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Determinants of Undergraduates' Continuance Intention and Actual Behavior to Play Mobile Games in Chongqing, China

Yingjie Li*, Siriwan Kitcharoen

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Abstract

Purpose: The widespread use of the Internet and the increasing of sophisticated production of online games have brought great changes to the life of college students. Consequently, this paper examines the determinants of undergraduate student's continuance intention and actual behavior to play online mobile games in Chongqing, China. The conceptual framework proposes causal relationships between attitudes, utilitarian outcome expectations, hedonic outcome expectations, subjective norms, time constraint, continuance intentions and actual behavior. **Research design, data and methods:** Data were collected from 500 undergraduate students in Chongqing. Nonprobability sampling were employed, including judgmental sampling, quota sampling and convenience sampling. Before the data collection, the index of item-objective congruence (IOC) and Cronbach's Alpha were applied to approve validity and reliability. Structural equation model (SEM) and confirmatory factor analysis (CFA) were used for data analysis, including model fit, reliability and validity. **Results:** Attitude, utilitarian outcome expectation, hedonic outcome expectation, subjective norms, time constraints significantly influence continuance intention. Furthermore, the continuance intention has the strongest influence on the actual behavior of mobile games among students. **Conclusions:** All hypotheses were proved to be consistent with the research objectives. The results from this study will be useful for mobile game developers and marketers in formulating appropriate applications that will attract more consumers.

Keywords: Utilitarian Outcome Expectations , Hedonic Outcome Expectations , Subjective Norms , Continuance Intentions, Actual Behavior

JEL Classification Code: E44, F31, F37, G15

1. Introduction

With the increasing penetration of mobile phones and the rapid increase of mobile games, its addiction has become a great concern across the globe. A Google's global research shows that 72% of the American population and 70% of the Korean population spend a lot of time on mobile games. In China, this figure reaches as high as 79%. Among all the mobile game users in China, there are more males than females, and most of them are below 30 years old, with college students being the bulk. Playing mobile games consumes a lot of their time, which may cause loss of appetite, sleep disorders, low interest in learning, low grades, and harm the physical and mental health of college students (Qiu & Fang, 2017).

1 * Yingjie Li, School of Journalism and Media, Southwest University, China. Email: 184187477@qq.com
2 Siriwan Kitcharoen, Full-time Lecturer, Graduate School of Business and Advanced Technology Management, Assumption University. Email: siriwanktc@au.edu

Unlike high school, the university is the critical period of students' life and values. College students are more flexible in time management, and mobile game participation become the norm. The cause of college students to participate in the mobile game is complex. Key factors of mobile game engagement are also different in terms of attitudes and behavior, which have gained widely attention among social and psychological researchers (Wang, 2017).

Whether mobile players continue to use or play mobile game is particularly important for game developers and game enterprises. In the actual use process, whether they can get a good use experience that meet the various needs of users has become a relatively important topic that is worth for in-depth investigation (Rauschnabel et al., 2017). Attitude plays an important role as a bridge between perceived value and behavioral intention. Discussion of the influence of emotional factors such as attitudes on their behaviors is rare, and concluded that people would accept or ignore information by their attitudes (Petty et al., 1997).

An empirical study on an individual's usage and purchase intention of games on websites revealed that the professionalism of website information is the most important factor affecting consumers' utilitarian perceived value, while the popularity of website information is the most important factor affecting consumers' perceived hedonism perceived value (Appel et al., 2020). In the early studies, some scholars pointed out that when individuals play online games, they would develop psychological pleasure from the process and the expected result, which enhances their intention to continue to use it (Markus, 1987).

In addition, social norms affect players' behaviors from the referral of other online players. Subjective norms have a certain effect on a player's self-perception, self-esteem, and other human needs, and these effects are further deepened into the player's continuance intention (Ajzen, 1991). Due to the popularity of mobile phones and the rapid development of intelligent system, it offers better accessibility, mobility, portability and convenience with advanced technologies. Therefore, users can get a better game experience without being limited by time and space, which means that time flexibility has a positive impact on willingness to play (Wei & Lu, 2014).

