29 items have been modified to fit the context of mobile check-in service in China.

Data for our study were collected using a questionnaire, and sample was selected from mobile internet users in China. Questionnaires were distributed and filled combining random interception and online survey.

416 valid questionnaires were received in the survey, of the answers 215were males and 201 were females. The respondents mostly concentrated in the age range of 18-35, accounting for 78.8%. As for education level, the ones who received high school education or above are the majority, of which 363 people received undergraduate education or above and occupied 87.3%. As for occupational categories, most of samples are students and young white-collar, reaching 334 people, accounting for 80.3%, which is coincident with the features of mobile check-in service users in China [3].

Among 416 samples, 362 people have a certain understanding of mobile check-in services, accounting for 87% of total sample, which shows that mobile check-in has a higher degree of recognition in young mobile Internet users. The number of mobile check-in service users is 346, accounting for 83.2%. However, up to 72.3% of investigation objects use mobile check-in service less than 3 times a week and few people use mobile check-in service more than 15 times a week, which proves that China is still in the initial stage of mobile check-in service usage and users' continuous behavior is not universal.

4.2 Scale reliability and validity

With the help of SPSS 19.0 and AMOS 20.0 software, this study has made the reliability and validity analysis of perceived usefulness, perceived ease of use, and expectation confirmation, perceived playfulness, satisfaction, switching costs and continuance intention. As is shown in Table 1, Cronbach's α reliability coefficient of each variable is greater than 0.7 and that of the vast majority variables is greater than 0.8, indicating a good level of the above variables and a good reliability of the questionnaire. This study takes the model of confirmatory factor analysis to measure the convergent validity of the model, as shown in Table 1, the value of the standardization factor loading of each variable is greater than 0.5. Moreover, the Average Variance Extracted (AVE) value of each variable is more than 0.5, showing that each latent variable has convergent validity.

Table 1 Scale of Cronbach's α coefficient and standardized factor loading coefficient

Variables	Items	Cronbach's α coefficient	Standardized loading	AVE
Perceived Usefulness (*PU*)	*PU1*	0.848	0.855	0.688
	PU2		0.832	
	PU3		0.815	
	PU4		0.815	
Perceived Ease of Use (*PEOU*)	*PEOU1*	0.875	0.840	0.729
	PEOU2		0.843	
	PEOU3		0.886	
	PEOU4		0.845	
Expectation Confirmation (*CON*)	*CON1*	0.853	0.847	0.695
	CON2		0.874	
	CON3		0.801	
	CON4		0.812	
Perceived Playfulness (*PP*)	*PP1*	0.905	0.850	0.725
	PP2		0.889	
	PP3		0.865	
	PP4		0.786	
	PP5		0.866	
Satisfaction (*SA*)	*SA1*	0.887	0.807	0.691
	SA2		0.768	
	SA3		0.872	
	SA4		0.873	
	SA5		0.830	
Switching Cost (*SC*)	*SC1*	0.751	0.741	0.576
	SC2		0.814	
	SC3		0.773	
	SC4		0.703	
Continuance Intention (*CI*)	*CI1*	0.739	0.815	0.659
	CI2		0.797	
	CI3		0.823	

This article uses the AMOS 20.0 software to calculate AVE values of each latent variable and correlation coefficient matrixes between latent variables. As shown in Table 2, the square root of AVE of each latent variable is greater than the correlation coefficient between the latent variables and other variables.

Table 2 Average Variance Extracted and Correlation coefficient matrix

	PU	PEOU	CON	PP	SA	SC	CI
PU	**0.830**						
PEOU	0.673	**0.854**					
CON	0.435	0.341	**0.834**				
PP	0.528	0.636	0.278	**0.852**			
SA	0.615	0.465	0.727	0.399	**0.831**		
SC	0.243	0.164	0.232	0.092	0.262	**0.759**	
CI	0.622	0.587	0.340	0.560	0.519	0.234	**0.812**

Note: The bold figures on the diagonal are the square root of the AVE value, and the lower triangular matrix is the correlation coefficient matrix.

Therefore, this measuring model has good discriminate validity. Therefore, the internal structure of each factor is credible and reliable and it is suitable for the further study of the path analysis and hypothesis test.

