INVESTIGATING THE FACTORS THAT AFFECT DISSATISFACTION/SATISFACTION, PURCHASE INTENTION, AND LOYALTY IN MOBILE GAMES

By

KIM, Min Sang

THESIS

Submitted to

KDI School of Public Policy and Management

In Partial Fulfillment of the Requirements

For the Degree of

MASTER OF PUBLIC POLICY

2017

INVESTIGATING THE FACTORS THAT AFFECT DISSATISFACTION/SATISFACTION, PURCHASE INTENTION, AND LOYALTY IN MOBILE GAMES

By

KIM, Min Sang

THESIS

Submitted to

KDI School of Public Policy and Management

In Partial Fulfillment of the Requirements

For the Degree of

MASTER OF PUBLIC POLICY

2017

Professor Yoon Cheong CHO

INVESTIGATING THE FACTORS THAT AFFECT DISSATISFACTION/SATISFACTION, PURCHASE INTENTION, AND LOYALTY IN MOBILE GAMES

By

KIM, Min Sang

THESIS

Submitted to

KDI School of Public Policy and Management

In Partial Fulfillment of the Requirements

For the Degree of

MASTER OF PUBLIC POLICY

Committee in charge:

Professor Yoon Cheong CHO, Supervisor

Professor Cheol LIU

Professor Jisun BAEK

Approval as of December, 2017

Abstract

Freemium Models have become the dominant forms of mobile games in the market today. Freemium models carry different transaction structure, and consumer behavior also differs from other typical forms of businesses. Satisfaction and dissatisfaction occurs not after a purchase has been made, but before the user makes the decision to purchase in-app virtual goods, as the users have the opportunity to form an attitude as they experience the 'free' part of the game.

Making in-app purchase in freemium models shortens the time for the user to reach designated goals, but the cost to get there sometimes seem too costly. On the other hand, consumers could choose to use O2O services to receive other benefits. Using O2O services, or promotional services, could in turn affect purchase intention as well, if the consumers are willing to incur the extra costs of bringing themselves out of the online world into the offline market. This study therefore mainly investigates the relationships that link satisfaction/ dissatisfaction and purchase intention, and the ultimate effect on user loyalty.

The findings of this study indicate that dissatisfaction may have positive effect on purchase intention, but satisfaction is still the dominant factor in the users' behavior, and therefore satisfying the users should be prioritized, rather than devising the pricing scheme to make the users pay.

Table of Contents

I Introduction

In the era of rapid development in mobile devices and platform, one of the largest beneficiary of the profitable and promising innovation is the mobile gaming market. For the past decade, playing mobile games has become a crucial part of entertainment and customer culture and a significant part of people's daily activities (Jung, Kim, and Lee 2014), which has also opened a new door to a field of research.

The conventional wisdom is that people consume goods and services two basic reasons, which are hedonic reasons based on affective attributes and utilitarian reasons based on instrumental attributes (Batra and Ahtola 1990). A previous study by Davis, Lang, and Gautam (2013) applied customer-oriented research that focused on the hedonic consumption and utilitarian consumption values of computer games, while other concepts such as perceived risks, satisfaction, intention to pay, and loyalty was less studied, especially in the mobile game market.

