



IN-APPS PURCHASE INTENTION OF CHINESE MOBILE GAME USERS



A Thesis Submitted to the Graduate School of Naresuan University
in Partial Fulfillment of the Requirements
for the Master of Business Administration in Asian Business Management

2021

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Thesis entitled "in-apps purchase intention of Chinese mobile game users"

By DEHUA AI

has been approved by the Graduate School as partial fulfillment of the requirements
for the Master of Business Administration in Asian Business Management of
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ABSTRACT

Gacha and Loot box is primary business model in Chinese Mobile game market, customers play with a stochastic system to obtain the prize that they want. In this research, we examine mobile game player decisions to purchase a chance for run a Gacha or open a loot box based on consumption value using questionnaire survey in China. There are 406 mobile game players answering the questionnaires. The results show that monetary value of gambling and price, playfulness, and self-image expression have significant influence on customer's purchase intention. Our results shed some light for mobile game designers to achieve better sales revenue.

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DEHUA AI

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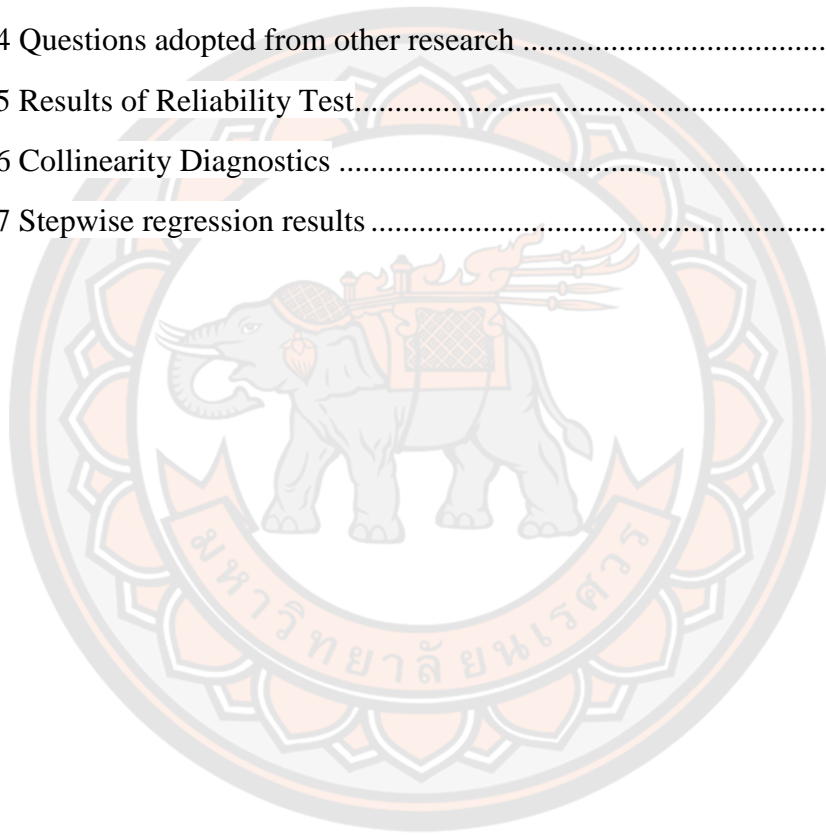
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CHAPTER I

INTRODUCTION

Background

1. The Chinese mobile game market

China has become the world's largest mobile phone market in recent years. According to the Bulletin of Statistics of Communication Industry that released by the Ministry of Industry and Information Technology of the People's Republic of China (MIITPRC, 2021), China had total of 1,069 million 4G network users in 2021. Additionally, in 2021, the total data traffic of Chinese mobile internet access reached 221.6 billion gigabytes (GB) with 33.9% increase over the year before (see Figure 1). The annual dataflow of usage (DOU) on mobile internet is 13.36 GB per household per month, an increase of 29.2% over 2020.

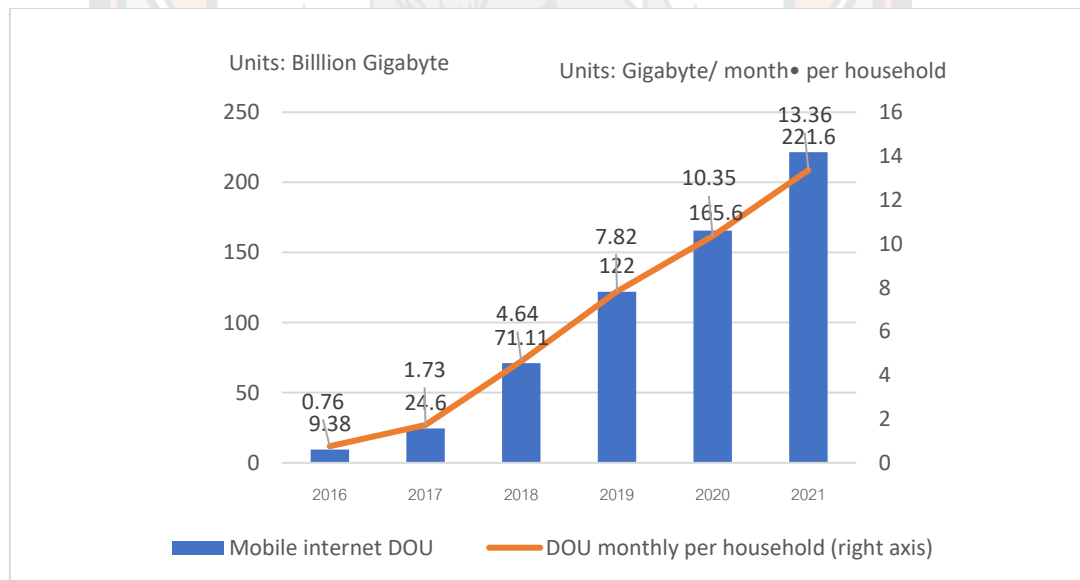


Figure 1 Data traffic of Chinese mobile internet access

Source: MIITPRC, 2021

Based on the data that NewZoo released, China owns the world's largest games market with estimated total revenues of over USD 27.5 billion with 564.8 million gamers in 2017 (NewZoo, 2017). The data that published by the Game Publishers Association Publications Committee (GPC, 2017) reveals that the total revenue of mobile game market is around USD 18.4 billion (CNY 116.12 billion). In 2021, China Audio-video and Digital Publishing Association (CADPA, 2021) reported that China mobile game market actual sales reached CNY 225.5 billion, increased 15.86 billion from last year. The mobile game market captured 76% of market sale from total game market.

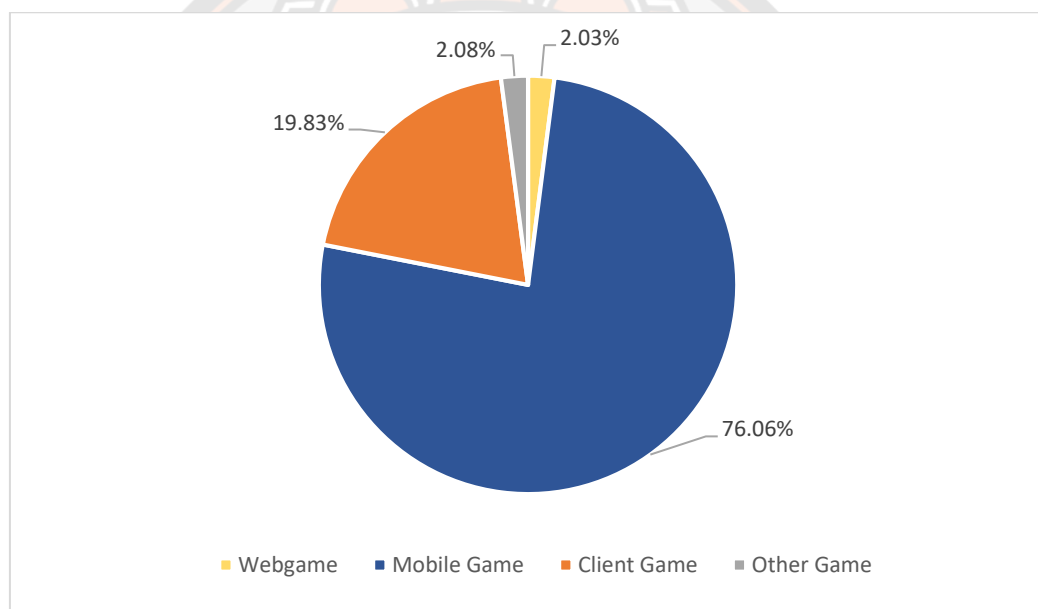


Figure 2 Market share of China game market

Source: CADPA, 2021

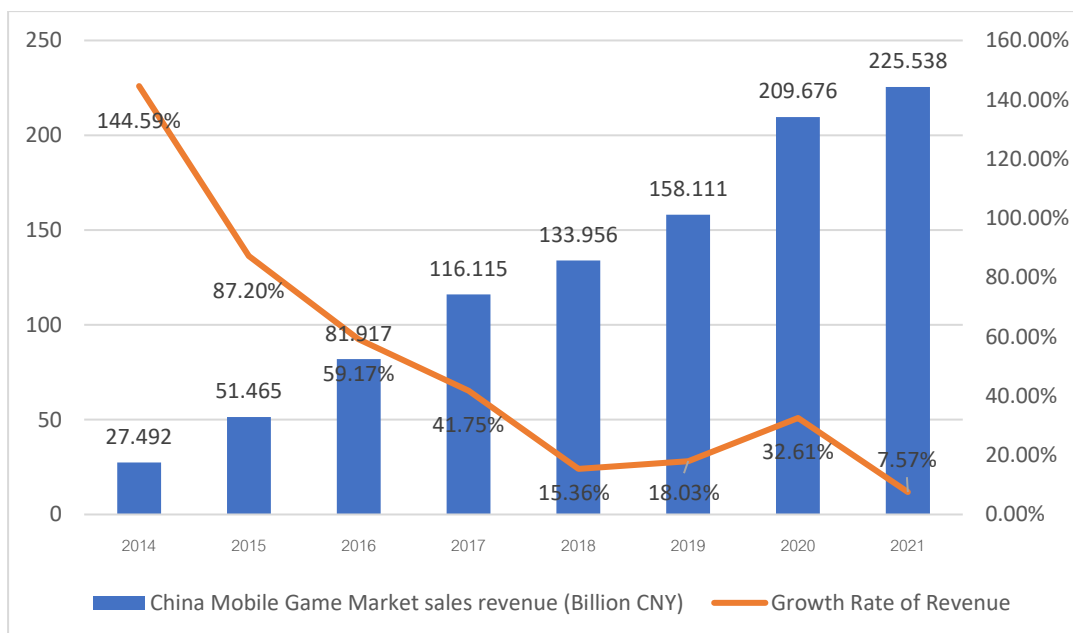


Figure 3 China Mobile Game Market Sales and Growth rate of Revenue

Source: CADPA, 2021

For the mobile game users, Chinese gaming industry do not have unified and precise data about age distribution, but all reports agree that mobile game market are dominated by players aged less than 40 years old (See Figure 1.4; Pacific Securities, 2021). In the middle of 2017, mobile game users had grown into 434.8 million (GPC, 2017). In the report “Mobile Game Industry report 2016 —— 147 million the generation after 00s and Upcoming Change” (CNG Games Research Center, 2016) reveals the new potential market from Chinese new generation. Additionally, the report of 2021 China Gaming Industry says after the explosive growth of the mobile game market during 2013 to 2017(see Figure 1.3), most of the potential users have completed the conversion, and due to the demographic dividing is drawing to close, the penetration rate of mobile game players is close to market saturation to entire game players (Figure 1.5), it is unlikely to see rapid growth in the market again. However there still exist a large number of potential users not yet taken into account. The generation after 00s (The people who was born between 2000 and 2009) are gradually accessing the mobile

network, and their arrival will bring new opportunities to mobile games. The future direction of mobile game market will depend on their choice of games.

