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Factors Affecting Purchase Intention of Online Game Prepayment Card – Evidence from Thailand

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Abstract

Over the past decade, the most popular leisure activity in the world is to play online games. However, it is difficult to make the online gamers will to pay for the privilege of playing the game in present online game industry, especially in developing countries. Therefore, the purpose of the research was to study factors affecting purchase intention of online game prepayment card which is the main revenue source for free-to-play game.

This study collected 335 respondent data from Thailand to test the research hypotheses. The results show the perceived enjoyment value, monetary value and promotion programs are significant positive factors to influence the purchase intention of online game prepayment card. The research findings can contribute to the understandings of online game consumer behavior in developing country such as Thailand and be adopted as marketing planning guideline for online game business managers to promote prepayment card purchase intention of consumers.

Keywords: **online game, prepayment card, perceived value, purchase intention**

INTRODUCTION

Every day, millions of people interact with each other through online game for entertainment and maintaining relationship. Various online games are required to cater to many different kinds of play styles (Apperley, 2006; Yee, 2006), that makes today's online game market very diversified and competitive. In the keen rivalry, it is not easy for online game companies to generate profits. For matching consumer's behavior, two types of business models currently are developed and widely adopted in online game industry: subscription-based models and free-to-play models. Gamers playing online games in subscription-based business model usually pay fees to the game company for access to its games for a certain period of time. In contrast, the free-to-play business model is free of charge for getting into online game space but is required to purchase various game items such as clothing, swords, and guns, if they want to enhance the power or appearance of their virtual characters (Park and Lee, 2011). Although online gamers buy game items in the cyberspace, they need to purchase a game company issued prepayment card in real world for recharging the points into their own game accounts.

It seems more and more difficult to increase the gamers' willingness to pay for playing online games, especially with a lot of new games are adopting free-to-play models. Fortunately, there are still many willing-to-pay players try to set aside time from busy daily life to play online game, and this gives game companies chances to lure those who want to expedite the game process to buy game items. In addition, the younger or developing country gamers with limited budget also prefer free-to-play games and use prepayment card to buy game items for better balancing their expenditures and entertainment. To secure these revenue sources, online game companies need to find ways to attract critical mass of players as soon as possible and trigger their desire to purchase prepayment card for buying items in game. Therefore, it is important for online game companies to study how to promote and strengthen the purchase intention of online prepayment card thereby results in a strategic marketing approach to revenue generation.

Because of developing country consumers like to play free online games and selectively buy necessary game items through prepayment card (Kapoor et al., 2008), this study chose Thailand online game market as research subject. Few studies have examined the motivation of gamers to choose online games (Hsu and Lu, 2007; Lee, 2010; Stetina

et al., 2011; Teng, 2010; Wu et al., 2010), however, these researchers have not explored what affect game users to purchase online game prepayment card in the free-to-play game market. In addition, due to the impact of recent economic slowdown on the income and purchasing power of the online game, the consumer's purchase intention of prepayment card becomes much vaguer and the motivation for buying game items is obviously reduced. Hence, it is necessary for online game business managers and consumer behavior researchers to better understand the key factors that promote and strengthen the purchase intention of online game prepayment card in current settings.

The main research issues examined in this work are: (1) finding factors affecting purchase intention of online game prepayment card, and (2) providing a strategic view for marketing professionals in online game business.

THEORETICAL FOUNDATIONS AND HYPOTHESIS DEVELOPMENT

Purchase Intention

Consumer behavior is defined as behavior that consumers find, purchase, use and evaluation of various products and services that meet their needs (Schiffman and Kanuk, 1994). Such behavior is caused by something that evokes a sense of consumer demand and through a black box into a deep sense of buyer and emotions is influenced by the nature of the person buying and consumer buying decision process (Kotler, 2002). The purchase intention is a necessary condition to direct the real purchase behavior and is influenced by various incentives. In this study, we discuss the influential factors of prepayment card purchase intention from three aspects: perceived value, price and promotion programs.