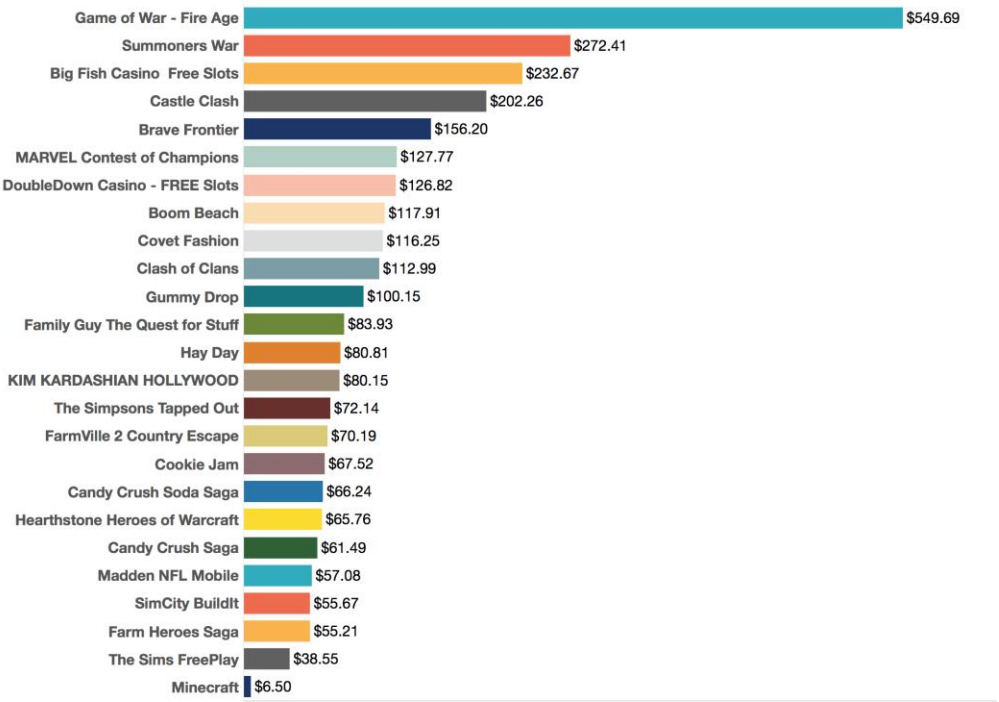

Figure 1. Spend per player, top 25 mobile games. Retrieved from: Slice Intelligence

In line with the fact that there are scarce number of studies carried out in the mobile market, even more scarce number of researches has been carried out on consumer's spending behavior regarding mobile games in the freemium environment, where the consumption structure is different. Contrary to the premium business model, where consumers pay a price before they experience any of the benefits a product offers, transactions in the freemium business model are temporarily decoupled such that the partial consumption occurs before a purchase is made (Rietveld 2016). For example, widely popular mobile games such as Game of War or Summoners War, indicated in Figure 1, includes virtual goods that can be purchased, which enhances the user experience. This causes satisfaction and dissatisfaction to take part in two stages, pre-purchase and post-purchase. The unique assumption made in this study about the pre-purchase and post-purchase satisfaction (dissatisfaction) is that consumers tries to relieve their dissatisfaction by seeking for higher satisfaction through purchases of virtual goods (in-app purchases). This study also investigates if using O2O promotional services could lead to increased intention to make in-app purchases.

Therefore, the purpose of the study is to explore the relationships of major components including utilitarian value, hedonic value, perceived risks, attitude, satisfaction, dissatisfaction, purchase intention, intention to use O2O service, and loyalty in mobile games.

In particular, this paper proposes the following research questions: 1) does the utilitarian value affect attitude? 2) does the hedonic value affect attitude? 3) does perceived risk affect attitude? 4) does attitude affect pre-purchase satisfaction? 5) does attitude affect pre-purchase dissatisfaction? 6) does pre-purchase satisfaction affect purchase intention? 7) does pre-purchase satisfaction affect intention to use O2O service? 8) does pre-purchase dissatisfaction affect purchase intention? 9) does pre-purchase dissatisfaction affect intention to use O2O service? 10) does intention to use

O2O service affect intention to make in-app purchase? 11) does purchase intention affect post-purchase satisfaction? 12) does purchase intention affect post-purchase dissatisfaction? 13) does post-purchase satisfaction affect loyalty? 14) does post-purchase dissatisfaction affect loyalty? 15) does post-purchase satisfaction affect exit? 16) does post-purchase dissatisfaction affect exit?

The first section of this study will examine different types of e-commerce and the current mobile market and which form of e-commerce models are prevalent in mobile games. The second section will discuss the factors that affect consumer behavior in mobile games, and the third section will discuss which consumer behavior theories lie behind the decision-making process of game users to make in-app purchases.