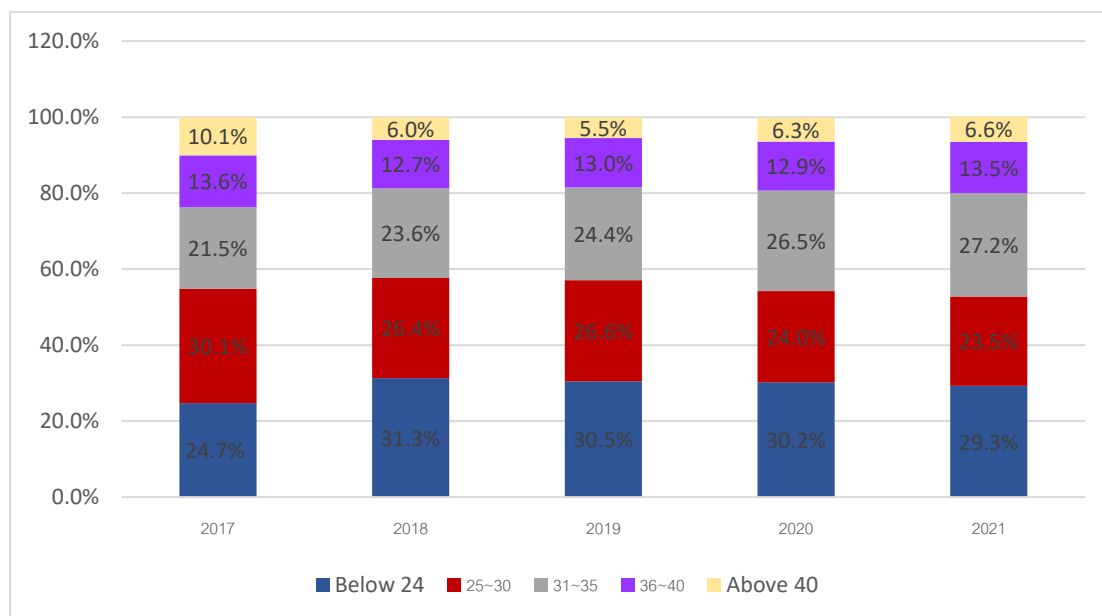


Figure 4 Age structure of Chinese mobile game users

Source: Pacific Securities, 2021

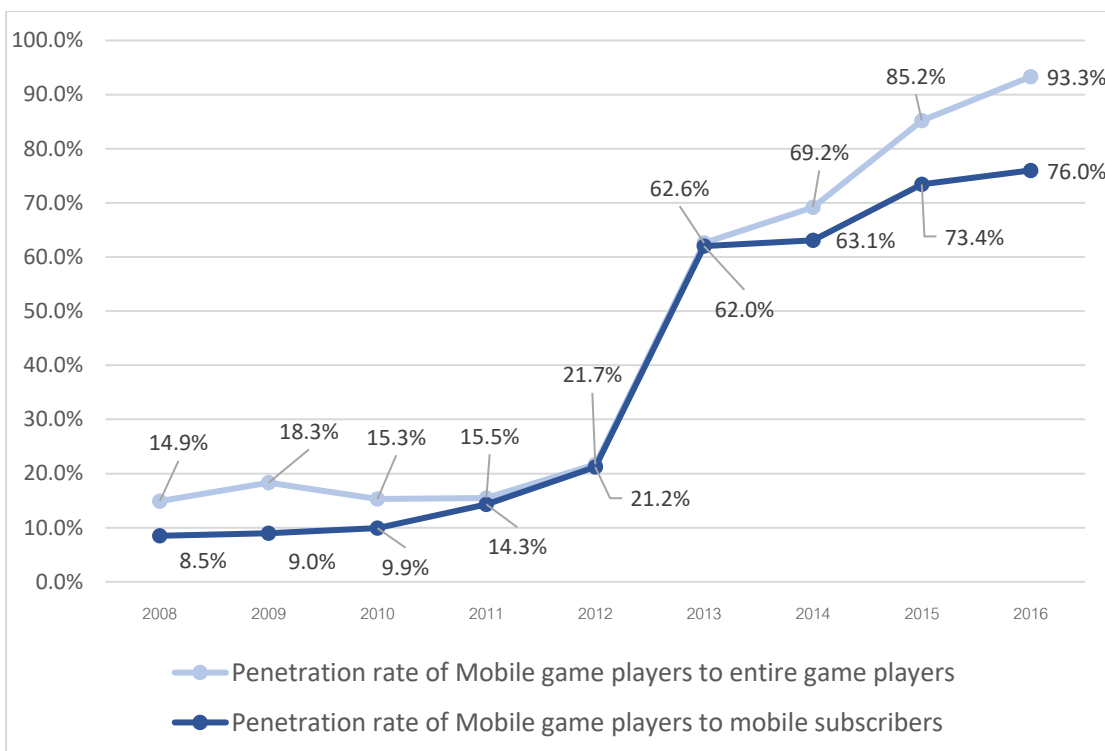


Figure 5 Change of Mobile game players penetration rate

Source: Chyxx.com, 2017

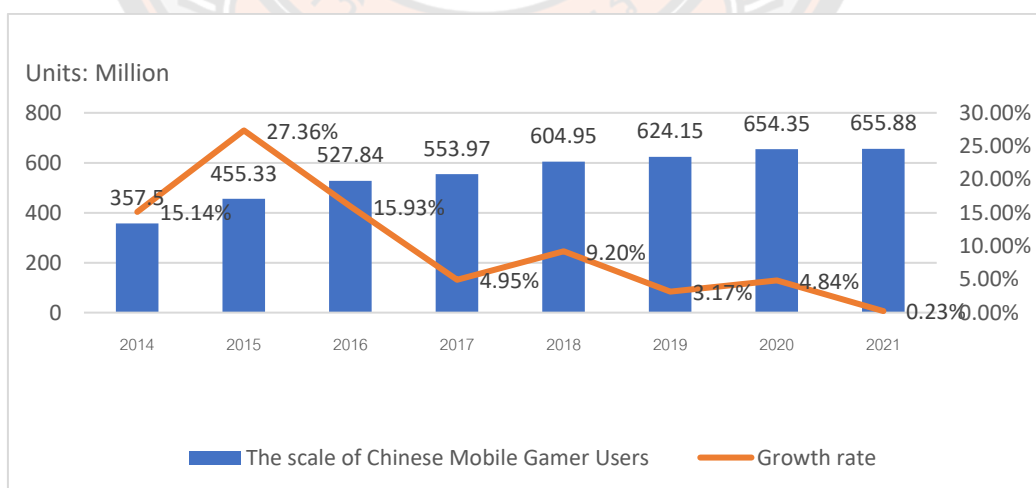


Figure 6 The Scale of Chinese Mobile Gamer Users

Source: CADPA, 2021

The report (CNG Games Research Center, 2016) also mentioned that 00s only captured 10% of total mobile game users, but it is also known that mobile devices have high penetration rate among them, 64.6% 00s have mobile phone. Furthermore, 00s are much easier to have access of internet than older generations. At present, by the reason of constraint and supervision from school and parents, most game playing duration of 00s is controlled, therefore 00s normally choose to play during weekends and holidays.

The last thing the report talks about is the feature of 00s. By the Economic growth of China, 00s have higher consuming desire and money reserve than older generation. 11.2% of 00s spend over 16 dollars in a week compared with 90s whom only have 1.8% could reach this consumption level (They compare with same age in history). And other several features of 00s are:

1. **Social and Competition Preference:** At present, most of 00s now still study in school with their classmates or schoolmates. In this case, the individual internet avatar of the game won't be effective to them, however they are influenced more from their companions, especially when the things that they are interested in have a strong diffusion in their group. In fact, they prefer to play with their friends in real-life, and be satisfied from competition among friends.

2. **Willing to Challenge and Self-Expression:** 00s are willing to accept various challenges to feel superior to their groups. A game player that outplays any others will receive admirers, this will drive them to have strong desire for self-expression and more time on game-playing practice.

3. **Affection from Animation Industry:** 00s was raised with animation, they're much easy to be attracted by some games with animation than other which has none of it.

China is the largest gaming market in the world, one of the key reasons that make Chinese mobile game market successful is online gaming environment. With rapid growth of economy and mobile phone industry in China, Chinese mobile game players can afford relatively cheap but high-performance mobile phones. With rising of China's smartphone industry, the possibilities and developments of China's mobile gaming market will follow as well.

2. Loot boxes & Gacha

Loot boxes are random award mechanisms, players have to pay real money or in-game currency or play the game long enough to level up and complete certain missions to obtain the box (Freeman, 2018). The box contains single or multiple items as award, the trick is that player never knows what's inside before opening it. The items sometimes could be used to improve in-game performance to increase player's competitiveness in game, while others are merely cosmetic which makes no effect an ability to gameplay (Hood, 2017). Furthermore, with a carefully designed animation of opening the box and sounds effects gave great sensory stimulation, when the outcomes revealed, no matter the items which from the box, it will encourage the player to open the box over and over again. (Avard, 2017).

There is one type of capsule machines got started in Japan, and locals call it as Gashapon (or Gachapon) machine, and it draws children and adults alike to spend money to have exclusive collectibles (like toys) randomly by the limited time. This design gives inspiration to mobile game designer to add this feature and call it "the Gacha" (Famularo, 2017) an onomatopoeia that imitates the sound of a crank on capsule machine. The game with Gacha is free for playing, however, the player still can obtain extremely rare and/or valuable gaming items via monetary purchases of online products. It cannot be regarded as gambling, because there is no money involves in the results, and a prize is not the money either in the context of games, even the obtaining of game item has randomness. However, the stimulation by obtaining rare and special items, such as strong weapons or cards from gacha is considered that the whole process of gacha sharing the similar feature with gambling, especially winning a big amount of money in the perspective of gambler, it is possible for players to paying increasingly greater amounts of money just for seek the sensation of a "big win" (Shibuya et al, 2015).

Loot boxes might be the new concept for the mobile game industry, but they have been existing for many years longer than people might think, Hamari & Lehdonvirta (2010) suggests that there is an existing business model in the online game has similarity with loot box from Chinese free-to-play MMO ZT Online in around 2006 or 2007. An author mentioned that there was a Chinese newspaper described player spent 1 China yuan to buy a key and said: "When the key is applied to the chest, the

screen will display a glittering chest opening. All kinds of materials and equipment spin inside the chest like the drums on a slot machine as the wheel of light spins." This is first time the loot box system was mentioned in 2007 (Wiltshire, 2017).

In the previous studies from Koeder et al. (2017) offered a view at the Japanese mobile free to play (F2P) market with a game-of-luck based payment mechanism so called "Gacha" in Japanese. In this payment mechanism, they found the gamer who plays with "Gacha" game, invests more money in mobile F2P games than other gamers who don't play such games. It means the players who play with "Gacha" accept price discrimination in F2P with other types of game even though the price is affected by luck to acquire game items that is really required to players.

The "Gacha" is one type of free to play game. However, game items were designed with certain level of value and rarity, customer obtained it through monetary purchases of in-game gacha product.

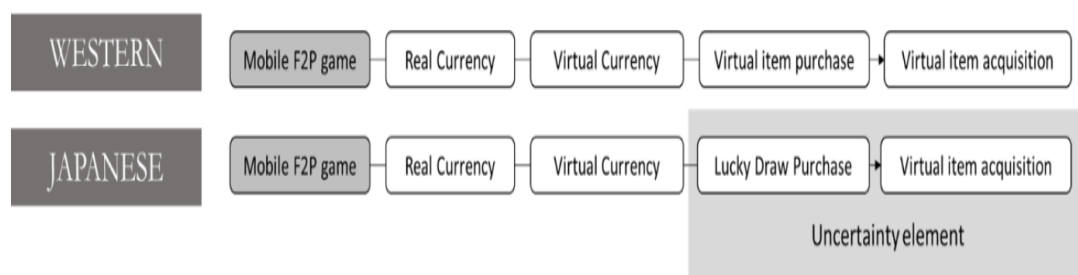


Figure 7 Difference payment mechanism between Western and Japanese F2P mobile game

The designs are similar in most aspect between gacha and lootbox, they are designed based on the player spending real money or in-game currency on the random chance of getting something good (Bycer, 2017). The most common gacha system is used in RPGs (Role-Playing Games) mobile game, in which players are allowed to have an opportunity to run for a gacha to get new characters or items using game currency that they earn in the game by completing daily quest. If they want to accelerate the process to earn the in-game currency instead of spending time to finish the quest, they can pay real money to achieve that. However, assuming that players are willing to invest

their game with real money, still there is no guarantee that they can get what they desired, because the probability of getting a highly coveted character or item is low. This means that they will be waiting a very long time or spend a lot of money to get what they want (Famularo, 2017). With gacha system, gacha games usually have 3 different types of gacha that contain game items or characters which ranked by level of rarity:

1. The friend gacha.
2. The high quality gacha.
3. The special/ conditional gacha.

In game, the high quality gacha usually contains common rewards mixed with some of items with high level of rarity, although the rare items are hard to be obtained. The special/conditional gacha are available on a certain period of time depending on the marketing sales strategy set by the game company when the date meets events or the sales on their schedule, such as festival, anniversary celebration and commercial plan. Friend gacha is the third most common type being used in RPG mobile games. Because the social components can make players have incentive to promote the game and engage with other players via social media, players can usually earn extra in-game currency or certain rewards for they playing with friends.