Perceived Value

Consumers purchase online game prepayment card to satisfy the various needs of playing games. There exist many studies investigating why game players intend to purchase game items. Based on previous research findings, consumers obtained different values from purchasing online games or virtual items by prepayment card (Park and Lee, 2011). Literature review reveals four values commonly associated with the purchase of virtual goods. The first is the enjoyment value, which increases the fun associated with playing the game. The second is character competency value, which enhances character strength and power in the game context or explores the real character hidden inside. The third value is visual authority value, which comes from gamers purchase game items to adorn their characters to increase their status in the social context of the game. The fourth is monetary value, which bring game users virtual currency function and are cost effective and reasonably priced. Due to online gamers buy virtual goods mainly with prepayment card, this study assumed the four types of perceived value will influence the purchase intention. Based on previous studies, and for the purposes of this study, the following hypotheses were developed:

H1. The perceived value provided by an online game prepayment card will positively affect the intentions to purchase online game prepayment card. This hypothesis can be further break down to four sub-hypotheses:

H1a. The enjoyment value will positively affect the intentions to purchase online game prepayment card.

H1b. The character competency value will positively affect the intentions to purchase online game prepayment card.
H1c. The visual authority value will positively affect the intentions to purchase online game prepayment card.
H1d. The monetary value will positively affect the intentions to purchase online game prepayment card.

Price

Managers need to make decisions about product pricing policy carefully. The price is the only type of marketing mix that generates revenue directly. Product pricing is an important strategic issue because it is related to the positioning of the product and competitive advantage (Noble and Gruca, 1999). If consumers recognize that prices are too high, they may purchase a competitor's product or replace the product, which can lead to loss of sales and profits. On the other hand, if companies set the price low may increase sales but reduce profits. Pricing decisions must be carefully considered when a company is planning to introduce new products or modified ones in the short term or long term.

Although prior literature finds a positive association between price level and perceived quality (Tellis and Wernerfelt, 1987; Yoo et al., 2000), consumers might be equally aware of both the high-priced product and the low-priced product (Yoo et al., 2000). For those commodities without obvious differentiators, consumers could be very sensitive in price thereby to influence the purchase intention. Because online prepayment card can be sold in various face prices, this study provided an initial attempt in exploring the pricing effect of the online game prepayment card on purchase intention. This study used price affordability and relative inexpensiveness to measure price factor, hence proposed the below hypothesis:

H2. Price positively influences the intention to purchase that online game prepayment card.

Promotion

Marketing mix is the cause of the other costs such as the cost of advertising, product development, promotion, distribution and packaging (Noble and Gruca, 1999). Among the marketing mix, promotion strategy is executed to motivate and remind the target market for a product or service. Although promotion activities could be very costly, it is necessary communication between the seller and the buyer to the attitudes and purchasing behavior (Kotler, 2002). To motivate consumer’s purchase intention, of online game prepayment card in this study, promotion is considered as an important influential factor. This research referred promotion to increase the acceptance of the game within the same amount of money in advertising, creates and increases brand awareness by exposing brands to customers (Aaker, 1991; Yoo et al., 2000), and distribution of premium or special in-game or outside the game as a product. Based on the literature, this research proposes the following hypothesis concerning the possible consequence on the player’s purchase intention of online game prepayment card dimension:

H3. Promotion has positive effect on consumer’s intentions to purchase online game prepayment card.

Purchase Intention refers to the extent to which consumers want to buy a product or service. Usually consumers will compare the differences among alternative offerings and rival promotion programs (e.g. discount, redemption, distribution or premium) including the location and condition of the product purchased (Zeithaml et al., 1985). The needed information and time for decision-making to individual consumer is different. Some products require a lot of information and take long time for comparison, but some products do not need, such as convenience goods (Engel et al., 1993). For this study, we assumed the purchase decision of online game prepayment card is not a hard decision so the purchase intention could be measured by self-report questionnaire (Engel et al., 1993). To sum up, the hypotheses of the relationships among the research variables mentioned above can be illustrated with the conceptual framework shown in Figure 1.

