CUSTOMER SATISFACTION TOWARDS VIRTUAL GOODS IN ONLINE GAMES OF THAI WORKING AGE POPULATION

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ABSTRACT

In recent years, growing in game industry. Global games market revenues were $70.6 billion in 2012. The development of technology is increasing very fast. Microwaves, cell phones, smartphones, social media, tablets, and other inventions from the modern era all show fast-rising adoption rates. Nowadays, game become a part of sport e.g. e-sport (electronic sports). Playing game can make money. There are examples of players making $3,000 to $10,000 a month.

The objective of this research is studying factors affecting the customer satisfaction towards virtual goods in online games of working age population. This study collected data from 150 men and women in the range of age between 15-64 years old, in Thailand. The questionnaire was distributed via google form. Data was analyzed by using descriptive statistics, Chi-square test and correlation analysis.

The results revealed that majority of respondents are male, 15-24 years old, single, no children and hold bachelor degrees. Most of them are employees and has average income 20,001-25,000 baht per month. Hypothesis testing revealed that age, marital status, children, education, enjoyment value, character competency value, visual authority value, momentary value, online community and offline have effect on customer satisfaction towards virtual goods in online games of Thai working age population, at a significant level 0.05. The results will be useful guidelines for making the decision to invest and develop appropriate marketing plan for online game business in the future.

Keywords: Thai working age population, online game, virtual goods, customer satisfaction

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Introduction

In recent years, growing in game industry (see Figure 1). Global games market revenues were $70.6 billion in 2012, this puts the 10-year CAGR (Compound annual growth rate) for the market (2012-2021) at +11.0%. Maintaining a double-digit growth rate for 10 years is truly remarkable; it would be an accomplishment for a single company, let alone an industry that has been around for multiple decades (Wijman, 2018).

Figure 1: Global game market
Source: Newzoo (2018)

The development of technology is increasing very fast. Microwaves, cell phones, smartphones, social media, tablets, and other inventions from the modern era all show fast-rising adoption rates. Standing out most on the chart is the tablet computer, which went from nearly 0% to 50% adoption in five years (Desjardins, 2018).

Nowadays, game become a part of sport e.g. e-sport (electronic sports) (see Figure 2). E-sports, which started their rise in 1990s internet cafes of South Korea, are now a $1.5 billion business, according Super Data research. The best players can make millions; tournaments fill arenas around the world. In 2017 people worldwide watched over 266 million hours of professional e-sports competitions involving Dota 2 (Gregory, 2018).

Figure 2: Electronic sport
Source: Felipe Hernandez (2018)

Nowadays, the video gaming industry is huge and shows no signs of slowing down. While there were almost 1.82 billion video gamers across the world in 2014, this figure is expected to rise to over 2.7 billion gamers by 2021 (Gough, 2019).

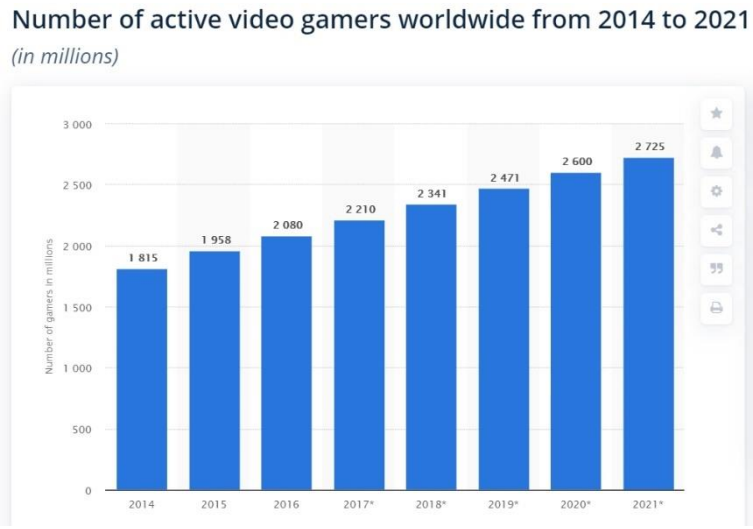

Figure 3: Number of video gamers worldwide 2014-2021
Source: Christina Gough (2019)

From more than 2.3 billion active gamers in the world in 2018, 1.1 billion (46%) spent money on games. The majority of them spent money on in-game items or virtual goods. Just think of virtual weapons from Counter Strike: Global Offensive, or Fortnite's Raven skin hype: the array of characters and items traded today is as wide as are the marketplaces on which one can buy, sell, and exchange them. Sometimes, virtual items can command staggering sums such as up to $6 million paid for a virtual planet (Yasin Sebastian Qureshi, 2018).