Using RPG mobile game: Fate/ Grand Order(F/GO) as example, the game just won the first place of overall revenue in the worldwide in February of 2018 (Nelson and Tower, 2018). In this game, the players gain game characters which is called servant, to help them win the battle and Craft Essence(CE) as game items to boost servant's combat performance. For getting those game contents, players must use a system called summon system, a fancy name for gacha system in this game. The quality of the contents was ranked into 5 levels: 5 stars to 1 star (Gamepress, 2018). 5 stars item or character means the rarest contents and game performance that players can get in the game. In the game has three types of summon: (1) Limited Time Summon, (2) Story Summon and (3) Friend Points Summon. Summoning rare contents costs 3 Saint Quartz (paid currency), and summoning common contents costs 200 Friend Points (via gameplay), and summoning detail is shown in table 2.1:

Table 1 Summoning detail

Summoning Types	1x Cost	10x Cost	Rewards
Limited Time Summon	3SQ*	30SQ	3* to 5* Servant or CE
Story Summon	3SQ*	30SQ	3* to 5* Servant or CE
Friend Points Summon	200FP	2000FP	1* to 3* cards

The F/GO in-game currency is called saint quartz, and for Saint Quartz Summoning, every single summon will cost 3 saint quartz, and using the 10x option (summon 10 times all in once) guarantees at least one 4* card (either Servant or Craft Essence) and at least one Servant. Due to the summon odds as shown in Table 2.2, even players spend quite a lot of money, they could not make sure the result is what they want.

Table 2 Published odds of a single Saint Quartz Summon.

Rarity	Servant	Craft Essence
5*	1%	4%
4*	3%	12%
3*	40%	40%

To encourage player to continue to play the game, there usually has free saint quartz to obtain. The sources of these free saint quartzes need player spend their real time to get, such as: (1) Weekly login reward, (2) Weekly master quest, (3) Cumulative login rewards. There is an item called summon ticket which has same function with saint quartz in game, and player can get it from game shop for free. The shop will offer 5 tickets per month, or player get it from consecutive login Day 7 as login gift. Therefore, some players may not stand for waiting and go purchase when

they need for summon, especially the game has special event to stimulates play to purchase frequently. Table 2.3 shows the likelihood and potential expense of acquiring at the rare servants. However, the table only shows the likelihood of rarity, there is no guarantee that players could obtain right servant that they want (right rarity but wrong servant may occur).

Table 3 Likelihood of acquiring at least one 5* or 4* Servant with cash shop purchases

Cash Shop	Saint Quartz	5* Servant Odds	4* Servant Odds
3x \$0.99	3	1%	3%
3x \$3.99	15	5%	14%
3x \$11.99	48	15%	38%
3x \$23.99	108	30%	66%
3x \$39.99	195	48%	86%
3x \$79.99	420	76%	98%

Current Issues

Today, game companies and players are both facing the facts that the difference between some mobile game and gambling is increasingly becoming blurred because of gacha and loot box system, all players from both of the games share the similar behavior pattern is that hope to spend less to get more. There are a few representative cases to reveal the issue of this business model with gambling feature. The EA (Electronic Arts) company released Star Wars Battlefront 2 on November 17, 2017. After one week, the company's stock was down 8.5 percent month to date through Tuesday (November 29, 2017) compared with the S&P 500's 2 percent gain, around \$3.1 billion of shareholder value was evaporated due to the this in-game money-making

strategy that met serious oppositions from the players in “Star Wars Battlefront 2” (Kim, 2017). For the game players, people just showed their aversion towards the company for their new money-making strategy. In a website called Reddit, a player questioned the company why they have to pay additional money to unlock a character in the game while they already paid for the game itself. And by the calculation from some of the gamers revealed that it would take 6 years of playing, two hours per day to unlock all the appearances of characters and weapons in Battlefront II without paying for extra premium (Kottasová, 2017). Assuming that player wants to reach all collection achievement by paying for everything, it would cost over \$2,000. An answer for player’s doubt from EA’s staff broke the record of Reddit to become the most downvoted post in Reddit’s history (Olson, 2017). In the end, EA apologized for their microtransactions business model and would temporarily revoke it. However, there is one thing that needs to be noted that EA didn’t say they would be removing this business model from the game forever, but rather until they can make changes to the game that better accommodate the system, downplay its importance, or generally adjust the game’s progression, even though they met huge loss from this business model (Ditzler, 2017). Moreover, the impact that brought by this business model was noticed by foreign government. The Belgium Gaming Commission has launched an investigation into this incident, to determine if the loot boxes in those categories of game constitute gambling. If the commission’s judgement ascertains that loot boxes are gambling, the company needs to require a permit from the commission and pay a fine amounting to “hundreds of thousands of Euros” (Eddie Makuch, 2017). In 2018, Belgium and the Netherlands declared Gacha or Loot-boxes illegal (Yin-Poole, 2018).

Another example from Japanese mobile phone game: Granblue Fantasy. The game developer Cygames ran a promotion to double the chance of one certain character from one of its around 3 dollars gacha. Usually it’s 3% chance to have that character (Steven Hansen, 2016). In this promotion, one player found when he ultimately has that character, he already spent 6,065 dollars in total for his gacha. The company apologized after knowing his story. Some of the players who overspend on gacha applied for a refund, and the company consented to their application, but the refund only transferred into in-game currency instead of real money back. Later, the rules in Granblue Fantasy have also changed to limit expenditure. From now on, if a player does not successfully obtain the

item which are demanded by them after 300 attempts on gacha running, they will get a specially voucher to exchange the items. However, that still means a player can spend as much as \$800 to reach that expenditure of upper limit (Humphries, 2016).

Loot boxes and Gacha business model had proved sustainability, addiction and profitability to game companies, and players seem like having something to complain about, however it still keeps players spending their money in their favorite game constantly. The business model is controversial, game as its carrier, accessed by juveniles widely. The game industry holds ambiguous attitude about the business model because people still debating for if loot boxes and gacha is belong to gambling or not, fortunately some countries took action for regulation on this model which operates in a gray area.

Objective

China's mobile game market is becoming saturation, and competition in this industry is getting increasingly intense. Therefore, the overarching aim of this study is to explore what are the main perspective factor that most effective on customer purchase intention in China's mobile game market.

Scope of the study

To achieve the goal of this research, the investigation will proceed under the theory of consumption value in China mobile game market. The Online survey is adopted to collect data with scope of mobile game which is contain the gacha or loot box as their business model.

Contribution

The study will offer guiding significance for game companies when they try to develop and promote their product to their customers. Moreover, the existing literatures does not include this game type with gambling feature. As a consequence, this research will offer reference significance to later research.

CHAPTER II

LITERATURE REVIEW

Microtransaction

Microtransaction is a business payment model which is the mobile internet users can purchase virtual products via online in-app payment system in small amount of money. Nowadays, the most of Free-to-play (F2P) games use microtransaction to provide a revenue source for the game company. In recent years, the F2P model has been increasingly used in mobile game industry. The meaning of F2P, game allows players to access into the game with no charge. However, F2P game provide premium service or premium products to gam player to buy for enhance their gaming experience. Therefore, some of players use “Pay-2-Win” as a derogatory term to describe the game which selling in-game items that can give the player an advantage over others.

In the view of game professionals, there are two reason that why game company using the F2P model. First, it offers flexible price on additional content in game which are designed for players with different level of paying intention. Second, it enables more players to access the game because its freemium strategy (Janne Paavilainen et al., 2013.). Furthermore, in order to achieve the purpose of customer acquisition, retention and monetization; the idea of game-as-service provides convenience and flexibility of marketing to the game developers and companies to update or tweak iteratively when game has new patch needs to launch in the future, or just stop service for stop losses from operating a game. (Hamari, & Lehdonvirta, 2010; Hamari, & Järvinen, 2011; Hamari, 2011.).

F2P games often use the double currency model, the players can earn soft currency by completing the daily quest. The soft currency usually is a lower-value, general-purpose currency, the purpose of soft currency is increasing retention and conversion on game players, keeping their sense of gain. more straightforward to explain, the soft currency is the lure to the player to buy hard currency, when they found they couldn't access premium service. When game players buy hard currency with paying real money, the paying-players are distinguished from non-paying-players and

be superior to the latter (Untalan, 2021). Under normal circumstances, the player can convert hard currency to soft currency but not vice versa. In some F2P games, the player might be rewarded with small amounts of hard currency from time to time. While soft currency is used in the game to buy basic items related to gameplay, hard currency gives access to premium content which is often exclusive to paying players only.

The study in 2013 indicated that 90% of revenue generated on Android and iOS came from F2P game such as Candy Crush (Johnson, 2013). The image 1 below shows the percentage that captured by F2P game in app game market.

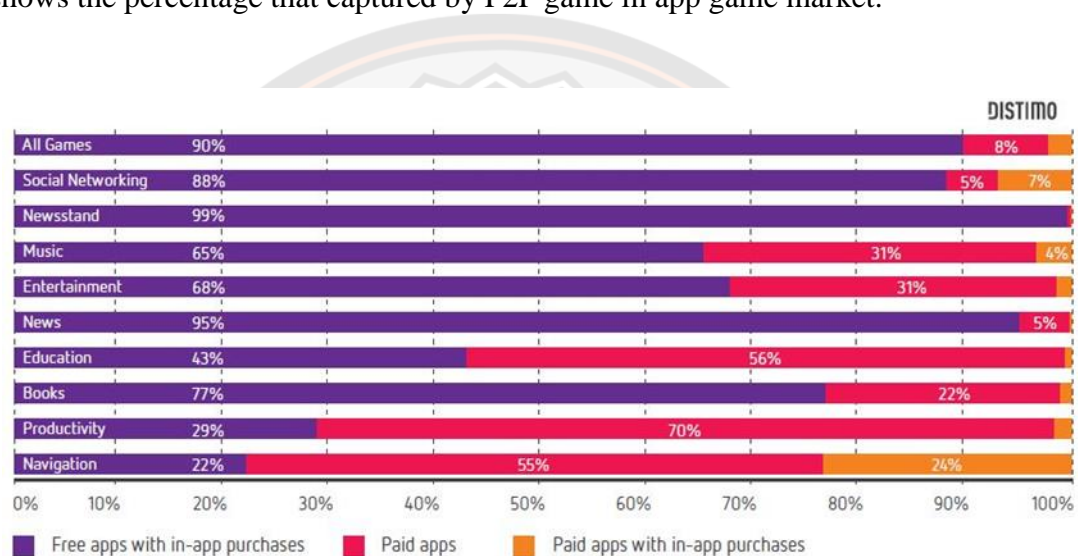


Figure 8 The percentage of F2P game in game market

Sources: DISTIMO; 2013 Was a Huge Year for Android Gaming, from: Johnson, 2013

There is a form of microtransactions increasingly growing in the mobile game market is called gacha mechanism. Player purchases a chance to get one, or a handful of random items. The concept about gacha is that, despite giving a player more items, the player may not want those items because some of property is not meet their demand, like: utility. And another reason could be the items they obtain from gacha is the one they already have. Instead of one-time purchase for the desired item, plays may have to buy multiple chances to run the gacha mechanism in game to get the items which they want. This method has also been called a form of underage gambling.

Nowadays, microtransaction is not only business mode that used in F2P games, pay-to-play games started to sell extra game contents and virtual goods as well (Eddie Makuch,2016). Grand Theft Auto 5 as an example, was a game that sale in price 60\$ per user on release in 2013. According to the latest number from the game company Take-Two, the game alone generated around 3 billion revenues up to 2016, and making additional revenue “at least” half a billion USD from microtransactions in its free online mode up to 2016. Electronic Arts (EA) as another example, generated 650 million dollars in 2016 annual revenue from EA’s FIFA, Madden and NHL franchises, and half of all sales was from extra digital content (Handrahan, 2016).

The theory of consumption values

Sheth et al. (1991) identified five consumption values that influencing consumer choice behavior. These five types of value that drive consumer choice are: function value, social value, emotional value, epistemic value and conditional value. The purpose of study is to explain why consumer choose to buy (or not buy)/ use (or not use) a specific product, why consumer has preference on certain product, and why consumer choose one brand over another.

First, the researchers compared smokers and nonsmokers, they found the people choose to buy or use cigarette to control their emotions, and under certain conditions, the smokers will stop smoking, such as pressure from loved one; concern over children’s health or personal health complications.

Second, they compared with product type of cigarette with filtered or nonfiltered, they found the consumer choose to buy cigarette with filter tip for the function. For example, preventing the tobacco from getting in the mouth. Furthermore, filtered cigarette will brings different impression to others.

In the end, they compared with different brands of cigarettes and find that consumers choose because the brand gives different social image when consumer use it. In addition, different brand makes people have reflection on their feelings as well. Combining with their previous literature reviews and their research, they explained the meaning of five consumption values are:

1. Functional value is identified as perceived utility from alternative’s capacity for functional, utilitarian or physical performance.