2. Literature Review

2.1 Attitude

The study of attitude is gaining more and more attention because its influence over an individual's behavior. One possible reason for the popularity of the attitude concept is that social psychologists have assumed that attitudes have something to do with social behavior (Wicker, 1969). Attitudes are hypothetical constructs that psychologists invented to explain phenomena of interest. As Gordon Allport put it seven decades ago, "How does one know that attitudes exist at all? Only by necessary inference. There must be something to account for the consistency of conduct" (Allport, 1935).

Attitudes are not evaluative states, but tendencies that do not necessarily vanish when one stops thinking about the object. Thus, the evaluative meanings of attitudes are not constrained by time and may be either temporary or permanent (Eagly & Chaiken, 1993). An attitude represents an evaluative integration of cognitions and experience in relation to an object. Attitudes are the judgments that integrate and summarize these cognitive/affective reactions. These abstractions vary in strength, which in turn has implications for continuance intention (Crano & Prislin, 2006). Based on these assumptions, a following hypothesis is developed:

H1: Attitude has a significant influence on continuance intention of students to play mobile games.

2.2 Utilitarian Outcome Expectations

Utilitarian outcome expectations have been examined in many studies. In different disciplines, utilitarian performance is an important indicator of quality (Kim & Hwang, 2012; Wang, 2017). Hassenzahl and Tractinsky (2006) stated utilitarian experience as goal-oriented and emphasizes the functional performance of technology to fulfil the goal/task. If a task is said to be driven by its "functional utility", such driving force is referred to "utilitarian motivation". In contrast, when a task is driven by "enjoyment or pleasure", such driving force is referred to "hedonic motivation" (Childers et al., 2001).

Extrinsic motivation, driven by a utilitarian motive, provides satisfaction that is not inherent on engagement in the behavior per se, but rather is derived from the achievement of a goal that is the behavior itself. Many studies acknowledged that utilitarian outcome expectations significantly influence continuance to use a system (Pollach, 2011). Therefore, the study proposes the following hypothesis:

H2: Utilitarian outcome expectations have a significant influence on continuance intention of students to play mobile games.

2.3 Hedonic Outcome Expectation

The hedonic perspective mans that maximizing one's pleasurable moments is the pathway to happiness, whilst eudaimonia advocates argued that living a life of virtue, and actualizing one's inherent potentials is the way to wellbeing (Delle et al., 2011). The hedonic tradition can

be traced back to philosophers (Waterman, 2008), who generalized the hedonic perspective as a wellbeing and the positive emotional states that accompany satisfaction of desire. Therefore, experiences of pleasure, carefreeness, and enjoyment were considered to be reflection of wellbeing (Diener, 2009).

Hedonic game motivation provides gamers with elegant and versatile in forming alliances among strategic players. In such a game, each player has their own coalition's preferences (subset of players) that they can join. The end result of the game is that players can be divided into alliances (Banerjee et al., 2001). In this sense, hedonic outcome expectations significantly influence on continuance intention to play mobile games. In accordance with these discussions, a following hypothesis is proposed:
H3: Hedonic outcome expectations have significant influence on continuance intention of students to play mobile games.

2.4 Subjective Norm

Subjective norm refers to perception of social pressure from others. The perceived pressure from significant others to perform or not to perform the behavior would influence behavioral intention (Ajzen, 1985). At the same time, the theory of planned behavior (TPB) reveals that behavioral intention is a function of attitude, subjective norm, and perceived behavioral control (Ajzen, 1991; Kitcharoen & Vongurai, 2021). Social influence is represented by the concept of subjective norm (White et al., 2009). It stresses on the perception of influence and pressure from significant others that have effects on behavioral intention of individuals. Subjective norm in the TPB shares a similar meaning with injunctive norm which was proposed by Cialdini et al. (1991).