II Literature Review

2.1.Traditional E-commerce and Development of O2O

E-commerce business models are categorized as a business-to-business (B2B) model, business-to-consumer (B2C) model, consumer-to-consumer (C2C) model, and consumer to business (C2B) model depending on interactive models and the parties involved in the transaction and they laid the foundation for Online to Offline model (Wang, Tsai, and Chang 2016).

2.1.1. Traditional Forms of E-commerce

Business to Business (B2B)

Online B2B markets function as electronic hubs that connects buyers and sellers and provide automated transactions between the businesses (Kaplan and Sawhney 2000). First, B2B markets are "markets whose central role is to facilitate product and information exchange, and to support the all-in process of business transactions from initial contacts and negotiation to settlement" (Bakos 1997). Secondly, B2B market is an interorganizational information system in

the sense that Internet technologies are employed to store and exchange information between business partners (Cash and Konsynski 1985). Selling B2B includes the following: 1) wholesale 2) distribution relationships with large or chain retailers 3) selling to organizations (schools, businesses, non-profit) 4) supplier selling to resellers.

The Chinese retail giant Alibaba is one of the most prominent examples. Through Alibaba.com and 1688.com, Alibaba allows anyone access to the Chinese supply chain, meaning that any businesses can order machinery, equipment, supplies from online without ever having to visit the actual factory or sites where they are made (Fortune 2014).

Business to Customer (B2C)

It is the most common type of e-commerce, where the transaction occurs between the business and individual customers. In this model, customers get information and purchase products using the Internet technology (Olson and Olson 2000). The transaction size may be smaller than B2B model, it has steadily grown since 1995. (Laudon and Traver 2002).

Despite the convenience and efficiency that B2C models have brought about, it still poses some risks to the consumers. The physical distance between the consumers and sellers online raises uncertainty of the product and for seller opportunism, where the product may be of far less quality than it is actually described to be (Ba and Pavlou 2002). Second, personal information can be easily collected, processed, and exploited by multiple parties including those not involved in the transaction (Pavlou and Fygenson 2006). Third, the model poses challenges to the buyers as the transaction process requires considerable amount of use of IT (Koufaris 2002). Lastly, there are concerns about the internet itself, whether the platform is reliable or not (Rose, Khoo, and Straub 1999).

Online shopping malls are the most common type of B2C e-commerce models, and Amazon is the pioneer and most successful among them. B2C platforms exist everywhere, from teleshopping to any kind of websites where customers can search and make purchases. Nowadays, it is even more rare to see any businesses that do not offer the sales of its products on online platforms.

Customer to Customer (C2C)

C2C model is a kind of e-commerce that focuses on the transactions between customer to customer, between two individuals who want to buy and sell goods (Chentao and Yongle 2014). The business simply provides a platform or a marketplace, where consumers can make transactions and the whole purpose of this platform is to simply allow such relationship. C2C platforms gives benefits to the customers in that customers can exactly locate products that may be difficult on other platforms.

eBay is the leading example of a C2C platform. Since its launch in 1995, eBay has remained as a C2C-only marketplace. Anyone could join and start selling or buying products right away. eBay is often recognized as the catalyst of the e-commerce era. Craigslist is another well-known website that provides a marketplace. What is unique about Craigslist is that it does not facilitate the transaction process between the consumers, and only creates the relationships among them. Also, services could also be traded on Craigslist.

2.1.2. Definition of O2O

According to Investopedia, Online-to-Offline Commerce is a business model that draws potential customers from online channels to physical stores. Online-to-Offline commerce ("O2O"), identifies customers in the online space, such as through emails and internet advertising,

and uses a variety of tools and approaches to entice the customer to leave the online space and visit the offline space (Investopedia 2017). O2O is based on the traditional B2C type of e-commerce but differs, combining the features of e-commerce and the advantages of local service experience (Chentao and Yongle, 2014).