This study aims to test whether there is relationship between demographic profile, perceived value and Word of mouth communication towards virtual goods in online game of Thai working age population. Therefore, this study proposed three hypotheses as follows:
H1: Demographic Profile will have an effect on customer satisfaction towards virtual goods in online game of Thai working age population.
H2: Perceived value will have an effect on customer satisfaction towards virtual goods in online game of Thai working age population.
H3: Word of mouth communication will have an effect on customer satisfaction towards virtual goods in online game of Thai working age population.

Investigating constructs

This study addresses the customer satisfaction towards virtual goods in online games of Thai working age population. The proposed factors of demographic profile, perceived value and word of mouth communication were used to examine the relationship with customer satisfaction towards virtual goods in online games of Thai working age population. The definitions of key terms in this study are described as follows:

- Online game - Electronic game playing over a computer network, particularly over the Internet. (Ray, n.d.). Online games refer to games that are played over some form of computer network, most often the Internet. Online games can range from simple text-based games to games incorporating complex graphics and virtual worlds populated by many players simultaneously (What is Online Games, n.d.).
- Virtual goods - A virtual good is an intangible asset that is traded in a virtual economy, such as in online games. Virtual goods are by definition non-physical; their value is determined solely by what users are willing to pay for them (Fernando, 2018).
- Customer satisfaction - A metric used to quantify the degree to which a customer is happy with a product, service, or experience. This metric is usually calculated by deploying a customer satisfaction survey that asks on a five or seven-point scale how a customer feels about a support interaction, purchase, or overall customer experience, with answers between "highly unsatisfied" and "highly satisfied" to choose from. (Bernazzani, 2019)

To future understand the relationship between demographic profile, perceived value, word of mouth communication and customer satisfaction, the following relevant studies have been reviewed. Studies of Cheng & Ting (2012) studied Factors Affecting Intent to Purchase Virtual Goods in Online Games. Study results show that role-playing game users are affected by functional theory of consumption values: functional quality, playfulness, and social relationship support. Study results show that war-strategy game users are affected by satisfaction with the game, identification with the character, and functional theory of consumption values: price utility and playfulness. Study results show that game type is a moderating variable for character competency, price utility, and social relationship support.

Cho (2015), studied What influences people to purchase in game mobile items. The results showed that effort expectancy, hedonic motivation, price value and habit have positive effects on the formation of behavioral intention to use in-app purchase items. Social influence was not a significant factor influencing the behavioral intention. In order to check the

moderating effect of gender, multigroup analysis was conducted. From the multi-group analysis, it was found that male users consider hedonic motivation more than female users do.

Methodology

The research is a survey research design that uses a self-administrative questionnaire to collect data from respondents. The research adopted quota and convenience sampling method by using online questionnaire to collect data. The respondents are age between 15-64 years old and who play online game, Thai people. Convenience sampling was used for this study because the respondents are selected to be in the right place at the right time and least time consuming compared to other sampling techniques. Due to the number of populations is unknown, the researcher uses Taro Yamane table to calculate by the approximately sample size for this study (Poldongnok, 2009). The sample size is calculated based on 95% confidence level and 5% sampling error. However, this study collected data from 384 samples due to the limitation in terms of only 4 months study period for the independent study course, the researcher was allowed to collect 150 samples. Data has performed normal distribution with - 1<Skewness<1 and - 2<Kurtosis<2 (Tabachnick & Fidell, 2007). Data was analyzed using descriptive statistic to describe variables by mean, frequency standard deviation and percentage. Chi-Square was used to delimit the relationships between demographic profile and customer satisfaction about game. Correlation was used to find the relationships between perceived value, word of mouth communication and customer satisfaction about game at the confidence level of 95% or $\alpha <$ 0.05.

Results and Discussion

This study collected data from Thai working population age between 15- 64 years old. Questionnaires were distributed to 150 respondents through online channel and all were used in data analysis. In summary, the respondents of this study are Thai which is age between 16-64 years old, the majority of the respondents are male (60%) and age between 15-24 years old (42.7%) and followed by 25-34 years old (32.7%). Marital status was single (84.7%) with no children (84.7%) and followed by 1-2 children (12.7%). Most of respondents graduated bachelor degree (84%) and followed by master degree (7.3%). Most of respondents was employee (42%) with has average income 20,001-25,000 baht per month (28%) and followed by more than 40,000 baht per month (17.3%).

