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# Why Do Players Stick to a Specific Online Game? The Uses and Gratifications Perspective

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## ABSTRACT

Driven by the dominant Internet usage and the prospective profits from the game industry, especially from the thriving and robust free-to-play model of online games, there is a need to realize players' behaviors. Playing online games is experience-oriented but rare studies further explore what reactions of initial (trial) experiences in game playing are and how they will further influence players' behaviors. Uses and gratification theory can be seen in cases such as online games selection. Players select an online game not only to fit particular interests but also to attempt to show empowerment or other socially conscience motives. This study, therefore, seeks to explore the important antecedents (i.e. gratifications, presence, service mechanisms, and continuance motivation) of stickiness intention on the online game and examine the associated relationships among them. The implications of findings to both researchers and practitioners are also discussed.

## Keywords

Stickiness, uses and gratifications theory, service mechanisms, presence, continuance motivation.

## INTRODUCTION

Driven by the growing popularity of the free-to-play model and casual games, as well as rising broadband and computer penetration rates, online games have represented the cutting edge on the entertainment sector and the market will keep on increasing (Hsu and Lu, 2007). With remarkable superiority in the massive multiplayer online games (MMOG), game developers with an online hook tend to earn a considerable amount of revenue. According to the new Online Game Market Forecasts report (DFC intelligence, 2008), worldwide PC online game revenue is expected to reach US\$15.7 billion in 2013. In Taiwan, 40% of the Internet users have played online games (Hsu and Lu, 2004) and the market value forecasted by Market Intelligence & Consulting Institute (MIC, 2009) of Taiwan will soar from NT\$10 billion (approximately US\$299 million at a 1:33.5 exchange rate) in 2008 to NT\$12 billion in 2012.

Since 2004, the emergence of free-to-play model has posed an enormous threat to the traditional subscription (pay-to-play) model because the free games also make the number of players swiftly increased. Gamers end up spending more under a free-to-play model because players are usually willing to purchase virtual treasures, digital real estate or value-added services which are used for fantasy roles to complement avatars of themselves. It is important to focus on making gamers stick to the online game and extend product life cycle as a way opposed to building a major direct revenue source. Particularly, online games pinpoint the prospective opportunity of associating the highly entertaining traditional media (i.e. video games, movies, music) with high prevalence and soaring revenue provided by the Internet. In this case, developers and operators are striving to explore new online games or provide tactical services to prolong the duration of playing the online game.

However, the feature of Internet has granted its users information searching, as well as various price and services comparing; in addition, it also enabled users easy to surf in the cyberspace from one site to another with merely a mouse-click and low cost (Li, Browne and Wetherbe, 2006; Lin, 2007). While users have numerous options, satisfaction will not stop them from

switching to alternative services all the time (Li et al., 2006). Thus, website stickiness is regarded as a significant factor to online business success because business value lies in customers' loyalty. Similarly, how to draw the gamers' attention and drive them to stick around is quite challenging for both online game developers and operators. Playing online games is experience-oriented (Wu and Liu, 2007) but seldom studies further explore what reactions of initial experiences in game playing are and how they will further influence players' behaviors. In other words, why do some games turn into household name in a blink while some never have a shot? What are the viral mechanisms at work here? Therefore, the purpose of this study is to explore the important antecedents of stickiness intention on the online game and examine the associated relationships among them. The uses and gratifications theory will serve as the theoretical basis.

## CONCEPTUAL DEVELOPMENT AND RESEARCH HYPOTHESES

Online games are known as multimedia applications which are played in networked virtual environments such as Internet, and are represented by anonymity, real-time interaction, information exchange, entertainment and without geographic restriction (Hsu and Lu, 2007; Lo, 2008). Apparently, online game communities are fundamentally concerned with entertainment, and generally, sociability, challenge and enjoyment are major motivations that drive users to play games in virtual worlds (Hsu and Lu, 2007; Yee, 2006). However, from the perspective of consumers and practical observations, service mechanisms such as fairness, security and incentive as well as design quality (i.e. presence) are the foremost concerns. These are fairly corresponding to the newest survey (MIC, 2009), which indicated instability of connection, unfairness caused by plug-in programs, steal of gamers' user accounts or virtual items, and customer services are primarily expected to be solved or improved. On the other hand, the presence issue has been extensively discussed in the design and evaluation of various non-/interactive media and applications (Ijsselsteijn, Feeman and Ridder, 2001). Many online games have been designed to create a psychological sense of 'being there' inside the game world (Weibel, Wissmath, Habegger, Steiner and Groner, 2008) so presence can be seen as a criteria of evaluating the design quality of online games. Since playing online games is experience-oriented, some factors are definitely concerned for game selection and will influence gamers' pondering whether to continue to play the game. Therefore, gratifications of individual needs, presence, and service mechanisms will be considered as important determinants for players behaviors. The following section provides theory supporting these propositions.