2. Social value represents the perceived value that effects alternative's association or dissociation with demographic, socioeconomic, and cultural-ethnic groups by its image or symbolism that stands for.

3. Emotional value represents the perceived value that can arouse or perpetuate feelings or affective states from alternatives' capacity, such as romance, fear, pleasure, or sadness.

4. Epistemic value represents the perceived utility acquired form alternative's capacity to arouse curiosity, provide novelty, and/or satisfy a desire for knowledge, for example, trying a new type of food, visiting a new night club, or obtaining different experience or knowledge from other culture.

5. Conditional value, the perceived utility acquired by alternative as result of special situation or the physical or social context faced by the choice market, such as, seasonal values (e.g., firecracker during Chinese spring festival), some values are associated with "once in a life time" events (e.g., a wedding gown).

Sweeney & Soutar (2001) developed and explained four-dimensional consumer value scale further based on Sheth et al. (1991)'s work: emotional value, social value, performance value from quality, and value for money which means price.

From previous studies, they found that performance of products and price have differential effect on perceived value. The functional value was divided into performance of quality and price, two of these attributes are held to have separate influence on perceived value; the perceived value will be increased by better quality and be reduced by higher price.

Furthermore, in the original model with six dimensions, epistemic value may be important for consumers who are considering to seeking a new experience from services, but when customer considering to purchase a durable good, it will be less important. In addition, the purpose of this study is to develop a general value measure, therefore conditional value and epistemic value was not included be it arises when situational factors.

Consequently, the measurement of perceived value is consisted of four dimensions: performance of quality, price, emotional value and social value. In addition, the performance of quality and price was regarded as subcomponents of functional value

Therefore, the new dimensions from this study:

1. Price/value for money which are derived by utility from product due to the reduction of its perceived short term and long-term costs.
2. Performance/ quality value which are derived by utility from the perceived quality and expected performance of the product.
3. Social value which brings enhancement of self-concept to customers.
4. Emotional value is defined as the utility derived from feelings generated by the product.

Further, Smith, & Colgate (2007) proposed the four customer value dimensions by summarize existing framework. The purpose of their research is offering a new conceptual framework for marketing strategy, especially when company is trying to introduce new products and services, or starting new business program. The creation value for customer's perspective value to new products/ services are:

1. Functional/ instrumental value: the value that is reflected by usefulness of product, and characteristics or functions that are expected by customer.
2. Experiential/ hedonistic value is concerned with the extent to which a product could evoke customer's emotion to a certain unforgettable memory.
3. Symbolic/ expressive value was defined as degree of psychological meaning which is attached or associated by customer to products (e. g. self-concept or self-worth).
4. Cost/ sacrifice value is regarded as the expense and other sacrifices that
5. Customer use to weight it with product's value (associate with buying or using a product).

Many studies had used the theory of consumption value to examine tourism product (Javier Sánchez et al., 2006), digital artifacts (Turel et al., 2010), sportswear (Chi & Kilduff, 2011), entertainment mobile services (Minna Pihlström, Gregory J. Brush, 2008), perceived value by children (Williams et al., 2016) and food products (Perrea et al., 2015).

Previous researches on the game market

Juho Hamri et al. (2017), in their work indicated that the purchasing reasons for players to buy in-game content in Free-to-Play game, converge into six dimensions : 1) game-playing without obstruction, 2) Social interaction, 3) Competition, 4) Economical rationale, 5) Indulging the children, and 6) Unlocking content. And research the relationship between these dimensions and player's expenditure on in-game content.

The result of unobstructed play shows that the players who wish to continue playing but sense less enjoyment has more motivation to spend money to perfect their game-play experience. Therefore, the game developers need to figure out the balance between enjoyment that game brings to player and inconvenient to entice more in-game purchases.

Social motivation is considered to be one of the main motivations for buying in-game items. In this study, it found that social relationship of players can significantly stimulates the purchasing within the game, such as playing with the friends, gift giving and buying premium service or items to accelerate their progress to match up with friends or help the social group has better performance in the game.

Moreover, economic rationale was recognized as the most important factor for in-game purchases compare with other dimensions in this study, the economic rationale related to purchasing in-game items: price and special offer. Surprisingly, there is another motivation that players spend money within game, wanting to support the game developer. The players are willing to return this fairness, which is from perception of good will and reciprocity that is awoken by reasonable prices.

In the end, the result shows that competition do not strongly associate with the consumption on in-game items, although free-to-play games are often regarded "pay-to-win" games, the players can get competitive advantage by spend money to access to premium service or just have premium items.

For the age distribution from data and limitations of research, indulging the children and unlocking content not significantly reflects relevance with players' purchase motivation.

Park, & Lee (2011) adopted the theory of consumption value to investigate F2P online game user's perceived value of purchasable game items from South Korea university students. In order to understand the value of game items and identify the relevant which factors affecting game users' purchase intentions on the F2P game items, they used four value components to examine perceived value that affecting purchase intention: Enjoyment value, Character competency value, visual authority value and monetary value.

The enjoyment value is when player play game with new item, the player gains more fun and enhance their gaming experience. Character competency value refer to functional attribute of game items. For example, weapon augments a character's ability to let it has good performance in the game. Visual authority value, where players purchase game items to adorn their characters and raise their self-expression from appearance, because it is premium service to beautify the appearance in F2P game. Furthermore, it will increase their status in the social context of the game. The monetary value refers to game items' price is reasonable and cost-effective.

The result of this research indicates that when game players perceived more value from game items, especially the perceived monetary value is acceptable, their purchase intention will follow to increase. By the reason of players play game for fun and relieving stress. In additional, when the decorative game items provide an opportunity to show themselves, they have strong will to buy the game items. This indicate the visual authority value can stimulate game player's intention to purchasing. Game players are also interested in enhancement of their game' experience, therefore they are willing to perform better in the game and obtain satisfaction through game items. In result, the character competency value is important to game items purchasing intention.

The conclusion: Four of value components both can affect player's purchase intention to the game items. In addition, this research also examined importance of character identification and satisfaction to purchase intention of game items, but the main direction of this thesis is about perceived value, therefore no further discuss.

Mäntymäki, & Salo (2015) draws on Theory of consumption value and developmental psychology to expound the value teenage users create by purchase game items in social virtual world (SVW) which is adopt F2P business model.

The research context is a social game call Hobbo hotel, a leading SVW specially targeted at teenagers. In this game, researchers found game users spend money to enhance their game experience. Although the game play for free, but it does have benefit for premium membership. The premium account will get more unique functions and discounts compare with standard account, such as special appearance and an extended maximum number of friends. Furthermore, spending money to become premium member makes user perceive superiority to normal users in their game community.

In addition, the users spend money to purchase decoration to decorate their virtual space. And this is the way users express their personality and social statue as well.

Enjoyment from the game is another attribute to drive user spend their money in the game. The game users declare that enjoyment that brought by game items and good game-play experience can be the result of possessing purchased items, even regarding the process of virtual purchasing itself, was second most frequently mentioned motivator for purchasing in the game.

Therefore, this research indicated functional value, social value and emotional value is the key factor that leads game users to purchase intention. Users perceived that functional attribute of game items can enhance their game experience. Moreover, game items also contribute social value and emotional value to user for enjoyment when play game and higher statue in the eyes of other users.

Kim et al. (2011) went further on customer value perspective with digital items in social networking community. Three dimension of customer value (funtional value, emotional value and social value) were expended into six factors: Price utility, functional quality, playfulness, aesthetics, social self-image expression and social relationship support.

The major finding of this research is emotional value and social value of digital items were crucial factors that affect customer perceived value. To be more precisely, the vale that is brought by social self-image expression significantly influences social networking community user's willing to buy digital item. And the factors, aesthetics and playfulness bring inherent enjoyment to online communication.

Controversy of Gacha and Lootbox

Gainsbury et al. (2014) suggesting a new idea in their paper about gambling elements in connection with social (media) games under more general and international perspective, which is used to predicate whether the games would qualify as “gambling” and how should regulators use the flowchart (figure 2.2) that gave by the authors to make analysis and consideration.

Parke et al. (2012) built on international practices and previous publications on game and gambling issues and regulations, they developed a comprehensible flowchart (figure 2.2) to distinguish a service/game can be qualified as gambling, even though the service in connection with gambling or gambling-like service. There are 4 key elements in the framework of flowchart are 1. There are real money involves the process of deal; 2. There is the balance between customer’s luck and skill; 3. The platform(s) of gambling, the games are offered on and 4. The importance of gambling theme in the game itself.

Koeder et al. (2017) gave their opinion to the game with Gacha elements. They argued that Gacha is an online game with gambling composition, it needs closer consideration to classify into a category since game players is free to access into the game, but they will pay real money for increase their chance to win rare items through Gacha, especially sometimes they spend a lot of money for access to win limited edition virtual items.

They also argued that Gacha should not be regard as gambling because Gacha exist in social media platforms, more specifically, the gacha is integrated into F2P game which contain social function. Refer to online gambling, the Gacha is not deeply integrated into these websites which offer online gambling, and also not offered by gambling operators either. Furthermore, even if Gacha game would be integrated deeply into online gambling, it would not qualify as gambling because its core game is not focused on gambling or casino simulation, the customers will take risk for gambling, and sometime the outcome of gambling is lost money. Additionally, Gacha is regarded as requiring real money payment, however, it does not produce a prize of monetary value outside of the games and there is no opportunity to sell it in the game to transfer it into real money. Thus, they do not agree that Gacha, or business model like Gacha being took in game, should regard as gambling.

In their summary, Gacha would not qualify as gambling mainly because of these points:

1. Players can not earn real money after winning
2. It's not casino game
3. Gambling theme is not main element in Gacha game
4. The skill is main element to determine game experience of player
5. No relation with a gambling provider



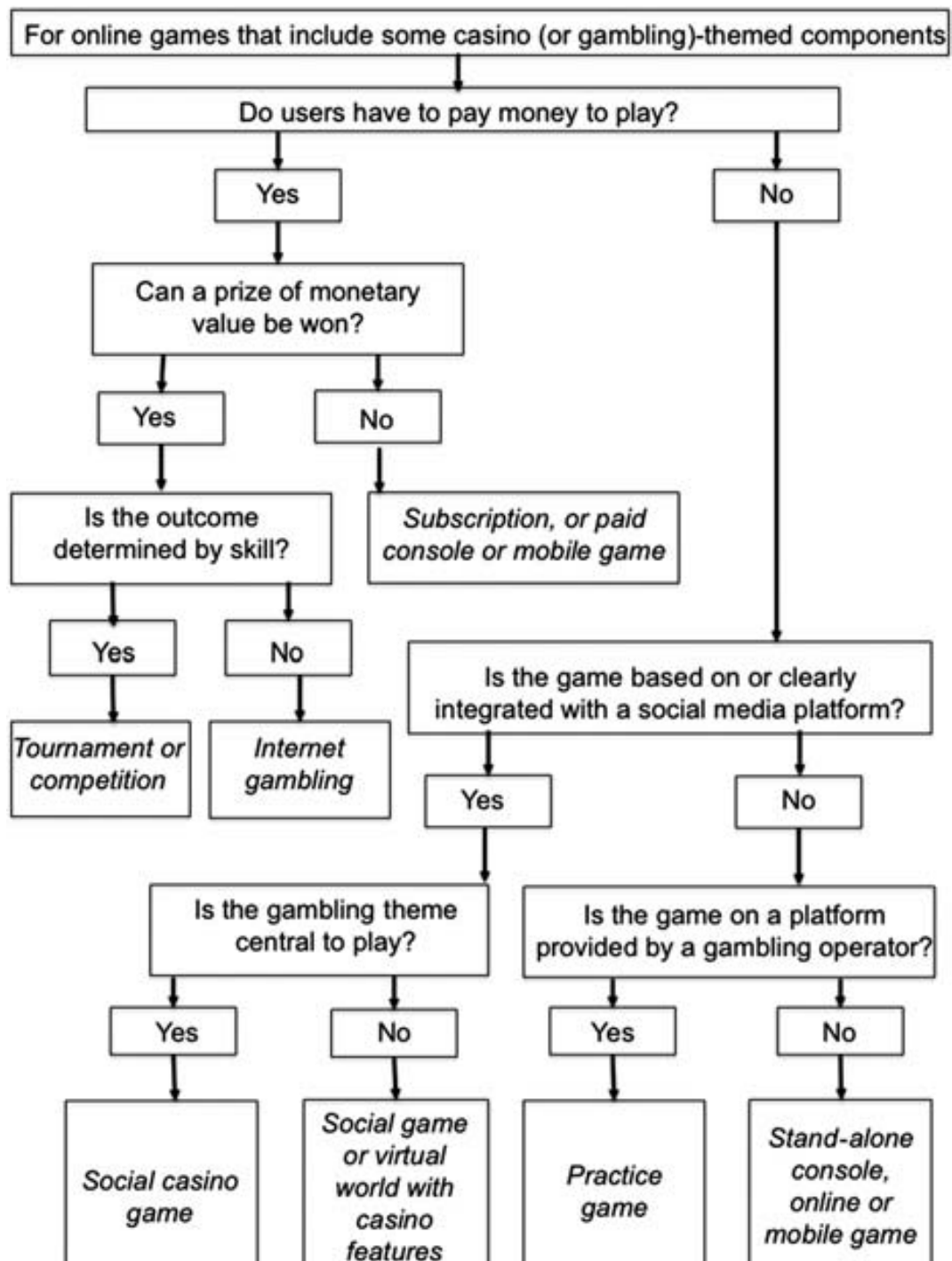


Figure 9 Taxonomy of online gambling-themed activities

Based on the above outline, the game with Gacha content has no necessary to restrain according to gambling regulation. But the authors (Parke et al., 2012) refer to virtual worlds with gambling elements and virtual currencies, but it only regarded as

problematic when virtual money or prize from gacha, can be transfer into real money. The current games do support this function to exchange the game items and prize from gacha or other similar business model into real money, it's only when there are third party trading platforms where players can sell items or virtual currency for the real money, then this can become an issue.