Study results show that the factors which have the mostly agree from perceived value were character competency value (mean=3.68) which were considered about the character level (mean=3.87) and followed by enjoyment value (mean=3.47) which were considered about the game item or point give them more pleasure (mean=3.88), visual authority (mean=3.31) value which considered about look of their game character (mean=3.87) and momentary value (mean=2.81) which considered about the game item given the (mean=3.03), respectively.

The factors which have the mostly agree from word or mouth communication were offline community (mean=3.50) which were considered about comment about virtual goods from friend and followed by review article from fellow group member (mean=3.91). For online

community (mean=3.32), the respondents tend to rely on the reviews article about virtual goods that posted on Internet social network e.g. Facebook (mean = 3.77).

Most of respondents think that they satisfied with the game that they play (mean=4.26) and followed by decision to play their game (mean=4.20), the game that they play is very good (mean=4.13) and it is a wise choice to play those game (mean=4.08), respectively. The study implied that most of working age population satisfied with the game that they play.

This leads to development of conceptual framework of the study and the following hypothesis:

H1*: Demographic Profile will have an effect on customer satisfaction towards virtual goods in online game of Thai working age population.

H2**: Perceived value will have an effect on customer satisfaction towards virtual goods in online game of Thai working age population.

H3**: Word of mouth communication will have an effect on customer satisfaction towards virtual goods in online game of Thai working age population.

Note: * Partial support at significant level of 0.05.

** Support at significant level of 0.05

Table 1: Result of Hypothesis 1: Relationship between Demographic Profile and Customer satisfaction about game

	I am satisfied with the game that I play	I am satisfied with my decision to play my game	I think that the game that I play is very good	My choice to play this game is a wise one
Gender	Value = 3.492 df = 4 Sig= 0.479	Value = 2.058 df = 4 Sig= 0.725	Value = 7.867 df = 4 Sig= 0.097	Value = 1.571 df = 4 Sig= 0.814
Age	Value = 12.955 df = 16 Sig= 0.676	Value = 17.598 df = 16 Sig= 0.348	Value = 23.611 df = 16 Sig= 0.098	Value = 28.007 df = 16 Sig= 0.032
Marital status	Value = 6.774 df = 8 Sig = 0.561	Value = 15.518 df = 8 Sig = 0.050	Value = 19.470 df = 8 Sig = 0.013	Value = 31.728 df = 8 Sig = 0.000
Children	Value = 9.605 df = 8 Sig = 0.294	Value = 17.526 df = 8 Sig = 0.025*	Value = 27.088 df = 8 Sig = 0.001*	Value = 39.599 df = 8 Sig = 0.000*
Education	Value = 20.206 df = 12 Sig = 0.063	Value = 22.745 df = 12 Sig = 0.030*	Value = 15.793 df = 12 Sig = 0.201	Value = 15.592 df = 12 Sig = 0.211
Occupation	Value = 14.319 df = 16 Sig = 0.575	Value = 18.947 df = 16 Sig = 0.271	Value = 15.806 df = 16 Sig = 0.467	Value = 21.980 df = 16 Sig = 0.144
Income per month	Value = 28.874 df = 32 Sig = 0.626	Value = 33.880 df = 32 Sig = 0.377	Value = 32.326 df = 32 Sig = 0.455	Value = 41.360 df = 32 Sig = 0.124

The table 1 showed that the demographic profile has partial significant relationship with customer satisfaction about game. ($P < 0.05$)

Table 2: Result of Hypothesis 2: Relationship between Perceived value, Word of mouth communication and Customer satisfaction about game