### Uses and Gratifications Theory and Online Games

The uses and gratifications (U&G) approach originated in the 1940s as a reaction to traditional mass communication research emphasizing the usage of media to gratify users' various needs and wants which are emanated from the social environment of the individuals and serve as motivations for using media (Palmgreen, Wenner and Rosengren, 1985; Weibull, 1985). In brief, the U&G approach takes a user-level view and stresses the differences in media use and selection. People use media to fulfill their needs, which not only derive from social and psychological situation but also arouse motives to influence media use, which further leads to cognitive, affective, and behavioral outcomes (Pornsakulvanich, Haridakis and Rubin, 2008; Weibull, 1985).

Drawing upon U&G perspective, an evident characteristic of general U&G model is its even sophisticated causal structure, which can be seen as reiterated circulation relationships because the gratification processes are taking place within the interactions among social structures, media structures, and individual characteristics on media use (Palmgreen et al., 1985; Weibull, 1985). The U&G theory not only has been successfully applied to various new media and related to communication technologies (Stafford, Stafford and Schkade, 2004; Liang, Lai and Ku, 2007) but also has been used in research concerning continuance use of various mass media (Eighmey and McCord, 1998).

Hence, the U&G perspective can be seen in cases such as online games selection because online games are relevant to Internet and media and also experience-oriented. Gamers choose an online game not only to fit a particular need but also to attempt to demonstrate empowerment or other socially conscience motives. The ex-post evaluation of gamers' initial (trial) experience will influence whether they will continue to play, and further stick to the game based on the reiterated circulation causal relationships of U&G.

### *Gratifications and Continuance Motivation*

Weibull (1985) interpreted the concept of "gratifications" relevant to the individual's reactions to the experiences of media use, which in turn can influence the further motivation (i.e. continuance motivation) for the media use. In the context of online game, while considering individual needs, the needs can be associated with players' motivations for playing online games. In prior study, Yee (2006) further classified three categories of players' motivations, i.e. achievement component, social component, and immersion component. Achievement component involves the desire to gain power, gather virtual

items, and compete with others. Social component means socializing and building up relationship with others. Immersion component includes role-playing, and customizing the appearance of their character so it is somewhat similar to enjoyment which is a critical concern in entertainment sector or hedonic information systems. This study will consider the concept of enjoyment instead of immersion because enjoyment has been extensively proved as a strong determinant of intention to use hedonic information systems (Eighmey and McCord, 1998; Van der Heijden, 2004) or play games (Ha, Yoon and Choi, 2007; Hsu and Lu, 2007; Wu and Liu, 2007).

Therefore, as achievement, enjoyment, and social interaction are adopted as the major initiative motivations for playing the online game in present study, the gratifications refer to the extent of satisfying gamers' motivations (i.e. individual's needs) based on their initial (trial) experiences. The continuance motivation for playing online game is also defined as "a momentary belief on the part of an individual that sustained playing a certain online game based on previous experiences" (Wu, Gerlach and Young, 2007, Wu and Liu, 2007). Guided by U&G perspective, people use media to gratify their needs and interests and will influence their further motivation for the media use (Palmgreen et al., 1985; Weibull, 1985), the following hypothesis is proposed:

H1: Gamers' gratifications of initial (trial) experiences in playing the online game will positively affect their continuance motivation in playing the game.

#### *Media Structure (Presence and Service Mechanism) and Continuance Motivation*

Although there is no universal conventional definition for media structure, Weibull (1985) asserted that it is significant to realize the contributions of *media structure* to the individual's media use at least based on two perspectives, i.e. "*media output*" and "*media institutions*". The "*output*" of media means the volume and character of media content. In the context of online games, presence can be identified as an important character of media output because most games have been designed to create a psychological sense of 'being there' inside the game world so the presence, especially, is central in shaping the experience of playing online games (Tamborini and Skalski, 2006). Presence can be defined as a psychological sense of self-awareness immersing into a virtual environment with subjective consciousness (IJsselsteijn et al., 2001; Weibel et al., 2008). Synthesizing previous studies (Cyr, Hassanein, Head and Ivanov, 2007; IJsselsteijn et al., 2001; Weibel et al., 2008), the presence, generally, can be categorized into two classifications, e.g. spatial presence and social presence. The spatial presence means the illusion of being physically presented in a mediated space, whereas the social presence refers to the psychological sense of being physically interacted with a mediated person.