In addition, for gamers with weak attitudes, a strong subjective norm significantly increased their willingness to perform retrieval behavior. The interaction between subjective norms and attitudes has been extensively investigated and discussed in other areas of psychology (Pollach, 2011). Many evidences supported the relationship between subjective norm and continuance intention of game players. In some context, students receive the most influence from their peers to their continuance intention to use or play mobile games. In the light of this, a hypothesis is conducted:
H4: Subjective norm has significant influence on continuance intention of students to play mobile games.

2.5 Time Constraint

The principle of time constraint is that the more constraint the administrative time plan, the less likely the loss will be caused by future accidents (Jordan & Graves, 1995). These studies generally suggest that time constraints affect users' perceptions about their search experiences and behaviors during an information seeking process. For example, time pressure has a significant effect on the evaluation of user's search performance (Liu et al., 2014) and behaviors (Crescenzi et al., 2015).

Time constraints affect game players' strategies, search experience, and perception of the entire information. For example, time-pressed gamers are more anxious and energetic, and they use many different strategies to deal with the course and outcome of the game (Maule & Bdzola, 2000). In general, time limits are only used as a test management tool (Elliot et al., 2011). There is a wealth of research on the effects of time constraint on game players, but there are few empirical studies on the effects of time constraint and behavioral or continuance intention. Consequently, a hypothesis is developed in accordance with these evidences:
H5: Time constraint has a significant influence on continuance intention of students to play mobile games.

2.6 Continuance Intention

The dynamic nature of certain determinants and their impact on the persistent intentions of game players are widely investigated, that is, individuals' decisions to continue using after first use (Bhattacherjee, 2001). In the study of behavioral intentions of users to use a technology, it is important to look into this phenomenon over a longer period of time rather than over a simply quick cycle (Fan et al., 2021; Sonderegger et al., 2012). Previous research has associated game play motivations and continuance intentions (i.e., a player's intention to continue playing a game in the future) with game satisfaction. Choi and Kim (2004) suggested that players are more likely to continue to play a game if they have an optimal experience during game play.

Retention has become important for mobile services, game developers, and other related industries, which could benefit from understanding how users develop sustained intentions and then effectively offer new social game applications to meet their actual usage needs (Hsiao et al., 2016). When users perform a particular behavior with high frequency, they become familiar with the information system, technology and contents promoting the development of continuance intention and actual behavior (Limayem et al., 2007). Accordingly, a hypothesis is derived:
H6: Continuance intention has a significant influence on actual behavior of students to play mobile games.

3. Conceptual Framework

This conceptual framework was developed and adapted from four theoretical models. Firstly, Wang et al. (2020) investigated the effect of attitude on continuance intention of game players. Secondly, Chang et al. (2014) confirmed that hedonistic outcomes expectations, utilitarian outcomes expectations and subjective norms to have a significant impact on the continuance intention of game players. Thirdly, Chinomona (2013) explored the relationship between time constraint and continuance intention of game players. Lastly, Jose and Sia (2022) disclosed that continuance intention has a consistent impact on the actual behavior of users. The conceptual framework of this study is shown in Figure 1.