2.1.3. Development of O2O

The idea of Online to Offline commerce has been generated along with the development of e-commerce. E-commerce first began in 1995 when "Netscape.com" internet portal published for the first web advertising and uncovered the idea that Internet could be used as a new medium for advertising and sales, and the term is now used for all business transactions realized through the Internet (Basarir-Ozel, 2017).

When compared with traditional e-commerce, mobile devices enable easy access to consumers and markets. Companies do not need to incur higher costs for enabling more clients to use mobile services, and therefore O2O will provide innovation of business models and the reconstruction of the whole industry chain by integrating online virtual economy as well as real economy (Chung, Kim, and Bae 2017). It is a win-win all around, as the local merchant can control stock and inventory, as well as whom he chooses to sell to, and the buyer not only gets a lower price, but he also supports local economic activity (Business Today 2016).

Connecting the online world to offline world is a dominant characteristic of mobile services. Making restaurant reservation through applications, making accommodation reservations and making real estate contracts are some examples of the services that make the offline market highly more efficient than before, and the use of such applications has become a widely used marketing method since the birth of smartphones.

2.1.4. Comparison of Traditional E-commerce and O2O

The traditional e-commerce is based on online market and logistics distribution mode, whereas O2O has the mode of online market and going to a physical location (Xing and Junxuan 2014). Compared to the traditional model, O2O has the following unique advantages: 1) Users continuously change in the online environment, not subject to restrictions of time and places to conduct business activities 2) The mobile terminal service users are generally personal mobile phone users, and the services they use can be adjusted to meet their needs and preferences 3) The mobile device is very convenient to carry, and mobile payment is convenient and can be done instantaneously (Xing and Junxuan 2014).

2.2.Mobile Game Market

Most popular devices to play games have become mobile phones although it may not be the ideal platform due to its small size and limited specification to support heavy visual effects, as mobile devices provide convenience, are easy to carry, and cost efficient. (Bose and Yang 2011). A mobile game refers to games played on either a smartphone or a tablet PC, and games played on dedicated handheld consoles from Sony or Nintendo are not considered as mobile games (Hsiao and Chen 2016). It is speculated that the mobile game market will continue to grow as long as the shipment volume of smartphones and tablets continue to increase as well (Su, Chiang, Lee, and Chang 2015).

Currently, there are two major markets where a mobile user can download mobile games. The first is of the pioneer of the mobile phone industry Apple's Appstore, and the second is Android's Google Play. The two shops provide a convenient one-stop service to search and download apps or games. Google Play, initially launched as Google's Android Market (or "the Market"), the Android web portal was rebranded and integrated into one of the categories of

Google Play in March 2012 (Liu, Au, and Choi 2014). According to a report by App Annie, the number of apps and games downloaded in both Google Play and Apple's App Store grew considerably in 2016 by 13 billion from the number of 2015. Total apps and games downloaded now exceeded over 90 billion overall. The mobile game market has also greatly the level of income for developers. The overall revenue for both major app stores combined improved by 40% from 2015. Both stores made about $35 billion in total, although about half of the growth came from China. 90% of Google Play's revenue came from games, and the figure is lower for iOS, which was about 75%. Considerable part of the revenue came from mature markets, as the users in those countries are downloading less and spending more, especially on games. The average revenue per user (ARPU) was marked at $5 in the US, and in countries like Japan, the figure goes up to $30 per user. Pokemon Go was the major leader in the year 2016, raking in $950 million overall in 2016.

However, with the growing market and opportunity, the competition in the mobile game market has also become fiercer than any other game markets, especially due to the limited lifetime of usual mobile games. Unless the person is a loyal user, consumers tend to display switching behavior more frequently than other physical goods. Therefore, game companies are investing astronomical amount of budget to engage potential users and retain loyal users to maximize their profit within the lifetime of their product.

2.2.1. Active and Passive Users of Mobile Games

The main purpose of mobile game marketers is to prevent the churning frequency. Generally, users tend to "stick" to the online services that they use often and tend to stay there instead of using other platforms that are similar, often due to lack of motivation, and studies have discovered that this lack of switching behavior from the consumer's perspective was due to user

satisfaction (Bhattacherjee, 2002). How much users stick to an online service can be a determinant to distinguish between an active and a passive user. In general, "stickiness" is driven by content, ease of use, and the extent of platform customization (Davenport 2000).