From the *institutional* approach, the media should not only be regarded merely as technical channels but also involve policy, resources, and media users (Weibull, 1985). This is comparable to service mechanisms of the online games context because related policies and a variety of activities, including game rules, security assurance and tactical strategies such as incentive, are also involved. As mentioned earlier, the quality of network connection, fairness and security issues, as well as customer services are the most expected issues for improvement, therefore, the service mechanisms are considered as a significant second order factor that includes incentive, security and fairness based on the concept of media institutions.

The incentive is tailored as "the activities which online game operators offer to enhance players' utilities, thereby aligning their goals with that of the operators and motivating players to continue playing the online game" while Bhattacharjee (2001) also considered loyalty incentive as an antecedent of motivating customers' continuance use of the e-services. Security services are defined as "online gamer operators restrict access to certain data to protect information confidentiality, integrity, system availability, and applications from manipulation or contamination" (Weill and Vitale, 2002). In the aspect of fairness, it refers to "the services are provided to assert the justice in the online game context, including procedural justice, distributive justice and interactional justice" derived from the perspective of justice (Tax, Brown and Chandrashekar, 1998).

On the basis of U&G, the media structure (i.e. presence and service mechanisms) might be able to work contradictorily either as strengthening or as restraint the possibility for users to "gratify their needs", then influence the players' further motivation for playing the online game. Hence, the hypotheses are proposed as follows:

H2: Presence of the online game will positively affect gamers' continuance motivation to play the online game.

H3: Service mechanisms offered by the online game operators will positively affect gamers' continuance motivation to play the online game.

### Continuance Motivation and Stickiness

Media habits are regarded as a sort of media behavior that demonstrates the preference of people to the media choice or content (Weibull, 1985) so people are willing to pay more attention to and prolong their duration in the media. The media habit is also similar to a player's stickiness to the predilection online game. In this study, the stickiness to the online game is defined as "the gamers' willingness to return to and prolong their duration of each stay in the online game". As U&G asserted, the individual's reactions to the experiences of media use can influence the continuance motivation for the media use and result in forming media habits. Consequently, the hypothesis is proposed as follows:

H4: Gamers' continuance motivation will positively affect their stickiness to the online game.

### Conceptual Model

Starting with the U&G approach, the conceptual model constructed for present study is depicted in Figure 1.

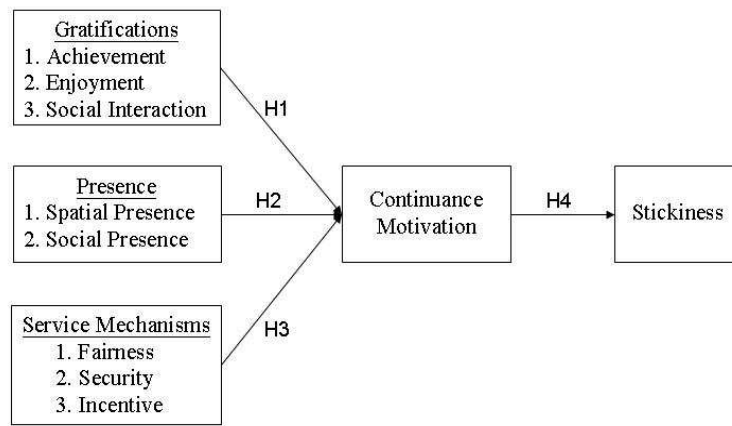


Figure 1. Conceptual Model

## RESEARCH METHODOLOGY

### Instrument Development

Numerous prior relevant studies were reviewed to ensure that a comprehensive list of measures was included. All measures for each construct were taken from the previously validated instruments and modified based on the online game context. Those items for gratifications were derived from previous studies, such as firstly, achievement measures tailored from Yee (2006); secondly, enjoyment measures obtained from Wu and Liu (2007), and last, social interaction measures elicited from Martin and Schumacher (2003) and Yee (2006). The items for presence (i.e. social presence and spatial presence) were adapted from Weibel (2008).