But in Griffiths (2018)'s report has different opinion about this business model, the loot boxes (or equivalents) would be classed as a form of gambling. Because it shares number of common elements with majority of gambling instances, which are:

1. When customer needs to risk with money or something that has financial value, and they don't know the outcome after the exchange happened.
2. The outcome is relative to probability, partly or wholly.
3. Wealth redistribution to the participants, usually refer to the money or something valuable, and all participants are introduced into productive work.
4. Losses incurred can be avoided by simply not taking part in the activity in the first place.
5. Losses will stop when non-participation.

And more importantly, the report claims that there are no unified cognition and determine for the loot boxes and gacha about whether they should be regarded as gambling in the world. At present, some region which does view this business model as a form of gambling and include it under their gambling regulations, such as China and Japan. However, the rest of the world has either not considered regulating the business model at all. For example, the UK has ruled that buying loot boxes does not meet their regulatory definition of gambling (Parke et al., 2012).

These is another paper (Brett Abarbanel, 2018) also argues about gambling nature of this business game, the author illustrated different regulations and definitions among countries for this business model. Some countries regard gacha and loot boxes as conduct of gambling, and other countries were just the reverse. One of the reason is that even though the case of loot boxes has the potential to identified as gambling feature from the definition of social sciences, but not the legal definition. The reason is that if people consider the gambling is regarded as an activity that risking something of value on an event while outcome has indeterminacy, then many activities will fall into

the classification as well. Such as: stock market. In normal conditions, there are three elements of determining gambling classification are consideration, chance, and prize:

1. Consideration refers to participant has to pay with something of value on the activity with risks at beginning.
2. Chance was defined that the element of uncertainty which is the all participants have no control on it.
3. Prize is the potential reward or outcome from the activity, usually refer to the money.

Additionally, the paper also said If the reward or outcome from the loot box or gacha can be transferred to economic value, they will usually fall under the definition of gambling. But in the mobile game, the items usually have no liquidity. Mobile game items only can be considered have monetary value is when player wants to sell their game account for money, this opinion exactly same as Koeder et al. (2017) argued about. However, this condition is very rare to players, therefore it won't be included in this research.

In Brooks, & Clark (2019)'s research, it confirmed existent associations between loot-boxes from the game and problem gambling. They summary and extract from previous studies that the three main criteria constitute legal definitions of gambling: (i) The playing come with a cost; (ii), the prize was prospected by winning; (iii) the outcome was influence by chance. Although loot boxes appear to meet the first and third criterion, but it is more complex with second criterion. Some of the games permit players trade or sale the prizes of loot box, and the trade usually involve real currency. This prize monetization changed loot-box more like a method of gambling. Since this study only focus at Chinese mobile game market, and Chinese mobile game do not possess the feature of prize-monetization. Therefore, the criterion is not suitable for the market. In general, the difference between gambling and loot box is the prize yield. The loot box often yield prize are the common items and players may possess or not meet their demand; moreover, the value of prize usually is subjective for players. Which means if prize is not the one that player wishes for, even it is valuable in general, but devaluation of prize will occur eventually.

In their research, they found the gambling cognitions will enhance purchase of loot box. Meaning that loot box will cause risk from gamer's gambling behavior which leads excessive use of loot box. Due to the consistency of gambling cognitions between loot box and gambling, the loot box may guide players slide into problem gambling. And the problematic loot box will lead financial risk-take and cognitive distortions associated with problem gambling. Moreover, the prize once could be monetized in the marketplace, the prize trading could increase purchasing on loot box on account of players believed that virtual items which is worth to trade is better reason to open their loot box than some subjective qualities (e.g., aesthetics) from the prize.

In the research of Zendle et al. (2020) investigated the potential harm of loot box which will cause problem gambling. They found the loot box will aggravate problem gambling of players, since they compared with the player who paying in the game and non-paying players. Furthermore, regardless of features of loot box itself, even the action of spending money on it has link to the problem gambling. Especially when player found they could get gameplay advantages from open the loot box, monetize the prize from loot box, cash out from it, or just show they nearly can win the prize; the links between loot box and problem gambling can be observed. Both tests of spending more on loot box and the feature of loot box itself had proved loot box has great potential to lead player slide into a vicious circle of problem gambling. Meaning, player spend money on loot box leads to gambling, the greater involvement of gambling leads to problem gambling, and problem gambling will drives players spend money more on loot box.

These papers all agreed that loot box and gacha follow the feature that fit the definition of gambling, the researchers recognized the problem gambling are linked to gacha or loot box in some way when players paying with money. However, due to the social cognitions from different country, the regulations of each countries are not the same. The respondents are from China, based on China's regulation and legal definition, this study will assume the loot boxes and gacha is business model with gambling feature. And gambling feature of this game will be tested in research.

Research Variables and Hypotheses

1. Functional value

A product's characteristics or attributes may reveal functional value of themselves (Ferber, 1973), and utility of product is derived from product's perceived quality and expected performance (Sweeney, & Soutar, 2001). There are two categories of game items: functional items and decorative items. Functional items generally be identified as the item that can strengthen character's aggressive power (Lin & Sun, 2007), and decorative items are used to let player can customize the character's appearance, but this belong to another variable, therefore will be discuss in later variable. A global provider of commerce solutions for online game publishers, Live Gamer (2009) described functional items are: weapons and equipment, currency, spells and skills, and other items which can improve game-play experience of player should be regarded as functional item, which are similar with Lin & Sun (2007)'s research about refer to as functional props. This study ever mentioned, the customers of mobile game now is more than buy an "item", they spend their money go for unlock game character (Steven Hansen, 2016). And relative research refers that (Yue Guo, & Stuart Barnes, 2009) character competency has same feature with functional props with Lin & Sun (2007)'s research as well, which are players wants to have support from strong character to make their game easier. Furthermore, Guo & Barnes (2009)'s research suggest that strengthen character competency is one of key factors that explain purchase behavior in the game. Lehdonvirta (2009) identified virtual item in the game may have functional attributes: performance means numerical advantage to character's attributes, and functionality which means new ability power or more options of solutions to solve the issue that player faced with. Therefore, the hypothesis is:

H1: Functional value of game items have positive influence the intention to purchase game items.

2. Monetary value of gambling & monetary value of price

Due to this study assume the gacha and loot boxes business has gambling property, this variable has relation with consumer psychology and consumer behavior on gambling. Yet, there still has no such research studies about correlation between gambling and this business model. In order to continue studying on this research topic, the previous research of gambling industry will be used in this paper. In a customer's

perspective, customer value is comparison about what they “get” (benefit) with what they have to “pay” (cost or lost) (Zeithaml, 1988), and customers believe that more efficient money expenditure creates valuable transactions, with the greater that price will be after that, the higher the customer s purchase intention will happen. In regard of gambling, consumer take risk of lost weighed against chance of benefit, and then gives the overall evaluation of result cause by gambling. Wood & Griffiths (2002) believes the motivations that drive people to gamble are reasonable price and chance to win. Especially in the initial decision to gamble, the winning chance appears to be a powerful incentive. In mobile game, consumer goes “gambling” for win rare items instead of money. Furthermore, in Lee et al.’s (2007) research, the gamblers have a strong desire to win a big jackpot, and this desire for great profit via gamble will facilitate gambling severity. Through Kim et al.’s research (2016), they found the most common reason for spend money in social casino game refer to players still want to keep playing even they run out of credits instead of wait until the virtual credits are re-charged, and another found is social casino gamers have greater levels of reward sensitivity in micro-transactions compare with non-casino game player. In mobile game, game makers usually give rewards when players finish their quests in game, and players could use it to gacha or open another new loot box. This is one of the motivations makes gameplayer continuously to plays the game. Moreover, the chance to obtain the rare items are too low, that will make players continuously spending their money on rare items till eventually obtain it or just give up. Consumers Perceived Value had been tested by Wang et al. (2015) on Sports Lottery, the monetary value does include the financial benefit through gambling behavior.

Therefore the hypotheses are:

H2a: Monetary value of gambling in the game have positive influence the intention to purchase game items.

H2b: Monetary value of price have positive influence the intention to purchase game items.

3. Emotional value

3.1 Playfulness

Playfulness is a sense of intrinsic enjoyment, interest, pleasure or curiosity, which is generated by the customer's interaction with digital products (Moon & Kim, 2001). And through Huang et al. (2008)'s research, the emoticons (symbolic representations of one's expressions) will create richer and enjoyable environment for communication among customers in instant messaging. Furthermore, Kim et al. (2011) argued that: the consumption of goods and services is frequently associated with emotional response. The paper proved customer purchases digital items will perceive playful responses of fun and fantasy, and it can be regarded as an emotional value that enhances customer's purchases intention. Hamari (2016) also believe the enjoyment from a game can retaining players keep playing, and it will increase the possibility of purchases in Free-to-play game. Therefore, playfulness of the mobile games may trigger players' purchase intentions, and the hypothesis will be:

H3a: Playfulness of game items have positive influence the intention to purchase game items.

3.2 Aesthetics

According to reward theory of attraction (Myers, 2010), people are easily to be attracted to those satisfying and gratifying objects. Aesthetic elements of game items attract customers, and bring the connection between pleasures with game items. Some previous researchers argued that aesthetics is reflected in two key dimensions—the visual elements to highlight the attraction, and the service performance that reflects the degree of entertaining or dramatic (Bellenger et al., 1976; Deighton, & Grayson, 1995; Mano, & Oliver, 1993). Cai et al. (2008) suggested that the visual attraction is the most significant dimensions to reveal user s attitude and behavior. In their study of internet shopping website's strategy development, aesthetics aspect offers a crucial point of view to observe their object of research. Furthermore, Aesthetics should become one of the potential elements attract customers to buy game items. The customers require the visual appeal and aesthetics expression from a product not only in the reason of hedonic intention, but also for requirement of function from product itself. Therefore, as an element of hedonic shopping, the aesthetics could affect the intention to purchase a game item in mobile game. The hypothesis will be:

H3b: Aesthetics of game items have positive influence the intention to purchase game items.

4. Social value

4.1 Social self-image expression

Valck et al. (2009) argued that customers usage of virtual community as social and information networks could affects their decision-making in aspect of virtual image. Social self-image expression is an aspect of social value and is the perceived capability of game item to enhance customers' themselves image in other's impression. The report about 00s of China also mention this group of customers have strong desire to express themselves. Kim et al. (2011) refers to the result of their research that the individual self-images are primarily base on the judgement from others. People are concerned about their image in the eyes of others, and proved customers buy digital items could help them express and enhance their social self-image. Therefore, the hypothesis is:

H4a: Social self-image expression of game items have positive influence on the intention to purchase game items.

4.2 Social relationship support

Social relationship support refers to a game item's perceived capability to help build, maintain, and enhance interpersonal relationships as ab aspect of social value. The players play with their friends via mobile game, sharing the common topics and enjoyment could enhance the relationship among them. Walker (2003) showed that the purpose of using social networking product and digital items in virtual social game or virtual social community for make more friends. Therefore, game items reveal the capacity to be useful for building and maintaining social relationships and the social value of game items affects mobile gamers' motivation to purchase game items. Thus, the hypothesis is:

H4b: Social relationship support positively influence the intention to purchase game items.

5. Framework Build

Based on the Kim et al. (2011)'s research, conditional value and epistemic value not yet to recognized for digital items, and research from Wang et al. (2015) defined the monetary value of gambling by using consumption value theory. Therefore,

the framework was used to show Functional value of game items, Monetary value (For price and Gambling), Emotional Value (Playfulness and Aesthetics) and Social Value (Self-image Expression and Social Relation Support) affect intent to purchase virtual goods in online games.