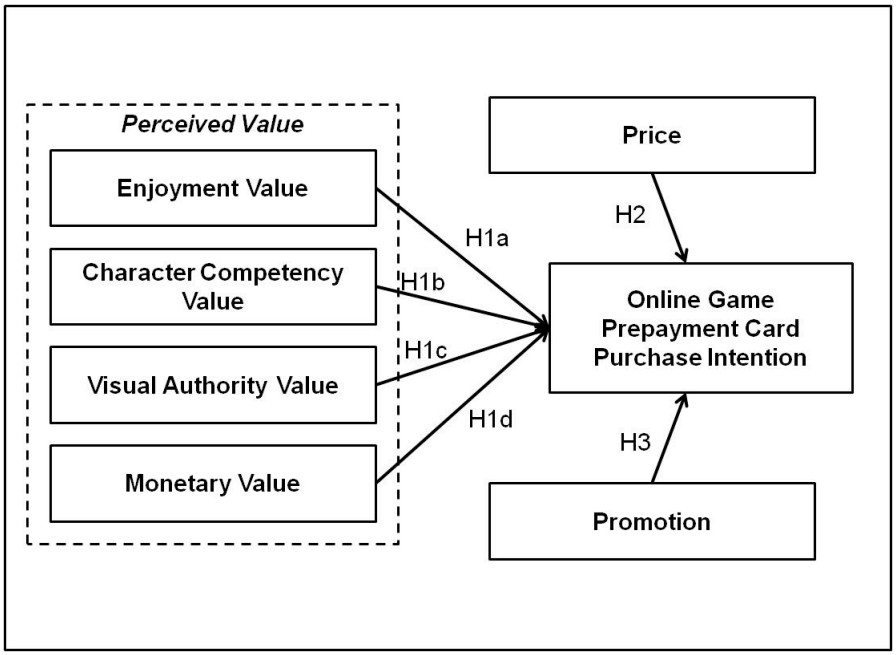

Fig.1 Research Model

METHODOLOGY

Research Design

The instrument used in this study is a questionnaire with complete information to meet the research objectives set forth in the first place. The questionnaire was developed for several advisors' review to examine whether the question contents appropriately represent the constructs and stated accurately in English and Thai. In addition, the researchers executed a pre-test by a small scale survey to validate the instrument. The pre-test survey was conducted via two ways - 5 experts in online game industry were chosen to send the electronic file of questionnaire by means of the message box in the facebook, whereas the paper-based one was given to the other 5 experts via face-to-face. After validating the instrument reliability and validity, the researchers initialized a large scale survey to collect data by online questionnaires. This selected five popular online game communities to post the questionnaires and sent invitation mail to members

for notification. Basically, the original instruments are provided in English with necessary modification of the wording of several questionnaire items for suiting the research objectives in this study, and then were translated from English to Thai to fit the social environment of Thailand.

Measurement development

The questionnaire was developed based on the relevant literatures and expert's opinions. The question items in the instrument were derived from the existing literature and slightly modified to suit the context of affecting purchase intention of online game prepayment card. Furthermore, to develop a scale to measure perceived values, price and promotion, the researchers utilized measures of each variables with a seven-point Likert scale, ranging from ''disagree strongly'' (1) to ''agree strongly'' (7). The detailed survey items for measuring the constructs are listed in Table 1, along with the sources for the questions.

Table 1 Measurement instrument

Construct	Survey Items	Mean	Stdev	Source
Enjoyment Value	Va1. The game items or points give me more pleasure.	4.67	1.85	Guo and Barnes (2009); Turel et al. (2010); Wu et al. (2010)
	Va2. The game items or points give me more fun.	5.01	1.86	
	Va3. The game items or points give me more exciting.	4.61	1.96	
	Va4. The game items or points give me more curiosity.	5.59	1.78	
Character Competency Value	Vb1. I can increase my game character level quickly.	5.32	1.86	Guo and Barnes (2009); Lehdonvirta (2009); Live Gamer (2009)
	Vb2. I can get more game points than before.	5.27	1.81	
	Vb3. I increase my game character skills more.	4.94	2.03	
	Vb4. My game character has more power than other players in the online game.	5.47	1.78	
Visual Authority Value	Vc1. I can adorn my game characters to be more fashionable or stylish	5.91	1.42	Lehdonvirta (2009); Turel et al. (2010)
	Vc2. I would like to discuss my characters for others may therefore be jealous of me.	4.81	1.95	
Monetary Value	Vd1. The game items or points are worth more than what I paid for.	4.93	2.06	Lu and Hsiao (2010); Wu et al. (2010)
	Vd2. The game items or points offer value for virtual currency.	4.87	1.85	
Price	Price1. The price is a price I can afford.	5.68	1.64	Huang and Sarigöllü (2012); Yoo et al., (2000)
	Price2. The price is cheaper than other online games in the same genre.	5.38	1.75	
Promotion	Pro1. I like to receive online game prepayment card promotions through advertisement.	4.80	1.95	Huang and Sarigöllü (2012); Kotler (2002); Yoo et al., (2000)
	Pro2. I like to receive promotion discount for purchase online game prepayment card.	5.66	1.74	
	Pro3. I like to receive privilege for special items from online game prepayment card promotions.	5.77	1.57	
	Pro4. I like to receive privilege for outdoor activities or travel from online game prepayment card promotions.	4.72	2.07	
Purchase Intention	PI1. I intend to buy online game prepayment card in the future.	4.36	2.02	Oliver (1997); Turel et al. (2010);