2.2.2. Business Models of Games

Retail model

The classic model of video game sales, where games are loaded DVD or CD-rom and sold as packages in offline stores or other distribution channels. Internet is not necessarily required, as the goods are mostly sold offline. This model is now rarely ever used, except on the occasions of limited edition packages.

Digital distribution model

Video games are sold online and are delivered instantly over the Internet as a digital product. One of the most prominent example is the platform Steam. Steam is the largest PC game distribution platform developed by Valve Corporation, where gamers can purchase and download games directly. It offers services such as digital rights management, multiplayer gaming, video streaming, and automated services such as installation, updates, communities, stores for virtual goods, and game saves on cloud server.

Subscription model

The financing of the game is determined by subscriptions, where the incurs a charge for amount of usage, usually measured as monthly or annual fee to play. This model is widely chosen for Massive Multiplayer Online Role-Playing Games. The pioneer examples include Blizzard's

World of Warcraft and NCSoft's *Lineage* titles, where the games are solely based on subscription fees, or have other virtual items that can be bought in real currency within the game. The in-game currency cannot be exchanged for real money.

Player-to-player trading model

The Player-to-player trading model is similar to the subscription model in that virtual goods in the game is the main source of financing of the game. The in-game currency can be exchanged for real money, or the virtual good itself could be bought for real money on the online marketspace established within the game. Most games provide the trading platform in the form of auction in games such as Diablo III. This model is similar in nature to C2C e-commerce models.

Advertising model

The games that fit into this category are financed through advertisements within games, where video advertisements or banners are exposed to the user during gameplay. The game developers receive financing for the number of advertisement exposure and thus the developers induce the users to watch the advertisements by offering advanced features or items in exchange. The model is the earliest forms of the freemium model.

Freemium model (Free-to-play)

Freemium is a combination of the words "free" and "premium," and is a business model by which the users can enjoy the product without incurring any costs, but a "premium" is charged for advanced features, functionality, or related products and services (Liu, Au, and Choi 2014). Freemium business models have become increasingly popular in the digital good markets, most

presumably the mobile applications and mobile games (Rietveld 2016). With the initial goal to increase usage and later induce the users to make payments, more and more mobile game companies provide freemium services (Hsiao and Chen 2016). Freemium model is becoming the de facto standard for mobile games, and the market is projected to exceed $45 billion by 2018 (Ratiu 2016). All mobile games in this study will be assumed to be of the freemium model.

2.2.3. Application of O2O in Mobile Games

Even in the world of mobile games, the boundary between the online and offline is becoming congruent. There are two types of O2O currently apparent: 1) With the latest technology, the game itself takes place in the offline, often through Augmented Reality 2) service provider of a mobile game hosts offline events or partnerships with other franchises, bringing the online users to the offline world for engagement to secure loyal users (Okyu 2017).

The second type is widely used for promotional purposes. The key aspect of O2O model is that transaction occurs online and consumption offline. The standard promotional events offered in mobile games is partnership between the game developers and offline franchises, where the users fulfill certain tasks in the game to receive coupons that can be used in offline partner stores. If the user uses the coupon to consume a product or service, he/ she could receive items or currencies that can be used in the mobile game (Gameshot 2016). According to Kotler (1997), such promotion is a component of marketing mix, to provide incentives to consumers to consume their products or services. The promotion is usually short-term in nature, that stimulates the consumers to make purchase at a relatively faster rate. Businesses form partnerships for promotional purposes from several economic standings. The businesses attempt to secure a competitive position in the market, or to expand its business to other markets (Park 2013). As the

boundary between online and offline worlds are converging together, the amount of money spent and made by the mobile game market is larger than ever before, also carrying over consumption to other markets as well.