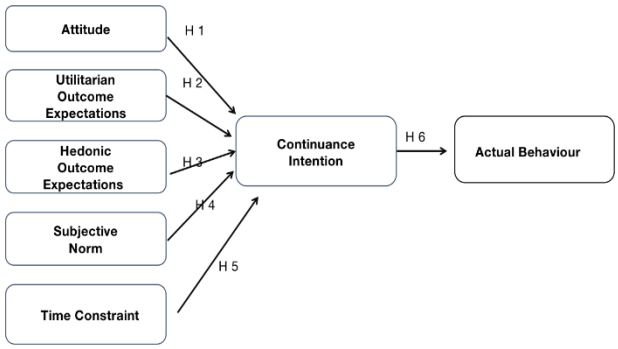

Figure 1: Conceptual Framework

H1: Attitude has a significant influence on continuance intention of students to play mobile games.
H2: Utilitarian outcome expectations have a significant influence on continuance intention of students to play mobile games.
H3: Hedonic outcome expectations have significant influence on continuance intention of students to play mobile games.
H4: Subjective norm has a significant influence on continuance intention of students to play mobile games.
H5: Time constraint has a significant influence on continuance intention of students to play mobile games.
H6: Continuance intention has a significant influence on actual behavior of students to play mobile games.

4. Research Methods and Materials

4.1 Research Methodology

The researcher adopted the quantitative method of survey distribution to the target population which are undergraduate students in Universities in Chongqing, China. Data were collected and analyzed on key influencing factors that have a significant impact on continuance intention toward actual behavior of students to play mobile games. The survey consists of three parts. Firstly, the screening questions are used to identify the characteristics of respondents. Secondly, 5-point Likert scale is accounted to measure all items from strongly disagree (1) to strongly agree (5). Finally, demographic questions include gender, age, year of study, and time spent with mobile games. Before the data collection, the index of item-objective congruence (IOC) was executed by the rating score of three experts, resulting all items were approved at a score 0.67 or above. Furthermore, Cronbach's Alpha was applied in a pilot test of 30 participants, resulting with all internal consistency of all constructs were approved at a score 0.70 or above (Nunnally & Bernstein, 1994). After the pre-test, the questionnaire was distributed to 500 target respondents. The data were analyzed through SPSS AMOS. Confirmatory Factor Analysis (CFA) and Structural Equation Model (SEM) were assessed to examine measurement and structural models.

4.2 Population and Sample Size

The target population of this paper is undergraduate students in universities in Chongqing, China, who have been playing three mobile game applications, including PUBG, League of Legends, and Arena of Valor. The sample size of the structural equation model is suggested to be at least 200 (Kline, 2011). After a data screening process, 500 questionnaires were used in this study.

4.3 Sampling Techniques

Nonprobability sampling were employed, including judgmental sampling, quota sampling and convenience sampling. Firstly, the judgmental sampling was accounted to select the top three mobile online game applications in China. Next, quota sampling was the use of total population of 300,000, divided into three subgroups of 203, 157 and 140 as shown in Table 1. Lastly, convenience sampling was to issue online questionnaires through social networks such as WeChat, Alipay and Email. The data were collected over a period of about six months between January and June 2022.

Table 1: Sample Units and Sample Size

Application (Mobile)	Population	Proportional Sample Size
PUBG	122000	203
League of Legends	94000	157
Arena of Valor	84000	140
Total	**300000**	**500**

Source: Created by the author.

5. Results and Discussion

5.1 Demographic Information

Demographic results of 500 participants are shown in Table 2. 60.69% of the respondents were male and 39.31% were female. In terms of age groups, the largest age group in this study was 18-22 years old, accounting for 72.46%, followed by 23-25 years old of 24.64%, 26-30 years old of 2.9%. In this study, 31.16% of the participants were freshmen, followed by 26.27% of seniors, 23.73% of sophomores, and 18.84% of juniors. Among the participants, 49.28% and 32.79% students played mobile phone games for 1-2 hours and 2-3 hours per day, while 17.93% of students played mobile phone games for more than 3 hours per day.

Table 2: Demophraphic Profile

Demographic and Behavior Data (N=500)		Frequency	Percentage
Gender	Male	303	60.69%
	Female	197	39.31%
Age	18-22 years old	363	72.46%
	23-25 years old	123	24.64%
	26-30 years old	14	2.9%
Year of Study	Freshman	156	31.16%
	Sophomore	118	23.73%
	Junior	95	18.84%
	Senior	131	26.27%
Frequency of Play	An hour	246	49.28%
	Two to three hours	164	32.79%
	Over three hours	90	17.93%

Source: Created by the author.