	PI2. I predict that I will buy online game prepayment card in the future.	4.29	1.92	Yen and Lu (2008)
	PI3. I hope to buy online game prepayment card soon.	4.02	1.95	

DATA ANALYSIS AND RESULTS

Data collection

In all, 360 respondents participated in this study. 25 responses were discarded as a result of missing values or invalid responses, results in a total of 335 valid responses remaining in the data set for further analyses. 83.9 percent of the respondents were male and 16.1 percent were female. For the age distribution, 221 respondents are 18 to 24 years old, 98 respondents are 25 to 34 years old, and 16 respondents are older than 35. The majority of respondents (95.3%) were under 34 years old and this demographic data distribution fits well with those of previous studies (Cherney and London, 2006; Griffiths et al., 2004; Hsu and Lu, 2007; Lucas and Sherry, 2004; Phillips et al., 1995; Teng et al., 2007; Wright et al., 2001) in which most gamers were male and under 34 years old. The data distribution supports the notion that sampling biases due to self-selection are minimized in the current study.

Table 2 Factor structure matrix of loadings and cross-loadings

Scale Items	PI	Enjoy	Char	Visual	Money	Price	Promo
PI1	0.95	0.50	0.25	0.20	0.43	0.27	0.45
PI2	0.96	0.45	0.22	0.21	0.40	0.26	0.44
PI3	0.92	0.40	0.22	0.20	0.36	0.27	0.37
Va1	0.42	0.86	0.28	0.30	0.33	0.28	0.35
Va2	0.46	0.91	0.41	0.34	0.38	0.28	0.38
Va3	0.40	0.85	0.36	0.31	0.34	0.23	0.35
Va4	0.33	0.77	0.33	0.36	0.29	0.34	0.37
Vb1	0.23	0.35	0.89	0.34	0.31	0.11	0.35
Vb2	0.16	0.32	0.86	0.34	0.26	0.16	0.28
Vb3	0.21	0.34	0.88	0.29	0.29	0.11	0.31
Vb4	0.22	0.38	0.82	0.40	0.28	0.21	0.39
Vc1	0.13	0.27	0.30	0.70	0.25	0.29	0.24
Vc2	0.21	0.34	0.35	0.90	0.26	0.14	0.31
Vd1	0.43	0.36	0.25	0.25	0.93	0.35	0.34
Vd2	0.24	0.30	0.35	0.31	0.73	0.25	0.34
Price1	0.21	0.26	0.18	0.18	0.39	0.78	0.34
Price2	0.25	0.28	0.11	0.22	0.22	0.85	0.33
Pro1	0.33	0.27	0.26	0.26	0.30	0.29	0.76
Pro2	0.35	0.38	0.28	0.27	0.33	0.38	0.85
Pro3	0.37	0.39	0.36	0.29	0.34	0.40	0.84
Pro4	0.37	0.31	0.33	0.28	0.28	0.24	0.74

Note:
Enjoy: Enjoyment Value; Char: Character Competency Value; Visual: Visual Authority Value; Money: Monetary Value; Price: Price; Promo: Promotion; PI: Purchase Intention.

Reliability and Validity Analysis

After the initial analysis, the authors estimated and re-specified the measurement model prior to examining the structural model. Except for the construct Visual Authority Value, the measurement reliability of constructs evaluated by Cronbach's α are all over 0.7 (range from 0.68 to 0.94), which is the threshold suggested by Sharma (1996).