Perceived value				
Enjoyment Value	1. I am satisfied with the game that I play	2. I am satisfied with my decision to play my game	3. I think that the game that I play is very good	4. My choice to play this game is a wise one
1. The game items or points give me more pleasure	Sig = 0.00*, R = 0.488	Sig = 0.00*, R = 0.418	Sig = 0.00*, R = 0.360	Sig = 0.00*, R = 0.415
2. The game items or points give me more fun	Sig = 0.00*, R = 0.472	Sig = 0.00*, R = 0.411	Sig = 0.00*, R = 0.351	Sig = 0.00*, R = 0.407
3. The game items or points give me more exciting	Sig = 0.00*, R = 0.357	Sig = 0.00*, R = 0.370	Sig = 0.00*, R = 0.302	Sig = 0.00*, R = 0.365
4. The game items or points give me more curiosity	Sig = 0.001*, R = 0.275	Sig = 0.00*, R = 0.286	Sig = 0.001*, R = 0.273	Sig = 0.001*, R = 0.275
Character Competency Value				
1. I can increase my game character level quickly	Sig = 0.00*, R = 0.457	Sig = 0.00*, R = 0.391	Sig = 0.00*, R = 0.378	Sig = 0.00*, R = 0.395
2. I can get more game points than before	Sig = 0.00*, R = 0.463	Sig = 0.00*, R = 0.385	Sig = 0.00*, R = 0.396	Sig = 0.00*, R = 0.351
3. I increase my game character skill more	Sig = 0.00*, R = 0.357	Sig = 0.00*, R = 0.447	Sig = 0.00*, R = 0.305	Sig = 0.00*, R = 0.318
4. My game character has more power than other players in the online game	Sig = 0.001*, R = 0.259	Sig = 0.013*, R = 0.202	Sig = 0.013*, R = 0.202	Sig = 0.022*, R = 0.187
Visual Authority Value				
1. I can adorn my game characters to be more fashionable or stylish	Sig = 0.00*, R = 0.442	Sig = 0.00*, R = 0.394	Sig = 0.00*, R = 0.380	Sig = 0.00*, R = 0.388
2. I would like to discuss my characters with others, maybe jealous	Sig = 0.00*, R = 0.363	Sig = 0.001*, R = 0.276	Sig = 0.00*, R = 0.368	Sig = 0.00*, R = 0.302
3. I can make my game character look better	Sig = 0.00*, R = 0.436	Sig = 0.00*, R = 0.347	Sig = 0.00*, R = 0.336	Sig = 0.00*, R = 0.328
4. I am more notice by others	Sig = 0.00*, R = 0.359	Sig = 0.00*, R = 0.352	Sig = 0.00*, R = 0.361	Sig = 0.00*, R = 0.300
5. I can make a better impression on others	Sig = 0.00*, R = 0.302	Sig = 0.00*, R = 0.319	Sig = 0.001*, R = 0.280	Sig = 0.001*, R = 0.279

Momentary Value				
1. The game items or points are worth more than what I paid for	Sig = 0.00*, R = 0.364	Sig = 0.00*, R = 0.340	Sig = 0.00*, R = 0.352	Sig = 0.00*, R = 0.384
2. The game items or points offer value for virtual currency	Sig = 0.00*, R = 0.365	Sig = 0.001*, R = 0.351	Sig = 0.00*, R = 0.340	Sig = 0.00*, R = 0.408
3. A game item is a good product given the price	Sig = 0.00*, R = 0.360	Sig = 0.00*, R = 0.355	Sig = 0.00*, R = 0.381	Sig = 0.00*, R = 0.433
4. The price of game item are reasonable	Sig = 0.002*, R = 0.246	Sig = 0.014*, R = 0.200	Sig = 0.00*, R = 0.327	Sig = 0.001*, R = 0.276
Word of mouth communication				
Online channel				
1. I tend to believe on comments about virtual goods posted on web board of online game	Sig = 0.00*, R = 0.577	Sig = 0.00*, R = 0.536	Sig = 0.00*, R = 0.443	Sig = 0.00*, R = 0.478
2. I tend to rely on the reviews article about virtual goods that posted on Internet social network e.g. Facebook	Sig = 0.00*, R = 0.605	Sig = 0.001*, R = 0.574	Sig = 0.00*, R = 0.491	Sig = 0.00*, R = 0.558
3. I like to ask for comments from friend on web board of online game	Sig = 0.00*, R = 0.350	Sig = 0.00*, R = 0.416	Sig = 0.00*, R = 0.398	Sig = 0.00*, R = 0.395
4. I usually post my experience from using virtual goods on Internet social network e.g. Facebook	Sig = 0.002*, R = 0.346	Sig = 0.014*, R = 0.422	Sig = 0.00*, R = 0.342	Sig = 0.001*, R = 0.370
Offline channel				
1. I tend to believe on comments about virtual goods from friend who using virtual goods	Sig = 0.00*, R = 0.566	Sig = 0.00*, R = 0.456	Sig = 0.00*, R = 0.447	Sig = 0.00*, R = 0.488
2. I tend to rely on the reviews article about virtual goods from fellow group members	Sig = 0.00*, R = 0.599	Sig = 0.00*, R = 0.543	Sig = 0.00*, R = 0.522	Sig = 0.00*, R = 0.540
3. I like to ask for comments from friends before purchase virtual goods in online game	Sig = 0.00*, R = 0.346	Sig = 0.00*, R = 0.332	Sig = 0.00*, R = 0.412	Sig = 0.00*, R = 0.403
4. I usually exchange the view of my experience from purchasing virtual goods with the fellow group members	Sig = 0.002*, R = 0.253	Sig = 0.00*, R = 0.311	Sig = 0.00*, R = 0.306	Sig = 0.00*, R = 0.307