4.3 Data analysis and hypothesis testing

4.3.1 Analysis of the model fit index

By comparing the differences between the regeneration covariance matrix and sample covariance matrix, with which can reflect the degree of fit between the model and the data, the result shows that $\chi 2/df$ is 2.587, in the reasonable range of 1 to 5. GFI is 0.901, higher than the recommended value of 0.9. At the same time, RMSEA is 0.068, lower than the recommended value of 0.08. In addition, NNFI 0.889 is also close to the recommended value of 0.9. Based on this, it can be concluded that the research has a good fit index, which can be used to confirm the hypothesis

4.3.2 Path analysis

According to structural equation model and related theories, this study use AMOS 20.0 to make path analysis and confirm the research model of users' continuance intention toward mobile check-in. Standard path coefficient between latent variables and R^2 of endogenous variables is shown in Figure 2.
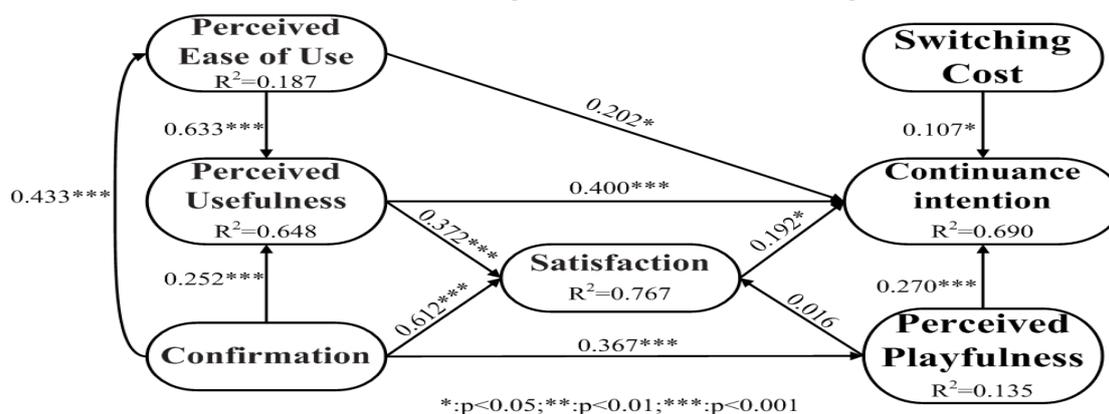

Figure 2 Result of the model confirmation

According to the result above, it can be seen that most of the hypotheses are supported and R^2 of continuance intention reaches 0.690, indicating that the research model has a good explanation for users' continuance intention toward mobile check-in. As shown in Table 3, perceived ease of use, perceived usefulness,

perceived playfulness, satisfaction and switching cost has a significant positive effect on user continuance intention. H1, H3, H5, H11 and H12 are supported. Besides, user's expectation confirmation for mobile check-in service as significant positive effect on perceived usefulness, perceived ease of use, satisfaction and perceived playfulness, thus H7, H8, H9 and H10 can be proved. In addition to expectation confirmation, perceived usefulness will also have a positive effect on satisfaction and perceived usefulness is influenced by perceived ease of use, therefore H2 and H4 can be verified. At the same time, perceived playfulness do not have a significant effect on satisfaction and H6 are unsupported. Poor gaming experience and bad social involvement of mobile check-in service may lead to this result, which is unable to satisfy user's hedonic demand. In addition, low user viscosity of mobile check-in and imperfect check-in reward mechanism can also be important reasons for insignificant relationships between perceived playfulness and satisfaction.

Table 3   The path estimation and the support of hypotheses

Hypothesis	Path	Standardized path coefficients	T value	Result
H1	PU→CI	0.400	3.457	Supported
H2	PEOU→SA	0.372	6.771	Supported
H3	PEOU→CI	0.202	2.205	Supported
H4	PEOU→PU	0.633	10.118	Supported
H5	PP→CI	0.270	5.137	Supported
H6	PP→SA	0.016	0.393	Unsupported
H7	CON→PU	0.252	4.728	Supported
H8	CON→PEOU	0.433	6.834	Supported
H9	CON→PP	0.367	5.964	Supported
H10	CON→SA	0.612	8.894	Supported
H11	SA→CI	0.192	2.439	Supported
H12	SC→CI	0.107	2.036	Supported