A confirmatory factor analysis (CFA) was used to assess the convergent and discriminant validity of the operationalization. Items with factor loadings lower than the threshold value of 0.7 were abandoned to achieve a high level of reliability and validity (Hair et al., 2005). The test result indicates that the factor loadings of all measurement items range from 0.70 to 0.96, which indicates acceptable convergent validity. From the factor structure matrix of loadings and cross-loadings table (see Table 2), it shows a good discriminant validity of each construct measurement because the cross-loadings are relatively low compared to factor loadings. We also assessed construct reliability by calculating composite reliability to respective latent variables as suggested by Segars (1997). The estimates of composite reliability of latent variables ranged from 0.78 to 0.96, significantly higher than the threshold of 0.7 suggested by Jo¨reskog and So¨rbom (1989).

However, composite reliability does not reflect the degree of variance that is captured by the construct in relation to the amount of variance due to measurement error (Fornell and Larcker, 1981). Thus, an average variance extracted (AVE) estimate is employed to obtain this information. An AVE estimate of 0.50 or higher indicates acceptable validity for a construct's measure (Fornell and Larcker, 1981). All AVE estimates in this study (from 0.64 to 0.89) were well above the cut-off value, which suggests that all measurement scales have convergent validity. In order to assess discriminant validity among the constructs, the authors calculated the square root of AVE for each construct and compared them with inter-construct correlations for each pair of constructs. The result shows that square roots of all AVE estimates for each construct are greater than inter-construct correlations; thus, discriminant validity is supported (as shown in Table 3).

Table 3 Correlation matrix, Cronbach's α, AVE and composite reliability

Construct	α	AVE	CR	Enjoy	Char	Visual	Money	Price	Promo	PI
Enjoy	0.87	0.72	0.91	0.85						
Char	0.88	0.74	0.92	0.45	0.86					
Visual	0.68	0.65	0.78	0.21	0.18	0.81				
Money	0.70	0.70	0.82	0.27	0.34	0.08	0.84			
Price	0.73	0.67	0.80	0.21	0.06	0.22	0.04	0.82		
Promo	0.81	0.64	0.88	0.35	0.44	0.09	0.29	0.29	0.77	
PI	0.94	0.89	0.96	0.37	0.27	0.07	0.21	0.14	0.36	0.94

Notes: Square root of AVE for each construct is shown in diagonal of the correlation matrix. Enjoy: Enjoyment Value; Char: Character Competency Value; Visual: Visual Authority Value; Money: Monetary Value; Price: Price; Promo: Promotion; PI: Purchase Intention.

Hypotheses test

This study employs the partial least squares (PLS) method conducted by Visual PLS 1.04b1 (Fu, 2006) to test the hypotheses in the conceptual model. Considering this exploratory study mainly focuses on understanding the influential factors of online game prepayment card, the PLS method is better suited than multiple regression method for testing the measurement model and path model simultaneously. Besides, PLS were successfully employed in several information systems studies (Limayem et al., 2007). As shown in Figure 2, three out of six paths are not significant.