2.3.Factors that affect Mobile Games

Largely, there are two factors that affect the use of the services of Mobile Games and consumption of in-app purchases within mobile games: perceived value and perceived risk. However, viewing perceived value and perceived risk as single dimensions is not as simple, and ignores their complex nature (Lin, Sher, and Shih 2005). For perceived value, the researchers adopt multidimensional approach for better understanding (Sweeny and Soutar, 2001). The approach was first introduced by Babin, Darden, and Griffin (1994) by developing a scale to measure hedonic and utilitarian values pervasively observed from everyday consumers. Many researchers (Babin, Darden, and Griffin 1994; Park, 2004; Voss, Spangenberg, and Grohmann 2003) concluded that distinctive hedonic and utilitarian values exist that affect consumer's attitudes and they are related to number of variables that are either affective or cognitive in nature. Voss, Spangenberg, and Grohmann (2003) introduce video games as initially having high hedonic but low utilitarian values. Ha (2002) explores the nature of perceived risks that arises in consumption behavior, and observes that there are many sub-components related to risks including financial risks, performance risks, and privacy risks.

2.3.1. Utilitarian Value

Utilitarian consumer behavior is defined as "ergic, task-related, and rational" (Batra and Ahtola 1991; Strahilevitz and Meyers 1998; Ryu, Han, and Jang 2010). Strahilevitz and Myers

(1998) refers to goods that have utilitarian values in nature as being used to accomplish practical tasks. It is derived from functions performed by the products (Voss, Spangenberg, and Grohmann 2003). A cognitive comparison between the adaptation level and actual product experience determines the manner in which subsequent evaluations will deviate from the adaptation level (Oliver 1980). Although games are largely considered as hedonic goods, utilitarian values also play the crucial part to maintain the balance between reality and virtual world. If utilitarian values do not exist, then the hedonic aspect of game experience, leading to meaningless uncontrolled activity, and thus the utilitarian aspects maintain the balance of hedonic consumption (Davis, Lang, and Gautam 2013).

This study constructs the utilitarian value with the following components: ease of use (Batra and Ahtola, 1991), brand value (Ok, Choi, and Hyun 2011), monetary value (Chiu, Wang, Fang, and Huang 2014), and rewards (Kim, Kang, and Munkhbazar 2012).

Ease of Use

Ease of use is the most compelling benefit for using e-commerce services, as the services allow the user to make consumption at any place and at any time (Rohm and Swaminathan 2004). Perceived ease of use is one of the two important cognitive beliefs in the function of users' IT acceptance, the other being usefulness, and it is the degree the user believes he/she will be alleviated from putting effort into the use of particular IT service (Davis 1989). Ease of use affects utilitarian consumption because games have certain rules and goal-oriented results that must be achieved if consumers can control and manipulate it, an indication for which suggests ease of use as the fundamental aspect of gaming experience (Newman, 2004). If a game is easier to use, the

consumer will perceive its consumption to be less complex and the willingness to consume the product should be positively correlated (Davis, Lang, and Gautam 2013).

Brand Value

Customers experience utilitarian value when their needs are fulfilled and when there is a balance between quality and price (Ok, Choi, and Hyun 2011). Quality is mostly reflected by the brand value, because brand names allow the consumers to make inferences about the product. According to Agarwal and Teas (2001), this inference process is called "affect-referral" process, which suggests that instead of examining product attributes every time, the consumers simplify their decision-making process by making inferences about the product through the brand name and brand attributes.

It has also been studied that heritage helps to make a brand more authentic, credible, and trustworthy and can provide leverage for that brand (Wuestefeld, Hennings, Schmidt, and Wiedmann 2012). Additionally, if a brand carries heritage, it automatically delivers assurance and creates future expectations to the stakeholders that the brand will be committed to their interests (Aaker 1996). Therefore, brand value is an important driver in the primary step for the formation of positive attitude of consumers that will eventually affect purchase intention (Del Rio, Vazquez, and Iglesias 2001).