While the measures for incentive were derived from Bhattacharjee (2001), the measures for fairness were derived from Tax et al. (1998) as well as security was adapted from Weill and Vitale (2001). The construct of continuance motivation was elicited from the concept of continuance intention so its measures (Wu et al., 2007) were adapted. The stickiness was developed and tested in Lin (2007). All the scales were slightly modified for the online games context.

The questionnaire consisted of three sections. The first section gave a concise instruction and a definition of online game for this study. The second section consisted of ten questions capturing the demographic information of the subjects such as gender, age, the highest educational level achieved, seniority and frequency of playing online games, and number of different online games playing and game models (i.e. pay-to-play model or free-to-play model). The last section recorded the subject's perception of each variable in the model. Data was collected using a seven point Likert-type scale with anchors from one, being "strongly disagree", to seven, being "strongly agree".

Once the initial questionnaire was generated, an iterative personal interview process was conducted as the basis to verify the completeness, wording, and appropriateness of the instrument as well as to confirm the content validity. The review process was conducted to refine the instrument until no further modification to the questionnaire was needed. Some questions were eliminated because they were found to represent essentially the same aspects as other questions with only slight wording

differences. Some questions were modified because the semantics appeared ambiguous or irrelevant to online game characteristics. The self-administered questionnaire, finally, consisted of 41 items measuring the ten latent variables.

### Data Collection

The population of this study included the all online gamers in Taiwan as representatives of the entertainment service sector. Therefore, online survey was employed for this study based on the nature of both online gamers and the Internet. For instance, most of online gamers are young students and online users as well. Further, as Bhattacharjee (2001) indicated, advantages of online surveys outweigh traditional paper-based mail-in surveys, such as (1) participants without geographic restriction, (2) lower costs, and (3) faster response. Subjects were self-selected via messages (with the purpose of this study and a hyperlink to the survey form) placed on numerous campus and game related BBS, online forums, and heavily trafficked online message boards on game-related web sites. Each question has been required to answer in the online survey system; therefore, there's no missing value.

Three hundred and forty-three returned questionnaires were received. Data were excluded to ensure the construct validity while some respondents gave invalid answers because they play online games less than one day per week and simultaneously less than one hour each time. Totally, six questionnaires were dropped because two gave invalid answers (e.g., same IP with same e-mail address) and the remaining four were just beginners of playing online games. This left 337 questionnaires for the statistical analysis. The potential non-response bias was assessed by comparing the early versus late respondents that were weighed on several demographic characteristics. The t-test and  $\chi^2$  analysis were used to examine the distributions between these two data sets. The results indicated that there are no statistically significant differences, and demonstrated that non-response bias was not a serious concern in this study.

The data shows that the figure of male players is more than two times of female's. Eighty-four percent respondents' age was from 19 to 28 whereas 71.8% respondents were undergraduate students. More than three-fourth respondents stated that the most popular game type was role playing games (RPG) and free-to-play model. Ninety-three percent respondents have been playing online games over one year; specifically, even more than 40% respondents were over six years. Moreover, the number of gamers playing the specific online game over two years was approximate 40% while among them, 16.3% was over four years. Over half of respondents playing online games, averagely, exceed four days a week whereas almost 60% respondents indicate the average time spent for playing online game is between one and four hours per day.

### Analysis Methods

The empirical data collected were analyzed using the partial least squares (PLS) method in view of its ability to handle formative constructs and highly complex predictive models. This approach was chosen since PLS uses component-based estimation, maximizing the variance explained in the dependent variable and does not require multivariate normality of the data, and is less demanding on sample size, whereas Linear Structural Relationships (LISREL) is recommended for confirmatory analysis and requires a more stringent adherence to distributional assumptions (Chin, 1998). In order to operationalize the second order factors, a repeated indicators approach (i.e., the hierarchical component model) was used. This is suitable for PLS estimations, and as such, each second order factor (i.e. gratifications, service mechanism and presence) was measured by all the indicators of the each first-order factors.

For these reasons, PLS-Graph 3.0 was used for the data analysis. The evaluation of the model fit was conducted in a two-phase approach, i.e. measurement model and structural model. In the measurement model, the psychometric properties of all scales were first assessed through a confirmatory factor analysis (CFA). This step was used to assess the reliability and validity of the measurement model and test if the empirical data conformed to the presumed model. Then, the structural relationships were validated using bootstrap analysis (Chin, 1998).