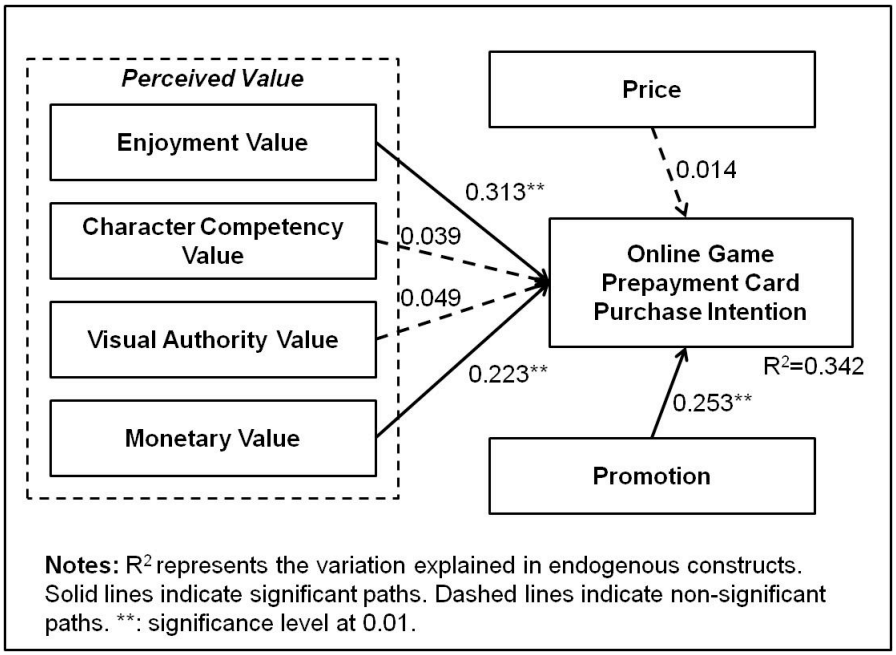

Fig.2 Structural model estimation

In the social science, low R^2 is not uncommon, especially for cross-sectional analysis. Several studies report low R^2 in the range of 0.1-0.4 and still are considered acceptable (Lin et al., 2011; Johnston and Warkentin, 2010). The path coefficients give indication of the size of impact of each predictor variable – a big absolute value suggests that a predictor variable is having a large impact on the criterion variable.

Based on the data, we found the research hypotheses testing results. First, the relationships between perceived value and purchase intention are only two (Enjoyment Value and Monetary Value) out of four direct effects of perceived value are significant (H1a and H1d are supported) while the relationship between character competency value on purchase intention and visual authority value on purchase intention are not significant (H1b and H1c are not supported). Second, the relationship between Price and Purchase Intention is not significant (H2 is not supported). Third, the positive effect of Promotion on Purchase Intention is significant (H3 is supported).

DISCUSSION AND CONCLUSIONS

The results show that the gamers purchase prepayment card mainly for the enjoyment value. It implies that the online game companies should create more joyfulness brought by game items to trigger purchase intention of prepayment card. The second high impact factor is the promotion program that provides special discounts or events for affecting the decisions on online game prepayment card purchase. Based on the mean score data (see Table 1.), the Thai user's preference of advertisement and special events seem not as high as discount and special items. The last significant influential factor is the monetary value which indicates the gamers' purchase intention of online game prepayment card depends on whether it is worth in exchanging the game items or can be regarded as a kind of virtual currency in cyberspace. Nevertheless, statistical tests revealed that the character competency value and the visual authority value were not significantly influence the purchase intention. This could be because the developing country market consumers choose to earn character's competency and adornments in the game playing process rather than buy them directly for cost saving considerations. Interestingly, the effect of price on purchase intention is not significant either. It seems to imply that the online gamers concern more about the perceived value than price when they are making purchase decision. Online game companies should carefully notice this signal if the conjecture is true because to compete in price might not be a good strategy.

We have some suggestions for future research. First, the motivation of gamers to buy prepayment card may be raised by social needs. For example, it is possible that players buy game items to enhance character competency and adornment just for identity need. Future study should consider the perceived social value in online game virtual community as an influential factor. Second, the research hypotheses were only tested by Thailand data. In order to extent the external validity of this study, other country's data should be collected for testing and comparison.

For practitioners, we also like to offer the following recommendations, drawing on the above findings and analysis while taking into consideration the perspectives of game developers and marketing managers:

Gain in-depth knowledge of gamer behavior and preferences
To ensure effectiveness and success, game developers need to learn about gamers' behavior and preferences at a deeper level. A more targeted approach to online game analytics would provide additional insights on the online game community in Thailand. For example, uncovering the subtler trends and patterns in online game patterns will help developers to improve the playing experience hence to bring more enjoyment value to consumers. Besides, the online game marketers can add and/or remove promotion components of the game that may attract/detract online gamers for/from reaching the purchase step.

Increase appeal with Asian-themed content
There is potential for increased online game presence among users in Thailand if online game content had a more local appeal. Having Asian-themed content could enhance gamers' attention and increase their comfort level, particularly with first-timers.

Increase in sales promotion
Promotional products should help and add more features, such as the sale or issuance

of special items for special events in order to boost sales of the product. Thailand online gamers in this survey exhibited various preference to various promotional programs, online game companies need to explore and create more effective and innovative promotion strategies.

Raise awareness of virtual currencies

Given that a significant proportion of respondents do not know what they can gain from purchasing game credits, it is imperative to raise awareness of virtual currencies and their benefits among users. On top of a consistent approach to create awareness and educate users about virtual currencies value, game design and analytics can come into play to help understand online gamers better. This will not only improve player's perceived monetary value, but also encourage the purchase of game credits for an improved user experience.

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