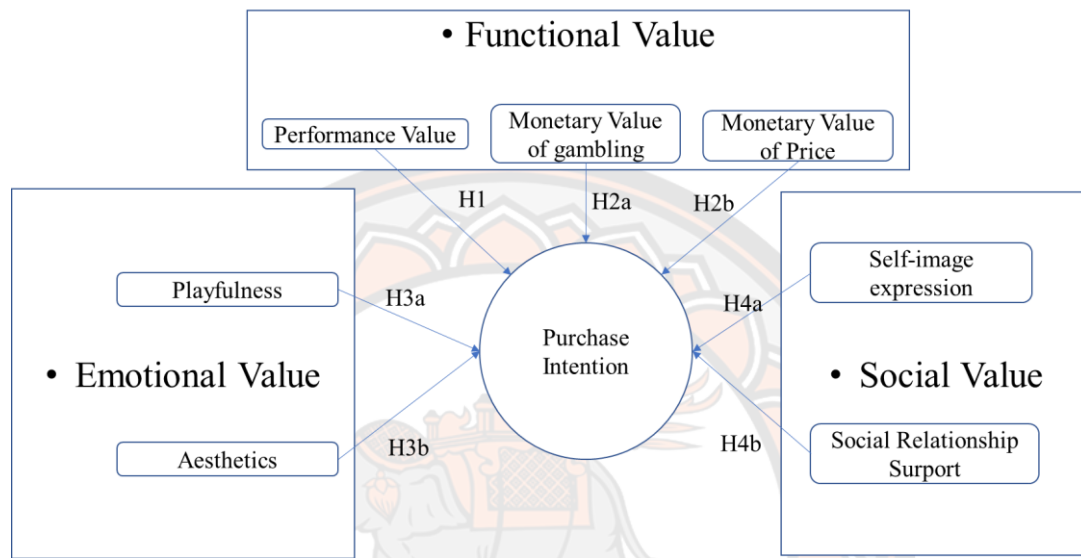


Figure 10 Framework of study

CHAPTER III

RESEARCH METHODOLOGY

Population and Samples

A survey will be distributed to test the hypotheses which adopted from previous research and result will be collected for reveal the outcome of this research. The population frame is 20-35 years old China's mobile game players. And they will be asked about their degree of perception for mobile game item and mobile game itself. To achieve the object of this research, the usage of the quantitative research will help to analysis the outcome of questionnaire from this survey. the age, income, employment status and education level will be included in the survey, and regarding that every element has different standard on the customer to be satisfied. The data collection will be collected through a network questionnaire. The reliable respondents will be screened by asking whether they are playing or ever played mobile game which has gacha or loot box system in the market, the existing and well-known mobile game which contain gacha or loot box system in China are: King of Glory from Tencent, Onmyoji from Netease, Fate/Grand Order and Azur Line from Bilibili, Girl's Frontline from Sunborn Games et al. Those mobile game are famous gacha/ loot box mobile game in China, the respondents who ever play those, can be maximum guaranteed that respondent understand the differences between gacha/ loot box business model and normal model, therefore, answer from them will be reliable for this sample collection.

The sample size is calculated based on Cochran's formula (William Gemmill Cochran, 1963), 385 samples will be collected by using Cochran's formula of sample size with an error 5% and with a confidence coefficient of 95% for calculation. Because there is no exact population of Chinese mobile game player, therefore, assume $p = 0.5$ (maximum variability), a 95 % confidence level gives Z values of 1.96 from statistical tables.

Cochran's formula about representative sample for proportions in large populations (Cochran, 1963):

$$n_0 = \frac{Z^2 pq}{e^2}$$

n_0 : the sample size,

Z: the value for Z is found in statistical tables which contain the area under the normal curve,

e: the acceptable sampling error,

P: the estimated proportion of an attribute that is present in the population,

q: $1 - p$.

Therefore, the population of the sample is: $\frac{1.96^2 \times (0.5) \times (1-0.5)}{(0.05)^2} = 385$.

Research tools

In order to guarantee there is not misunderstand to the respondents and no distortion of research objective, the questionnaire will be design in English version at beginning and translate into Chinese. The content of the questionnaire will be divided into four different parts. The first part is associated with relevant personal information, such as participants' age, gender, educational level, job, income and penetration rate of mobile game. The second part will measure participants' value perceptions of each variable and their purchase intention for game items. It contains seven attributes or factors which reflect the dimensions of consumption value. Furthermore, these attributes will be scored by the approval degree of questions that reflect respondents' value perceptions of game items. This will be according to Likert scale a five-point scale range from: 1 (strongly disagree), 2 (disagree), 3 (neutral), 4 (agree), 5 (strongly agree) to be selected as their responses. The third part will be seven dimensions of questions that measure customers' level of perception and purchase intention for game items. The questions are collected and adapted from previous different research. The follow table is the questions for different variants from different studies:

Table 4 Questions adopted from other research

Variable	Wording	Source
Functional Value	<ul style="list-style-type: none"> ● The gacha and lootbox game items have acceptable standard of performance. ● The gacha and lootbox game items have reliable game performances. ● The gacha and lootbox game items are good in terms of their overall excellence. ● The gacha and lootbox game items have satisfactory quality. 	Chen et al., (2008); Guo and Barnes, 2009; Lehdonvirta, 2009
Monetary value of Price	<ul style="list-style-type: none"> ● The price of Gacha and Lootbox in the game generally is priced generally. ● The gacha and lootbox game items in the game are worth to pay. ● The gacha and lootbox game items and Lootbox in the game are good products for the right price. ● The gacha and lootbox game items is considered worth to buying at price. 	Lu & Hsiao, (2010); Turel et al., (2010).
Monetary value of gambling	<ul style="list-style-type: none"> ● Win rare items with small money. ● Win the rare items immediately. ● Need rare items. ● Heard that someone won jackpot. ● Direct purchase is too expensive, have no money. ● My game experience can't be 	Lee et al., (2007).

Variable	Wording	Source
	<p>improved without Gacha and Lootbox.</p> <ul style="list-style-type: none"> ● May win rare items. 	
Aesthetics	<ul style="list-style-type: none"> ● The game item is pleasing to look at. ● I like the look and feel of the game item. ● The game item is visually appealing. ● The visual design of the game item is attractive. 	Hall & Hanna, (2004); Cai et al., (2008).
Playfulness	<ul style="list-style-type: none"> ● Obtaining or using the items sold in the game gives fun to me. ● Obtaining or using items sold in the game makes the game more interesting for playing. ● Obtaining or using items sold in the game stimulates my curiosity to keep me playing. ● Obtaining or using the items sold in the game arouses my imagination. ● Obtaining or using the items sold in the game can improve my concentration in the game. 	Moon & Kim, (2001).
Self-image Expression	<ul style="list-style-type: none"> ● Using game items sold in the game enhances my self-image to others. ● Using game items sold in the game improves my self-expression to others. 	Sweeney & Soutar, (2001).

Variable	Wording	Source
	<ul style="list-style-type: none"> ● Using game items sold in the game makes a good impression on other people. ● Using game items sold in the game improves the way I am perceived. 	
Social relationship support	<ul style="list-style-type: none"> ● Using game items sold in the game better enables me to form interpersonal bonds with others. ● Using game items sold in the game helps me maintain my social relationships with others. ● Using game items sold in the game helps me make new friends. ● Using game items sold in the game enhances my social relationships with others. ● The influence of Gacha and Lootbox game items on interpersonal relationships. ● Using game items sold in the game better enables me to form interpersonal bonds with others. 	Bowlby, (1969); Maslow, (1968).
Purchase Intention	<ul style="list-style-type: none"> ● I intend to spend money in mobile game regularly. ● It's likely that I will continue to spend money on mobile game in the future. ● I will recommend people around me to spend money in mobile game. 	Dodds et al. (2009).

As for the last part, will be there will have questions which measure participants' value perception affecting customers' purchase intention. The question about purchase intention is about customer would go purchase game item in a certain period of time.

Data Analysis

For answer the research questions of relationship among the variables, the research will conduct with basic correlation and regression analyses. In order to estimate the size of influences of the independent variables to the set of the factors, multiple regression analysis was employed. Multiple regressions are the appropriate method of analysis when the problem involves a single dependent variable presumed to be related to two or more independent variables, and the primary objective of multiple regression analysis is to predict the changes in the dependent variable in response to change in the independent variable (Hair et al., 2006). The results of multiple regression analysis can show the weight of the estimated effects of independent variables on the dependent variable based on the regression coefficient (R) value. Furthermore, this statistic provides a measure of the strength of the association between two variables in terms of percentage of variance explained (Urdan, 2005). Along with those analysis techniques, general descriptive analysis and scale reliability analysis were conducted.

To determine the relationship between one dependent variable (purchase intention) and one or more independent variables (value perceptions), a linear or multiple regression analysis was performed. This analysis tries to explain the variation in one independent variable as much as possible on the basis of the variation in a number of relevant independent variables (Pelsmacker et al., 2008). A model will be estimated using the following general formula:

$$y = \beta_0 + \beta_1x_1 + \beta_2x_2 + \dots + x_n + \varepsilon$$

x_n = independent variable

β_n = parameter to be estimated, coefficient

ε = disturbance term (Pelsmacker et al., 2008)

The data collected from 7 factors: Performance Value, Monetary value of Price, Monetary Value of Gambling, Playfulness, Aesthetics, Self-expression and Social relationship Value. Text them with purchase intention to observe the most significant factor that make influence on Purchase Intention.

The Ordinary Least Squares Formula (Factors):

$$y = \beta_0 + \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + \beta_4x_4 + \beta_5x_5 + \beta_6x_6 + \beta_7x_7 + \varepsilon$$

When:

$x_1 = \textit{Performance Value}$

$x_2 = \textit{Monetary Value of Price}$

$x_3 = \textit{Monetary Value of Gambling}$

$x_4 = \textit{Playfulness}$

$x_5 = \textit{Aesthetics}$

$x_6 = \textit{Self Expression}$

$x_7 = \textit{Sicial Relationship Support}$

Reliability

The questionnaires were collected by Chinese survey company through internet survey. Therefore, the respondents could volunteer to answer the questionnaires regardless of time and space. The participants were promised that their personal information will not be given to third party, and data shall be deleted after finish research.

Concerning the reliability of questionnaires, although there are a number of previous researchers have investigations to examine the relationship between customer perspectives and purchase intention of mobile game. However, these researches either was written too long age, or not include gacha element. This investigation focuses on the latest mobile game market compare with previous, testing the questions to answer which factor of customer's perceptions influence purchase intention most. Therefore, to prove reliability of this research, the data must examine by reliability test before further analysis. Eventually, 406 respondents participated answered questionnaires with distribution of survey company. The company was required the respondent must be

mobile game player before they distribute the questionnaires, otherwise the respondent will be regarded for unqualified. In consequence, the data can be considered to be representative. This research use Cronbach's alpha tests to see if multiple-question Likert-scale surveys are reliable (table 3.1). The result shows that reliability of all factors of the questionnaire is .933, demonstrating adequate reliability.

Table 5 Results of Reliability Test

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Cronbach's Alpha if Item Deleted	Cronbach's Alpha
Performance Value	35.1995	45.648	.573	.933	
Monetary Value	35.6430	44.059	.718	.926	
Monetary Value of Gambling	35.5165	44.734	.791	.924	.933
Functional Value	35.4652	44.656	.853	.922	
Playfulness	35.1938	44.271	.795	.923	
Aesthetics	35.1410	45.819	.606	.931	
Emotional Value	35.1642	44.911	.817	.923	
Self-expression	35.4240	43.504	.735	.926	
Social Relationship	35.5632	43.200	.706	.927	
Social Value	35.4896	43.172	.823	.922	
Purchase Intention	35.8568	42.673	.642	.932	

CHAPTER IV

RESULTS AND DISCUSSION

The questionnaires were collected across China. 406 responses had been received, and because of Survey company had screened for this research, the all responses are qualified with required age and game played experience.