## DATA ANALYSIS AND RESULTS

### Measurement Model Assessment

The acceptability of the measurement model was assessed by the reliability of individual items, internal consistency between items, and the model's convergent and discriminant validity. Those items that shared a high degree of residual variance with other items in the instrument were eliminated from further analysis. After the initial analysis, items with factor loadings lower than the threshold value of 0.7 were abandoned from the subsequent analysis in order to achieve a high level of reliability and validity (Hair, Black, Babin, Anderson and Tatham, 2005). Therefore, three items (i.e., AC1, INC3, and SI5) were deleted from consideration, leaving a total of 38 items for further analysis. CFA was then conducted again for the adjusted measurement model with the results shown in Tables 1 and 2. As shown in Table 1, the loadings for all the constructs with reflective measures were well above the 0.7 guideline and statistically significant at the 0.001 level, indicating satisfactory item reliability for the reflective measures. These results collectively suggest good measurement properties for all constructs.

Construct		Code	Scale Item	Factor Loading	Mean
Gratifications	Achievement	AC2	I feel that it is important to win others in the online game.	0.70	4.46
		AC3	I would like to discuss my characters for others may therefore be jealous of me.	0.81	3.87
		AC4	I have more power than other players in the online game.	0.90	3.75
		AC5	I have the items/equipments which are better than other players' in the online game.	0.86	3.74
	Enjoyment	EN1	Playing online games is exciting.	0.88	4.85
		EN2	Playing online games gives me a lot of pleasure.	0.92	5.14
		EN3	I enjoyed playing online games.	0.91	5.15
	Social Interaction	SI1	My online friends understand me better than other people.	0.79	4.25
		SI2	I open up more to people online than in other communication modes.	0.83	4.74
		SI3	Going online has made it easier for me to make friends.	0.90	4.61
SI4		I have a network of friends made online.	0.89	4.38	
Service Mechanism	Fairness	FAIR1	The online game company always punishes the players who use the cheating programs.	0.81	3.92
		FAIR2	If a vital problem occurs while I am playing the online game, the company in charge will tackle it and compensate for the loss.	0.89	4.24
		FAIR3	I feel the resource allocation is fair in the online game, such as virtual treasure/item, virtual money and trading modes.	0.85	4.18
		FAIR4	While playing the online game, I assume the rewards meet the efforts I put into.	0.74	4.15
	Incentive	INC1	The company of this online game offers incentives for its continued play, such as racing, to form a party or some festival activities.	0.86	4.21
		INC2	I get rewarded for my continued participation of this online game, such as virtual money, equipment or reality reward.	0.86	4.39
	Security	SEC1	I feel the game company can offer the security of data transformation.	0.92	4.08
		SEC2	I feel the game company can protect the players' privacy.	0.94	4.12
		SEC3	I feel the online game server is availability.	0.77	4.32
Presence	Social Presence	SOP1	When I see that other players are confused, I offer help.	0.74	4.93
		SOP2	I trust that other players in this online game will help me if I need it.	0.78	4.53
		SOP3	I feel connected to other players in the online game environment.	0.82	4.00
		SOP4	In my interactions with other players, I am able to be myself and show what kind of player/person I really am.	0.79	4.28
		SOP5	I feel like I am a member of an online community during the game playing.	0.83	4.65
	Spatial Presence	SPP1	The online game came to me and became part of my world.	0.81	4.12
		SPP2	The online game created a new world for me and the world disappeared when I disconnect the online game.	0.83	4.20
		SPP3	The online game created an extension of my world and part of my world disappeared when I disconnect the online game.	0.88	3.91
		SPP4	During the online game I felt like I was in the world the game created.	0.80	4.29
Continuance Motivation	CM1	I have the motivation to continue playing the online game.	0.91	4.86	
	CM2	I have the motivation to continue playing this online game rather than play any alternative means.	0.88	4.92	
	CM3	If I could, I would like to continue playing this online game in the future.	0.91	4.78	
	CM4	The past experience motivates me to continue playing this online game.	0.91	4.75	
	CM5	In sum, I have the motivation in continuing playing this online game.	0.94	4.91	
Stickiness	Stick1	I would stay a longer in this online game than others.	0.82	4.82	
	Stick2	I would prolong my staying in this online game.	0.92	4.49	
	Stick3	I would play this online game as often as I can.	0.88	4.46	
	Stick4	I would play this online game every time I am online.	0.88	4.50	