Table 2 Showed that perceived value and word of mouth communication have significant relationship with customer satisfaction about game. ($P < 0.05$)

Conclusion

Study results show that the majority of the respondents are male and age between 15-24 years old and followed by 25-34 years old. Marital status was single with no children and followed by 1-2 children. Most of respondents graduated bachelor degree and followed by master degree. Most of respondents was employee with has average income 20,001-25,000 baht per month and followed by more than 40,000 baht.

Study results show that the factors which have the mostly agree from perceived value were character competency value which were considered about the character level and followed by enjoyment value which were considered about the game item or point give them more pleasure, visual authority value which considered about look of their game character and momentary value which considered about the game item given the , respectively.

The factors which have the mostly agree from word or mouth communication were offline community which were considered about comment about virtual goods from friend and followed by review article from fellow group member. For online community, the respondents tend to rely on the reviews article about virtual goods that posted on Internet social network e.g. Facebook.

Most of respondents think that they satisfied with the game that they play and followed by decision to play their game, the game that they play is very good and it is a wise choice to play those game, respectively. The study implied that most of working age population satisfied with the game that they play.

This study investigated customer satisfaction towards virtual goods in online games of Thai working age population. We specifically focused on investigating three main hypotheses: (1) demographic profile will have an effect on customer satisfaction towards virtual goods (2) perceived value will have an effect on customer satisfaction towards virtual goods (3) word of mouth communications will have an effect on customer satisfaction towards virtual goods. The results supported the three main hypotheses (1) demographic profile have partial effect on customer satisfaction towards virtual goods (2) perceived value have effect on customer satisfaction towards virtual goods and (3) word of mouth communications have effect on customer satisfaction towards virtual goods

Discussions

The study of factors affecting the customer satisfaction towards virtual goods in online games of working age population. Some of findings can be discussed as follows:

Descriptive results: The study has found a significant relationship between different demographics profiles of customer satisfaction towards virtual goods in online games of Thai working age population, such as age, marital status, children, education which has effect on customer satisfaction about game. The result was the result of demographic profiles from Cheng & Ting (2012) were similar to this study. Most respondents were men, 16-25 years old and had Bachelor’s degree as their highest education level.

The hypothesis results: The study of Cheng & Ting (2012) which explored the factors affecting intent to purchase virtual goods in online games revealed that role-playing game users are affected by functional theory of consumption values: functional quality, playfulness, and social relationship support. War-strategy game users are affected by satisfaction with the game, identification with the character, and functional theory of consumption values: price utility and playfulness. Game type is a moderating variable for character competency, price utility, and social relationship support which was similar to the result of the study that virtual goods are affect by satisfaction with game.

From the study of Cho (2015), the result revealed that effort expectancy, hedonic motivation, price value and habit have positive effects on the formation of behavioral intention to use in-app purchase items which similar to this the result of the study that virtual goods are affect by satisfaction with game.

Implications of the study

1. From the study, the majority of respondents was 15-34 years old and they have the ability to purchase virtual good in online game. Therefore, game companies should create games and virtual goods in online games that can appeal to teenagers and young adults.
2. The users considered the importance of perceive value. In term of character competency, gamer always considered about their character skill. In term of enjoyment value, gamer considered about game item or point that can make them happier. In term of visual authority, gamer considered about fashionable of their game character. In term of momentary value, gamer think that the game item or point are worth more than what they paid for. Therefore, game companies should create virtual goods that can increase characters skill, and character levels, create game item that will make gamer more fun, product more fashionable game item and make their price touchable to increase their income.
3. Game company should use word of mouth communication to attract customer to buy more virtual goods by see all article review and all comment about their virtual goods then solve the problem and make it more interesting

Limitations of the study

The limitations of this study still leave the room for future studies in this area as follow;

1. Future studies may repeat this study and expand the sample framework for other foreigners in Thailand. Larger sample sizes may help to add explanations.
2. Another avenue for future study is expand age range to know the differentiation of their need to improve the virtual goods.
3. Other recommendation for future study is factor affecting intention to purchasing virtual goods in online game of Thai working age population.

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