It can be seen from the standardized path coefficients that the influence of perceived usefulness is strongest among several variables which affect continuance intention of mobile check-in service, and its path coefficient is 0.400. The mobile check-in provides location information query and share, discount information and other practical functions for users, which increases user's screening efficiency for information and plays an important role on improving the user's continuance intention. Perceived playfulness ranks the second place and its path coefficient is 0.270. As a kind of information system with entertainment, mobile check-in operators cooperate with game developers and social networking platform to insert mobile check-in into their products or service, so as to increase the playfulness and user viscosity of mobile check-in. Path coefficient of perceived ease of use is 0.202, ranking the third place, which means that users also pay attention to the convenience of operation and platform compatibility. Relatively, the coefficient of satisfaction and switching cost is not very high, which may be related to the usage habits of investigation group. Besides, security privacy concerns to new service and boring application of network community topic and imperfect check-in mode may also lead to the low path coefficients.

5.   CONCLUSIONS AND SUGGESTIONS

5.1 Conclusions

As a new application of LBS, mobile check-in is still in its infancy in China and unpopular. Currently, the main users are young people with high education and the frequency of use is not very high. For most users, their main purposes of using mobile check-in are enjoying discounts, chatting with friends and keeping the visit as a souvenir, which means that the majority of users still lack a deep understanding of mobile check-in. Perceived

usefulness, perceived ease of use, perceived playfulness, satisfaction and switching cost have a significant positive impact on users' continuance intention. If the user finds mobile check-in helpful for him to obtain valuable information (including location information, discounts etc.), and to improve the communication efficiency with friends, he would prefer continued use of the service. Meanwhile, the operation convenience and good platform compatibility of mobile check-in service will help to improve users' perceived usefulness and continuance intention. At the same time, playfulness is another key factor to retain users. By providing innovative functions and services, user's curiosity will be met in the process of using mobile check-in. Last but not least, satisfaction and switching cost play an important role in users' decision of continued use, and user satisfaction depends largely on the comparison results of expectation before use and intuitive feelings after use, namely expectation confirmation, which positively influences perceived usefulness, perceived ease of use and perceived playfulness.

5.2 Suggestions

5.2.1 To optimize user experience

Mobile check-in operators should also cooperate with more offline institutions to expand the scope of check-in and optimize pushing function, providing users with more discount information. It is also necessary for them to perfect their location sharing services, enabling users to share more accurate location information in a more timely way. On this basis, they are expected to strengthen R&D and introduce more innovative functions to attract users, such as user-content generation (UCG, including pictures, video, and text commentary), and social networking tools inserting.

5.2.2 To improve compatibility and convenience

Strengthen the development of development of interactive language so as to improve the operation of mobile check-in and reduce the inconvenience for users to download, install and upgrade the check-in application. In addition, e-business enterprises cooperate with the mobile terminal manufacturer as much as possible to insert the application into mobile terminal and enhance the compatibility of mobile check-in software.

5.2.3 To enhance the playfulness and interaction

Open up cooperation channel with MSN, Twitter, FACEBOOK, QQ, WeChat and other social networking tools, and improve social sharing function of mobile check-in, so as to allows users to get more enjoyment and fun in the process of meeting new friends and share shopping experiences. It is better to add some interesting public homepages or friend-circles for users and embed mobile check-in into social networking platform and online games with high participation, interaction and playability in order to enhance users' immersive experience in social interaction and online games.

5.2.4 To offer customized services

On the basis of the deep integration with social networking, it is necessary to give a brand-new meaning to mobile check-in and segment market based on different target people. Operators should highlight the feature of innovation and fashion in mobile check-in, so as to offer personalized, customized services (such as specific information push) based on users' habits. Moreover, provide with good after-sale service and user feedback, timely understand users' needs, and constantly improve the service, thereby enhancing customer satisfaction.

5.2.5 To establish mature score mechanisms

Every time users check in, they will get some scores or honor. Mobile check-in services providers should develop countermeasures to encourage users to exchanges scores into various electronic coupons from online and offline business stores. Offer additional scores reward to users who check in continuously in several days. In addition, users can be provided with value-added services such as group buying, customizing, sec-killing etc., which is distinguished by user's score level, so as to increase the switching cost.

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