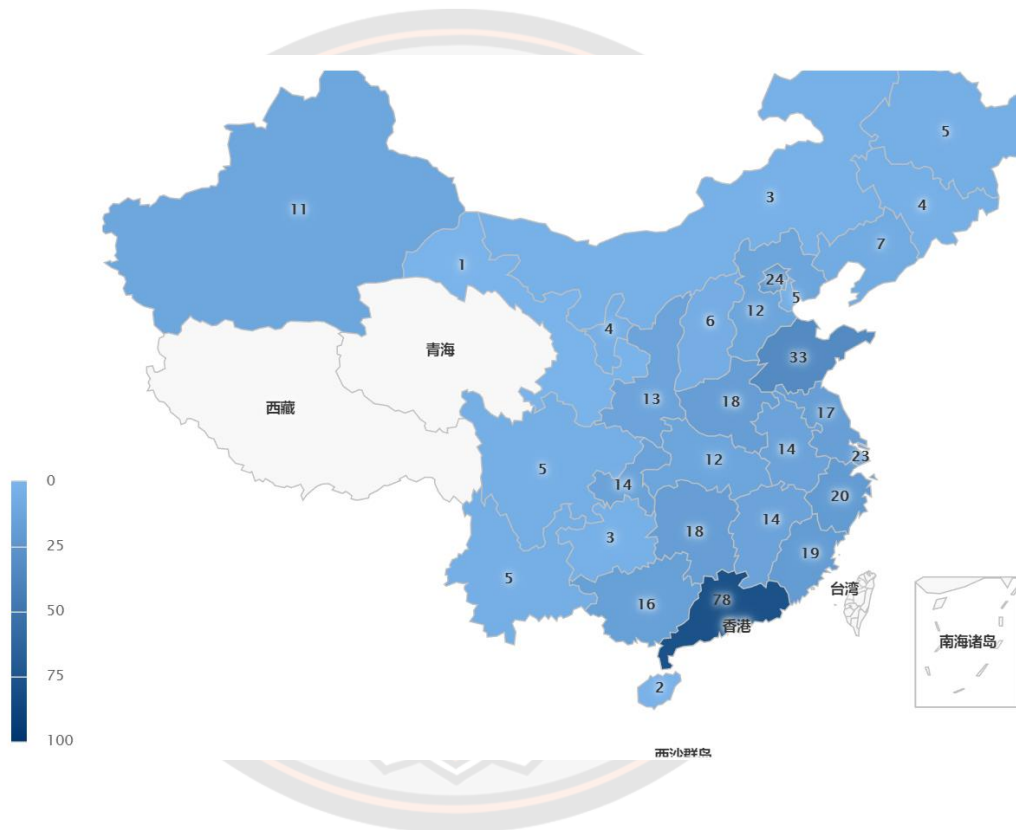


Figure 11 Geographic distribution of respondents.

Figure 11 shows the sources of respondent, the largest sources of respondents is from Guangdong province, 78 respondents participated the survey. 33 respondents from Shandong comes second, the third largest source is from the Capital city of China Beijing. Qinghai province and Tibet province has no respondents.

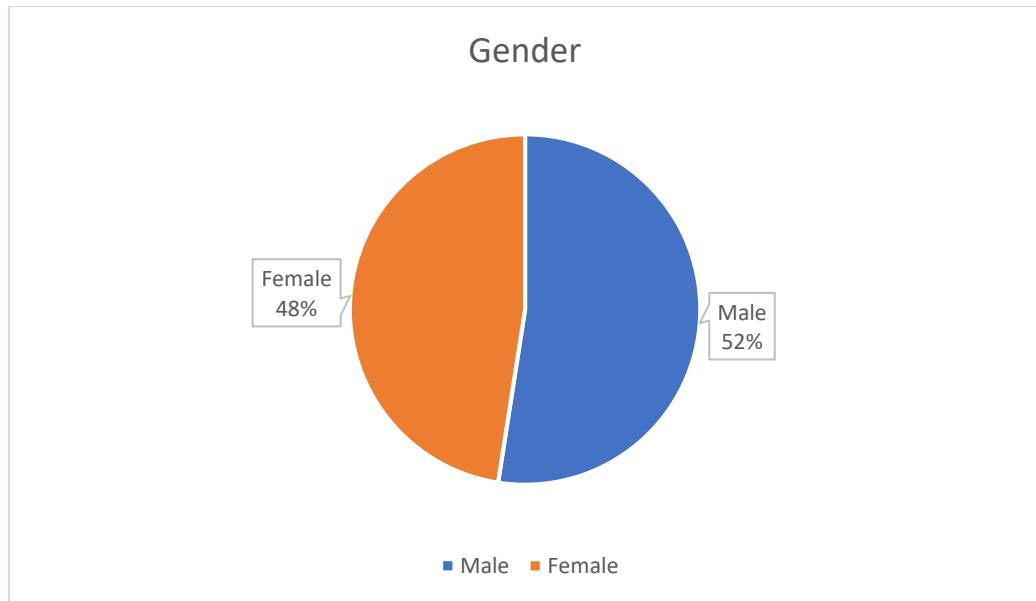


Figure 12 Gender of respondents

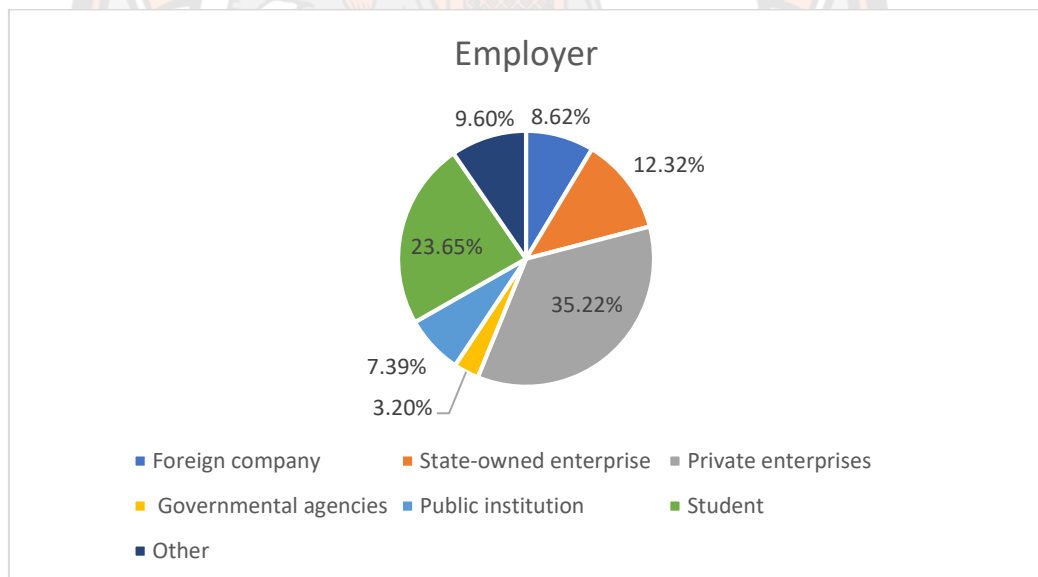


Figure 13 Employers of respondents in percentage.

Figure 12 and 4.3 show that, of 406 respondents participate this research, 52,46% are male and 47.54 % are female. Most of respondents are working in the private company or students.

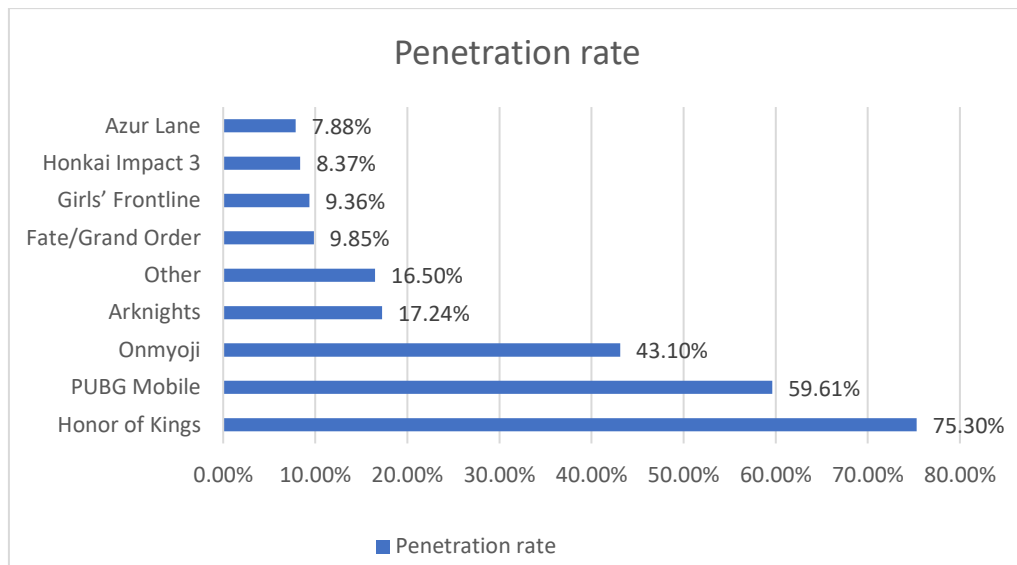


Figure 14 Penetration rate of the games.

Figure 14 shows the penetration rate of game market from respondents. The top 2 mobile games are competitive games, Honor of Kings and PUBG Mobile, in which players must fight in matches in the game until winning in the end. Honor of King has most popularity in the Chinese mobile game market. The rest of the games are more focused on the players fighting with enemies in game alone or together to finish the quests.

Multicollinearity test

To ensure that all independent variables are not correlate to each other, multicollinearity has been tested. The results are shown in Table 4.1 revealing no evidence of multi collinearity.

Table 6 Collinearity Diagnostics

Dimension	Eigenvalue	Condition Index	Variance Proportions						
			(Constant)	MFV	MMV	MMVG	MEV	MSE	MSR
1	6.838	1.000	.00	.00	.00	.00	.00	.00	.00
2	.053	11.333	.04	.17	.06	.00	.00	.09	.28
3	.034	14.256	.47	.01	.43	.00	.01	.00	.03
4	.025	16.587	.03	.07	.03	.00	.03	.49	.63
5	.021	18.216	.32	.68	.42	.00	.00	.08	.00
6	.017	20.019	.12	.07	.05	.42	.26	.28	.04
7	.013	22.986	.02	.00	.01	.57	.69	.06	.02

Data Analysis

The results show that Monetary value of price was positive and significantly affected Purchase Intention ($\beta = .493$, $p = .000$). It means that Monetary value of price is a crucial factor to Customer's intention to spend money in mobile game. Due to the survey, the respondents are aiming at Free-to-Play Gacha Mobile games which there is no charge to access the game while the game items can be purchased and obtained via randomness. From customer's perspective, they hope what they deserve to "get" through what they "paid" (Zeithaml, 1988). In this research, customers are willing to risk with their money to obtain unknowing game items in the box, it means that the price of gacha is important. Monetary Value of Gambling is another significant factor that influence customer's purchase intention ($\beta = 0.219$, $p = 0.009$). The next factor that has significant influence on customer's purchase intention is playfulness ($\beta = 0.198$, $p = 0.012$). Finally, self-expression enhances the intention of in-game purchase ($\beta = 0.159$, $p = 0.010$). Therefore, H2a, H2b, H3a and H4a are supported.

There is no evidence of the impact of performance value, aesthetics value and social relationship on purchase intention. H1, H3b and H4a are rejected.

Table 7 Stepwise regression results

Dependent variables	Beta	P-value	F
Monetary value of price	.493	.000	.391
Monetary value of gambling	.219	.009	.147
Playfulness	.198	.012	0.140
Self-expression	.159	.010	.131
R ²	0.468		

From the results, it can be written in the equation as follows;

$$\text{Purchase Intention} = -.596 + 0.493\text{MMV} + 0.219\text{MMVG} + 0.198\text{MEV} + 0.159\text{MSE}$$

Given that;

MMV: Monetary value of price

MMVG: Monetary value of gambling

MEV: Playfulness

MSE: Self-expression

Discussion of the results

The major objective of this research focuses on investigating the significant factors that enhance customers purchase intention in China mobile game market employing the theory of consumption value in 3 dimensions: functional Value, emotional value and social value. To be specific, the research reflects the concerns from the mobile game players about decision making when they tend to spend money for loot box and gacha with test on 7 factors: performance, price, gambling rate, aesthetics, playfulness, self-expression, and social relationship support. The findings reveal that the price they shall pay, the probability of precious items that they shall obtain, the satisfaction that brought by self-expression and level of enjoyment from game-playing are crucial factors that inspire the motivation of customer's desire. Although, the result of the research is not fully supported the all hypothesis, but it provides an overview in China mobile game market.

The research shows that the price for gacha or open a loot box in game is one of the key factors, it suggested that expected price could increase the possibility of customer's buying behavior due to unpredicted game items obtain. Previous studies (Sheth et al., 1991 and Sweeney & Soutar, 2001) argued that correlation between price and purchase intention, price of product could affect customer's decision making. According to their findings, more favorable price of product to customers, the influence of price perception will be greater. Eventually, customer will tend more to decide to purchase, because it makes customers spend their money more efficiently. The reason of consistency of this research and previous study is that price of loot box and gacha is considered expensive, compare with personal income between China and western countries. The industry pricing the gacha and loot box is based on the standard of developed country, the mobile game market in China, regardless of customer's level of income, charge 0.99 USD as minimum price and 99.9 USD as maximum price. Moreover, to ensure that customer can get rare items (it may not be the item that customer exactly wants), companies guarantee that as long as in-app expenditure reaches a certain level of money, the customer could 100% obtain at least one rare item. From results of the research, monetary value of price has most significant influence to the purchase intention ($\beta = .493, p = .000$), it means in customers' perception, they are concern the price the most, they weigh the money which is eventually spend with unknowing rate of rare items which is obtain through loot box or gacha.