Table 1. Confirmatory Factor Loadings

Table 2 shows the composite reliability, average variance extracted (AVE), and square root of the AVE, as well as the correlations between the constructs. The composite reliability values of all the constructs were above the recommended level of 0.70, indicating adequate internal consistency (Hair et al., 2005). Convergent validity is demonstrated as the AVE values for all constructs were higher than the suggested threshold value of 0.50. Comparing the square root of the AVE (bold figures on the diagonal) with the correlations among the constructs, the result indicates that each construct was more closely related to its own measures than to those of other constructs, and discriminant validity was therefore supported (Chin, 1998; Hair et al., 2005).

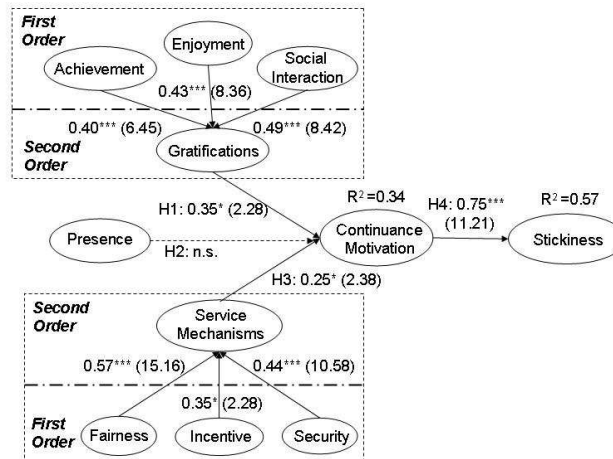
Construct	Composite Reliability	AVE <sup>1</sup>	AC	CM	Enj	Fair	Inc	SI	Sec	SoP	SpP	Stick
AC	0.89	0.67	<b>0.82<sup>2</sup></b>									
CM	0.96	0.83	0.28	<b>0.91</b>								
Enj	0.93	0.81	0.32	0.54	<b>0.90</b>							
Fair	0.89	0.67	0.22	0.39	0.17	<b>0.82</b>						
Inc	0.85	0.74	0.29	0.27	0.16	0.39	<b>0.86</b>					
SI	0.92	0.73	0.37	0.32	0.40	0.08	0.14	<b>0.85</b>				
Sec	0.91	0.77	0.20	0.25	0.19	0.63	0.29	0.03	<b>0.88</b>			
SoP	0.89	0.63	0.38	0.44	0.33	0.33	0.22	0.58	0.26	<b>0.79</b>		
SpP	0.90	0.69	0.41	0.33	0.33	0.19	0.29	0.46	0.15	0.54	<b>0.83</b>	
Stick	0.93	0.77	0.34	0.75	0.47	0.32	0.19	0.33	0.19	0.44	0.35	<b>0.88</b>

1. Average Variance Extracted
2. The shaded numbers on the diagonal are the square root of the variance shared between the constructs and their measures. Off-diagonal elements are correlations among constructs. For discriminant validity, diagonal elements should be larger than off-diagonal elements.

Table 2. Inter-Construct Correlations: Consistency and Reliability Tests

Structural Model Assessment and Hypothesis Testing

The SEM technique was used to examine the structural model so the effects among those five latent constructs were tested. Figure 2 presents a graphical depiction of the PLS results, which shows the standardized path coefficients among the constructs using the bootstrap resampling method and the explained construct variances (R<sup>2</sup> value) for the conceptual model. As hypothesized, the paths from gratifications (H1) and service mechanism (H3) to continuance motivation were found to be positive and significant, with path coefficients of 0.35 (t = 2.28) and 0.25 (t=2.38) at the 0.05 level of significance, respectively. Hypotheses H1 and H3 were supported. Consistent with our hypothesis H4, continuance motivation has strong significant and positive effect on stickiness, with a path coefficient of 0.75 and a significant t-value of 11.21 at the 0.001 level of significance. Hypothesis H4 was also supported.



Note: \* Significant at .05 level; \*\* Significant at .01 level; \*\*\* Significant at .001 level; n.s. insignificant at .05 level. Path coefficients with t-value in parentheses

Figure 2. The Empirical Results of Online Game



Furthermore, while the  $R^2$  value of 0.57 demonstrates that the continuance motivation explains a good amount of the variance in stickiness to the online game, the variance ( $R^2$ ) of the continuance motivation for playing the online game explained by the gratifications (i.e., achievement, enjoyment, and social interaction) and service mechanism (i.e., fairness, incentive, and security) was 34 percent. Consequently, as a whole, the model has strong explanatory power for the constructs of continuance motivation and stickiness. However, against expectation, presence has no significant effect on continuance motivation as shown by the dotted line. Hypothesis H2 was not supported.