5.2 Confirmatory Factor Analysis (CFA)

Confirmatory Factor Analysis (CFA) was conducted in this study. All items in each variable are significant and represent factor loading to test discriminant validity. The significance of factor loading of each item and acceptable values indicate the goodness of fit (Hair et al., 2006). In the results as of Table 3, Cronbach's Alpha results were approved at a score 0.70 or above (Nunnally & Bernstein, 1994). Furthermore, factor loadings show the greater value than 0.30 and p-value is lower than 0.05. The construct reliability is greater than the cut-off points of 0.7 and the average variance extracted was greater than the cut-off point of 0.5 (Fornell & Larcker, 1981). Consequently, all estimates are significant.

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
Attitude	Lee and Choi (2009)	3	0.847	0.759-0.808	0.848	0.651
Utilitarian Outcome Expectations	Chang et al. (2014)	5	0.830	0.624-0.752	0.832	0.501
Hedonic Outcome Expectations	Chang et al. (2014)	3	0.770	0.713-0.707	0.772	0.503
Subjective Norm	Chang et al. (2014)	3	0.770	0.724-0.697	0.777	0.538
Time Constraint	Wei and Lu (2014)	3	0.764	0.641-0.733	0.768	0.527
Continuance Intention	Lee and Choi (2009)	3	0.897	0.844-0.902	0.896	0.742
Actual Behavior	Lee and Choi (2009)	3	0.858	0.872-0.725	0.865	0.683

Source: Created by the author.

In addition, CMIN/DF, GFI, AGFI, NFI, CFI, TLI and RMSEA are used as indicators of model fit in CFA testing. The convergent validity and discriminant validity were verified as the value of this study shown in Table 4 are greater than acceptable values. Moreover, the measurement model results console discriminant validity and a validation to measure the validity of subsequent structural model estimation.

Table 4: Goodness of Fit for Measurement Model

Fit Index	Acceptable Criteria	Statistical Values
CMIN/DF	≤ 5.0 (Wheaton et al., 1977)	574.418/209 or 2.748
GFI	≥ 0.80 (Doll et al., 1994)	0.906
AGFI	≥ 0.80 (Sica & Ghisi, 2007)	0.876
NFI	≥ 0.80 (Wu & Wang, 2006)	0.909
CFI	≥ 0.80 (Bentler, 1990)	0.940
TLI	≥ 0.80 (Sharma et al., 2005)	0.927
RMSEA	≤ 0.10 (Hopwood & Donnellan, 2010)	0.059
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

Source: Created by the author.

The square root of average variance extracted determines that all the correlations are greater than the corresponding correlation values for that variable as of Table 5. Therefore, the convergent validity and discriminant validity were ensured (Fornell & Larcker, 1981).

Table 5: Discriminant Validity

	ATT	UOE	HOE	SN	TC	CI	AB
ATT	**0.806**						
UOE	0.420	**0.707**					
HOE	0.507	0.471	**0.709**				
SN	0.297	0.230	0.238	**0.733**			
TC	0.411	0.339	0.439	0.342	**0.725**		
CI	0.539	0.502	0.575	0.321	0.582	**0.850**	
AB	0.543	0.544	0.527	0.338	0.520	0.745	**0.826**

Source: Created by the author.

5.4 Structural Equation Model (SEM)

According to Hair et al. (2010), structural equation modeling (SEM) validates the casual relationship among variables in a proposed model and encompasses measurement inaccuracy in the structure coefficient. The goodness of fit indices for SEM is measured as demonstrated in Table 6, including CMIN/DF, GFI, AGFI, NFI, CFI, TLI and RMSEA.