The gacha and loot box system introduced a new business model, which is different with common process of purchase, into mobile game. The customers will obtain game items randomly when they pay their money through gacha or loot box system. When the game items which is customer desired, has more possibility to obtain, the buying inclination will increase. The game company could consider raising some certain welcomed game items every now and then to stimulate customer's consumption. Zendle et al. (2020) also argued that this system will stimulate customers cost more money on it. From their research, gacha or lootbox will cause customer's problem gambling, the more they spend money, more serious problem will meet. Although the research indicate that it is unclear whether this link represents a situation in which loot boxes literally cause problem gambling, or whether they represent a situation in which problem gamblers spend significantly larger amounts of money on loot boxes.

Regardless of problem gambling, it does suggest that gambling factor is able to effect on purchase intention. Moreover, Brooks & Clark (2019) investigated loot box sale and found the most influence to the decision making of customers is distorted cognitions to the loot box. In the gacha or loot box mobile game, the game items obtained by possibility. it means sometimes even customer obtained the rare item, however if it does not meet the customer's demand being not the specific item that customer exactly wants, as long as customer still have intention and financial resources, the purchase will continue. Furthermore, due to the gambling feature of gacha and loot box, the customer will consider it just a bad luck or good luck to themselves for run a gacha or open the loot box instead of blaming the unreasonable aspect of this business model. Even though sometimes they have already spent a lot of money till they got what they want or just gave up by out of pocket. In the mobile game industry, the valuable items that usually has highest rarity, and the number of this type of items usually more than one in the gacha or loot box. In the China mobile game industry, the companies often make sales plan for the promotion, for example: they will raise a certain rate for some specific item that help customer obtain it easier, but rate usually refer to the item's probability of emergence, meaning that for specific item will have higher chance to be obtained by customers compare with other items with same level of rarity. That is the reason why the monetary value of gambling has high influence to the purchase intention.

The enjoyment could retain customer, increasing possibility of purchase. A good game will motivate customer's purchase intention due to customer wants to be amused more. Csikszentmihalyi (2014) argued whether a recreational activity is enjoyable, it should follow: (1) it makes a person focusing on a limited stimulus field, (2) the skills which used in activity is able to fulfill clear demands, (3) it makes people forget their troubles, (4) separate identity involve, (5) it lets people obtains a feeling that they can control over the environment in activity, (6) it may lead to self-transcendence on both psychological and physical. Park & Lee (2011) explained that enjoyment value of game items and purchase intention are intrinsically tied, the players play game for fun, it is a way which is concentrate in something fun to relief their stress. If customers couldn't gain enjoyment from their game, they might quit playing or uninstall the game from their phone. In that case, lost customers are crucial thing that company should avoid to. The game items are considered as a means of increasing

enjoyment in game play, when game items meet player's demand in game, customer's purchase intention is motivated. Furthermore, the enjoyment that brought by game items decide how long that customer will play in the game, the more they're playing, the higher chance that they tend to spend money in game.

Play-for-free game occupied mainstream mobile game market. Customers dislike to purchase game before playing it, the company usually make profits through in-game-store. In addition, Play-for-free business mode makes customers has no differences on their appearance, initial items, functional services etc. with others, it is crucial especially the most respondents from this research play competitive game. Kati et al. (2014) argued in their research that aggressive monetization is one of negative features, the players who spend the most money to use get unfair advantage over other players who do not use money. This Pay-to-Win marketing strategy may cause customers protest to company, because Lin & Sun (2007) and Hansen (2016) illuminated in their article agreed that functional value of game items giving players more offensive power, help players have support from strong character or powerful items to make their game easier. Especially in competitive game, the factor that determine player win or lose is not based on their skill or talent, but who spends money the most in game. In addition, competition game (Honor of Kings, 75.30% penetration rate) owns the most penetration rate in this research, by the marketing method, the mobile game company avoid designing the items which can bring significant competitive advantages for the owner. That is why performance value of game items is not significantly effective to the purchase intention, because the majority of respondents sense no value of performance in the items which from the game they are playing.

Social function is crucial content in mobile game, Lehdonvirta (2009) found social activity has been one of main motivations for purchase of in-game items in general, Shang, Chen & Huang (2012) investigated relationship between social value and purchase intention. Their research argued that social interaction is a strong incentive of customers pay for in-game item, and it has a positive association with purchases of game items. Customers usually choose to pay as a gift for their friends to let them keep up with their pace and strengthening relationship among them, helping to build the social group better to achieve mutual benefit due to game mechanic required. On the contrary, in this research, the social value is not an important factor. The data

had told that most of game which participants playing are competitive game, the identity of players in game is different with previous findings. Player's rivalry will not have significant "relationship" among players. Furthermore, these mobile games due to lack of social function (Online social activity is not a main feature in Chinese mobile game), thus why the evidence of influence of social relationship can be found in this research.

In previous paragraphs, this research mentioned all of gacha and loot box mobile games which appeared in questionnaire are Free-to-play(F2P) game. Due to F2P feature, all of account of players both possessing same contents of game. Hamari et al. (2017) discussed importance of visual factor, as customization associated with online interpersonal interaction since players needs to see each other in a match, it is important in games where other players can easily perceive differences in appearance from another player. Kim et al. (2012) has proved importance of self-expression to purchase intention. However, Cai et al. (2008) suggested that aesthetics is one of crucial dimensions to explained customer's behavior and attitude traditionally, but as a new grow market and industry in China, it doesn't have certain relationship between aesthetics and purchase intention. The customers play the game using avatar, or control the game character. Due to the penetration rate of competitive game, the players control the characters call champion or hero to finish the mission to achieve victory by fighting with their opponent players. The feature of game items from this type of game is its primary value of appearance for the Champion. In the discussion of performance value, the items were sensed no value of performance by customers, because of main value of items is related to appearance of Character, or it also can be called skins of Champions or heroes. Two major value of appearance is self-expression and aesthetics. Since the game requires multiple players to play (5V5 arena game), and players are using the character with default appearance. The reason of purchase to the character skin is that players want to be looked different instead of looks attractive to an unknowns, it's lack of research to explain the psychology behind it in this study. Perhaps because of F2P business model, the psychological needs of customers seek looks differently than looks attractively more since everyone looks same in the very beginning. Thus, self-expression is found to have influence on purchase intention while aesthetics is not.

CHAPTER V

CONCLUSION

The purpose of this study is to investigate the influences of customer's value perceptions to purchase intention in China. The research questions and hypotheses of this study were developed by previous studies from different products. The study found that in the Chinese mobile game market, the factors that effects customer's purchase intention are the price, the probability that obtain the items, the enjoyment that game-playing brings to the customers and the items that helps customers express themselves to differentiate them to others in game after collected 406 respondents' questionnaires. Whether the performance of items can help customer achieve their game-playing easier will not have significant effect to customers' purchase intention in game, the aesthetic expression of game items and social relationship influence are both effect the purchase intention neither.

This research combined customer's perception model of 2 previous studies (Sheth et al., 1991, Sweeney, & Soutar, 2001). The 2 study proved influences between customer's perception and purchase intention. However, the studies only focus on common process of purchasing instead of process of purchasing with random factor. Other previous study (Hamri et al.,2017, Park& Lee, 2011, Mäntymäki & Salo, 2015, Kim et al., 2011) argued each influence of factors from customer's perception to purchasing tension of games, but none of them include competitive game market. These studies, due to advance in science and technology, game market changing etc. May no longer reporting the true business environment of game market today, thus make the factors of performance value, aesthetics and social relationship support is no more important. And also bring the purpose of this research, exploring the demands of mobile game market today.

From the result of this paper, the factor of price reveal it is the most crucial factor to the customer's purchase intention. The price of premium items from free-to-play game is considered too high, especially regard with feature of gambling in this type of mobile games. Due to the free-to-play game, the customer buys premium items

under the reason of self-expression, they want to stand out from the ordinary players, make themselves gain more attention in the game; and believe that game items will reinforce their game-play experience, moreover, they hope to get the enjoyment that brought from game items during game-playing is more profound than player who non pay for the items. That is why customers still accept this business model of gambling feature.

This study investigates customer behavior from China mobile game market with customer perspective theories as primary framework. However, the study needs more research support from other theories. Unlike general mobile game business mode, the gacha and loot box involved feature of gambling. Due to the study adopt the theory of customer perspective without considering the affection from gambling feature, the result of analysis may exist of inaccuracy. Moreover, the study focused on the entire China mobile game market, the result only is the overview of the market instead of market segmentation, the constituent participant may from different type of game. The top 3 game from the survey with most penetration rate are: Honor of Kings, PUBG mobile and Onmyoji. The first and second game is competitive game, the player of competitive game don't like the companies sell items that bring significantly gameplay advantage. On the contrary, the items that from Game Onmyoji, in the reason of the different playing method, needs power items help player to finish the mission. Therefore, "pay to win" is acceptable with this method. Second, the mobile game market is the market with highly- iterative product and fierce competition. With launch of new games in the market, players preference may be changed with. Meaning the outcome of this study will have time-limits. However, in the case of decline of market growth, the China mobile game market had fell into age of stock competition. With Obstruction from some certain policy which promulgated by Government, the result of this study still possesses representativeness.

There are some suggestions that summarized from result of this research to game developers and mobile game company. Due to the discussion and conclusion, this research provides an overview of China mobile game market. The customers of this market have high level of concern to the price, company should better focus on the pricing for the gacha and loot box. Consider default pricing of mobile game market (maximum microtransaction fee 99.9% USD), company needs to satisfying the sense

of gain to customers under the same pricing strategy compare with other company instead of price competition, because customers rely on their paying to weight with their gain on decision making. The gambling feature of gacha and loot box is also important, the company can schedule raising whole or certain obtain rate of items regularly or irregularly by hold some marketing events. The enjoyment that sensed from game items help enhance the stickiness of customers, the suggestion is game developer should stay in concentration on items design and make the motivation of playing focus on game items which is can prove their game-play experience. However, the developer who design the competitive game needs to avoid “pay to win” situation, or the game which for it can ignore this suggestion. Self-expression of customers in game is another key point to drivers the motivation of purchase intention, some of the items, especially the appearance items, should help customer to present their character be out of the ordinary customers. In short, the items should have the visual function to separate the customers by different level of consumption.

For the future studies, the other researcher should aware the limitation of this study. This study had already clarified the aiming target of research is to build an overview of China mobile market without classifying the mobile games and investigate it. Due to the reason of first time to adopt gambling feature of mobile game by use consumption value in this research, the survey was consisted of previous studies, the accuracy of reflection the mobile game in China may not be precise. And in the reason of respondents’ background, the result doesn’t possess universality.



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APPENDIX

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APPENDIX

Questionnaire

1. Functional value (H1):

The game items sold in the game have an acceptable standard of quality.

The game items sold in the game are reliable in their performance.

The game items sold in the game are good in terms of their overall excellence.

The game items sold in the game possess a degree of quality which is satisfactory.

2. Monetary value of price (H2a):

The game items sold in the game are generally reasonably priced.

The game items sold in the game offer value for money.

The game items sold in the game are good products for the price.

The game items sold in the game are considered economical in terms of price.

3. Monetary value of gambling (H2b):

Win rare items with small money.

Obtain rare items easily.

Win rare items immediately.

Need rare items.

Heard that they won jackpot.

Have a financial difficulty and no money.

Can't change my game play without gambling.

May win rare items.

4. Playfulness (H3):

Using game items sold in the game are gives fun to me.

Using game items sold in the game is interesting to me.

Using game items sold in the game stimulates my curiosity.

Using game items sold in the game arouses my imagination.

Using game items sold in the game keeps me absorbed.

5. Aesthetics (H4):

The game item is pleasing to look at.

like the look and feel of the game item.

The game item is visually appealing.

The visual design of the game item is attractive.

6. Social self-image expression (H5):

Using game items sold in the game enhances my self-image to others.

Using game items sold in the game improves my self-expression to others.

Using game items sold in the game makes a good impression on other people.

Using game items sold in the game improves the way I am perceived.

7. Social relationship support (H6):

Using game items sold in the game better enables me to form interpersonal bonds with others.

Using game items sold in the game helps me maintain my social relationships with others.

Using game items sold in the game helps me make new friends.

Using game items sold in the game enhances my social relationships with others.