## DISCUSSIONS AND CONCLUSIONS

While global economy is in depression currently, the game business, evidently, seems to essentially profit from a recession (DFC Intelligence, 2009) because games are a kind of rather cheap home entertainment and have conventionally possessed its bastion in entertainment sectors. Driven by the dominant Internet usage and the prospective market value of online games, there will be a growing need to identify what factors are likely to influence online gamers' stickiness intention in order to get more profits, specifically, from the thriving and robust free-to-play model. Uses and gratifications theory can be seen in cases such as online games choice. Players pick an online game not only to fit a particular need but also to attempt to show empowerment or other socially conscience motives. There are many different kinds of online games and players will choose from them to fulfill their needs and interests.

The tests of the structure model indicated that continuance motivation has extremely strong impact on players' stickiness intention, whereas continuance motivation is significantly influenced by the perceptions of gratifications (i.e. achievement, enjoyment, and social interaction) and service mechanisms (i.e. fairness, incentive, and security) of players. As depicted in Figure 2, noticeably, all the three sub-constructs have tremendously great contributions to gratifications that correspond to prior study (Ha, Yoon and Choi, 2007; Hsu and Lu, 2007; Wu and Liu, 2007), which referred to those three factors being the general motivations for playing online games. Additionally, fairness and security have awfully significant contributions to service mechanisms that are also consistent with the MIC survey (2009). Fairness and security, evidently, are more crucial to the evaluation of online services though incentive is also a significant factor.

Security and privacy related issues have been mostly concerned in cyberspace, especially for transaction. From the perspective of managerial implications, the result will suggest that both online game developers and operators need to enhance their capabilities of IT infrastructure and business management, as well as both capabilities seamlessly integrated together to provide better service mechanisms on the basis of fairness, security and plus some attractive incentives to gratify gamers' primary needs such as pursuing achievement, interacting with others, and enjoying in the online game community. Only a strengthened integration of IT infrastructure and business management can provide better service mechanisms. For instance, how a system (e.g. software and hardware) should be designed to protect players' privacy and information security, how business strategies can achieve the fairness and provide some attractive incentives to players.

Contrary to the hypothesis H2, a tricky finding is that presence has no significant effect on gamers' continuance motivation although the concept of presence is crucial to the design and assessment of various non/interactive media and applications in various sectors, particularly, in shaping the experiences of playing online games (Cyr et al., 2007; Tamborini and Skalski, 2006). For better understanding of player behavior, since most players' age range from 19 to 28, we interviewed 15 undergraduate students who all have been playing online games exceeding five years. The interview results and some plausible explanations can be as follows:

1. Most online games, currently, lack of presence because it is limited with related equipments and high expense such as 3D-based navigation devices, data glove, high definition mobile gaming handset (HDM).
2. Further, since the majority of players are students, it seems not easy for them to buy the equipments with high price.
3. The purposes of playing online games might differ from playing PC games, for instance, social interacting, earning benefits, and just for fun. Hence, the presence seems not so important at this moment.

Based on our post-interview, although presence, astonishingly, seems not a critical concern in the online games, most interviewers believe that they will have an exciting and entertaining experience on enjoying to the extreme in game playing by offering those related equipment. Meanwhile, most interviewers will be willing to buy the equipment if they can afford it. From this point, game designers and operators may need to seriously concern how to cut the price down to meet customer value proposition as well as get profits.

Driven by the prospective growth of online games, a number of studies have been working on online game related topics. Yet, while online games have been regarded as a kind of media (i.e. digital media), rare studies explore player behavior from the perception of media structure. This study started with the U&G approach and proposed a concept model to probe the rather sophisticated and reiterated causal relationships between player behaviors and media structure. In addressing the

issues, our study suffered from certain limitations that also represent opportunities for further research. Based on a single sector, it is not clear to what extent the results can be generalized. Moreover, although the proposed model variables explained 57% of the variance in stickiness intention to the online game, further study might need to explore extra significant antecedents and expand the boundaries of the analysis to other sectors as well.

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