Table 6: Goodness of Fit for Structural Model

Fit Index	Acceptable Criteria	Statistical Values
CMIN/DF	≤ 5.0 (Wheaton et al., 1977)	789.673/201 or 3.929
GFI	≥ 0.80 (Doll et al., 1994)	0.860
AGFI	≥ 0.80 (Sica & Ghisi, 2007)	0.807
NFI	≥ 0.80 (Wu & Wang, 2006)	0.875
CFI	≥ 0.80 (Bentler, 1990)	0.903
TLI	≥ 0.80 (Sharma et al., 2005)	0.878
RMSEA	≤ 0.10 (Hopwood & Donnellan, 2010)	0.077
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

Source: Created by the author.

5.5 Research Hypothesis Testing Result

The research model is calculated as significance of each variable from its regression weights and R^2 variances. The result from Table 7 postulated that all hypotheses were supported with a significance at $p<0.05$.

Table 7: Hypothesis Results of the Structural Equation Modeling

Hypothesis	(β)	t-value	Result
H1: ATT→CI	0.397	8.573*	Supported
H2: UOE→CI	0.305	6.208*	Supported
H3: HOE→CI	0.295	6.263*	Supported
H4: SN→CI	0.184	4.120*	Supported
H5: TC→CI	0.512	8.999*	Supported
H6: CI→AB	0.873	14.239*	Supported

Note: * $p<0.05$

Source: Created by the author.

The results in Table 7 can be further refined:

H1 proves that attitude is one of the key factors affecting the continuance intention of students to play mobile games, revealing that the standardized coefficient value of 0.397. Personal attitudes have been confirmed to be crucial in the prediction of continuance intention (Luo et al., 2011).

In **H2**, the analysis results support the hypothesis that utilitarian outcome expectations have a significant influence on continuance intention of students to play mobile games with standardized coefficient value of 0.305. Many studies acknowledged that utilitarian outcome expectations significantly influence continuance to use a system (Childers et al., 2001; Pollach, 2011).

For **H3**, hedonic outcome expectations significantly influence continuance intention of students to play mobile games with standardized coefficient value of 0.295. In the process of service use, the values of utilitarianism and hedonism are not contradictory. They are designed to provide services and satisfaction, and enhance users' intention to use (Lopez & Ruiz, 2011).

H4 confirms that subjective norm has a significant influence on continuance intention of students to play mobile games with standardized coefficient value of 0.184. In terms of online games, social norms affect players' behaviors from the perspective of satisfaction. Subjective norms have a certain effect on a player's self-perception, self-esteem, and other human needs, and these effects are further deepened into the player's intention to continue to use (Ajzen, 1991).

H5 reveals that the relationship between time constraint and continuance intention of students to play mobile games was supported with standardized coefficient value of 0.512. Therefore, the constraint of time can measure the extent to which players play mobile games, and can also control the time of playing mobile games to some extent (Wei & Lu, 2014).

Finally, **H6** demonstrates that continuance intention has a significant influence on the actual behavior of students to play mobile games with standardized coefficient value of 0.873. The willingness of players to continue playing mobile games is important because game developers can better understand their motivations and design the game according to their needs (Wu & Liu, 2007).

6. Conclusions and Recommendation

6.1 Conclusion

The research objectives are fulfilled to examine the determinants of student's continuance intention and actual behavior to play online mobile games in Chongqing, China. The results show that attitude, utilitarian outcome expectation, hedonic outcome expectation, subjective norms, time constraints significantly influence continuance intention. Furthermore, the continuance intention has the strongest influence on the actual behavior of using mobile games among students. It can be discussed that a player's continuance intention and actual behavior to play online mobile games can be driven by attitude, utilitarian outcome expectation, hedonic outcome expectation, subjective norms, time constraints.

In the light of this, attitudes are evaluative component that significantly drive a player to continue playing mobile games which could come from awareness and previous experience. Attitudes are the judgments that integrate and summarize these cognitive/affective reactions to the games (Crano & Prislin, 2006; Eagly & Chaiken, 1993). Utilitarian outcome expectations are such as quality, enjoyment, satisfaction or other motivational aspects perceived by players and encourage them to continue playing mobile games. A number of studies acknowledged that utilitarian outcome expectations significantly influence continuance to use a system (Childers et al., 2001; Hassenzahl & Tractinsky , 2006; Kim & Hwang, 2012; Pollach, 2011; Wang, 2017;).

The hedonic outcome expectation was evidenced to have a significant influence on continuance intention of students to play mobile games. It can be refined that one's pleasurable moments with a mobile game can make him or her stay playing games (Banerjee et al., 2001; Delle et al., 2011; Diener, 2009). In this sense, hedonic outcome expectations significantly influence on continuance intention to play mobile games. Subjective norm is a social influence that can endorse continuance intention to play mobile games (Cialdini et al., 1991; White et al., 2009). Students have a strong sense to be socially accepted by their peers. They would continue to play mobile games in order to socialize with their friends.

Time constraints affect game players' strategies, search experience, and perception of the entire information which greatly impact continuance intention of students to play mobile games (Elliot et al., 2011; Maule et al., 2000). The results also confirm that continuance intention significantly influence actual behavior of students to play mobile games. It can be described that individuals' decisions to continue using after the first use (Bhattacherjee, 2001; Sonderegger et al., 2012). Previous research has associated game play motivations, continuance intentions and actual behavior (Hsiao et al., 2016; Limayem et al., 2007).

6.2 Recommendation

The rapid development of science and technology, the widespread use of the Internet and the increase of sophisticated production of online games have brought great changes to the life of college students. Everything has two sides. Online games not only enrich the entertainment life of college students, but also has some sense of impact on students' life and study. There are more and more college students playing mobile games and some have transformed to online game streamer. Therefore, in the process of mobile game usage, college students should have a good attitude, being self-regulated and time managed. For some drawbacks of the game addiction, students should not let mobile online games affect their study and life quality.

Researchers found that the key factors affecting practical behavior of college students in Chongqing, China, to use online mobile games involve attitudes, utilitarian outcome, hedonic outcome expectations, subjective norms, time constraints and continuance intention. Therefore, it is suggested to ascertain the development and promotion of these aspects. Users and players can develop the positive attitudes towards mobile games via marketing communication, free trial and games reviews. Game marketers need to ensure to offer all information required by players to enhance their trial and continuance intention. Utilitarian outcome expectations and hedonic outcome expectation are motivational factors that significantly influence to continuance intention of players to play mobile games. Game developers need to understand the psychology in order to design the game to offer proper challenges and pleasurable results.

Marketers should emphasize subjective norm as a social influence that can endorse continuance intention of players and potential players to play mobile games. In social media era, online game streamers are very popular and most game companies would use this group as influencers to promote awareness and build continuance intention toward actual behavior to try and play mobile games. In addition, time constraints affect game players' strategies, search experience, and perception of the entire information which greatly impact continuance intention of players to play mobile games. This fact involves marketers and game developers to look into customers' journey on the time, resources, cost and risk to ensure the ethical promotion of the game to be not too consuming players' time and life, and can enhance their continuance intention and actual behavior to use or play mobile games appropriately.

6.3 Limitation and Further Study

There are several limitations in this study. Firstly, the sample involves only a group of college students in Chongqing. The different group or other region in China can

be further explored. To extent, the subjects were identified as college students, but there was a lack of hierarchical screening within the survey sample. There are also different online game consumer groups among college students, with different levels and different influencing factors. Secondly, there are many more factors influencing continuance intention towards actual behavior that are feasible for the research model development and suggested to explore further. As a new pole of economic growth, online games adoption needs to be studied and analyzed. A more powerful theoretical basis for the development of online games can be focused. Thirdly, the follow-up or in-depth investigation will broaden the implications and the direction of hypothesis, as well as can further explore articulation of actual behavioral factors of mobile game players with qualitative analysis.

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