Monetary Value

Price (monetary value) is a utilitarian value that serves as an economic incentive to attract e-commerce users (Atchariyachanvanich, Okada, and Sonehara 2008). Price is considered to influence quality because high price is a reflection of high quality products and low price a

reflection of low quality products, and competition in markets including mobile markets prevents the rise of opportunism, limiting the firms from charging high prices for low quality products (Curry and Riesz 1988).

Jacoby, Olson, and Haddock (1971) describes value of price as perceived by the customer by comparing the price of the good in interest to the price of other substitute products. In this context, generally the customers tend to compare the prices of all options and choose to purchase a product with a lower cost (Soscia, Girolamo, and Busacca 2010). Wangenheim and Bayon (2007) and Ralston (2003) assert that the perception of price is significant as it represents an extrinsic cue and offers one of the most important basis for the customers when they make the decision to purchase.

Jacoby, Olson, and Haddock (1971) also support the notion regarding the distinction between the actual price and relative price. Therefore, a consumer either recalls information based on other product knowledge or make a direct recollection from the product itself, and pricing is seen holistically as being relative within the particular merchandise context (Beneke, Flynn, Greig, and Mukaiwa 2013).

In the context of mobile applications, consumers make the comparison of making in-app purchases to receive benefits or continuing the use of the game for free of charge, or utilizing other sources such as events hosted by the game developers. Electronic goods or virtual goods that can be purchased are perceived to save time and money, and therefore monetary value is generally expected to have positive relationship with the use of e-services (Meuter, Ostrom, Roundtree, and Bitner 2000).

Rewards

Rewards provide a goal-oriented environment for game users. Traditionally, rewards in B2C context allows the users to perceive that they are purchasing or using products or services in a cost-efficient manner, which ultimately leads them to make purchasing decisions (Kim, Kang, and Munkhbazar 2012). Rewards in the context of mobile games take on the form of virtual goods that could be acquired by achieving certain goals, which could motivate the users to continue playing the game. If the users perceive rewards to be efficient in terms of cost including opportunity costs, it provides the game users incentives to continue their usage (Hsiao and Chen 2016).

2.3.2. Hedonic Value

Games are considered to be hedonic by nature, and consumers tend to spend most of their time and money in these experiences. The world has changed its form to an "experience economy" and consumer experience management is the key to avoid fierce price wars (Pine and Gilmore 1999). Hedonic value is more subjective and emotional, derived from fun and playfulness, than utilitarian values (Holbrook and Hirschman 1982). Consumption of a product with high hedonic values is defined as "consumption that is primarily characterized by an affective and sensory experience of aesthetic or sensual pleasure, fantasy, and fun" (Holbrook and Hirschman 1982). Hedonic values result from sensations that are non-instrumental, experiential and affective derived from the experience of using goods (Voss, Spangenberg, and Grohmann 2003; Hanzaee and Rezaeyeh 2013). The hedonic dimension of a consumption is derived from the emotional arousal and imagery evoked by the game (Ha and Jang 2010), accompanied by an overall assessment of benefits and sacrifices experienced (Overby and Lee 2006). In gaming experience, hedonic values

refer to the utility derived from the feelings or affective states generated through game-play (Lu and Hsiao 2010).

Enjoyment

Enjoyment is the key determinant in defining the game experience (Addis and Holbrook 2001). It can be defined as "the extent to which an activity is perceived to be enjoyable, and this property is separate from any beneficial performance consequences that may be anticipated" (Davis, Bagozzi, and Warshaw 1992). Perceived enjoyment has recently emerged as the backbone of major IT innovation (Liu and Li 2011). In their research, Thong, Hong, and Tam (2006) found that enjoyment is a significant determinant in the user's intention to continuously consume IT services, while Lu, Zhou, and Wang (2009) indicated that perceived enjoyment is positively correlated with user's attitude in IT consumption. When incorporated into Technology Acceptance Model (TAM), enjoyment was also discovered to have positive effect on user attitude and intention to use Websites (Heijden 2003).

In this regard, researches in hedonic values have widely been conducted by applying Technology Acceptance Model (Oh and Lee 2012). Ha, Yoon, and Choi (2007) argues enjoyment is the basic nature of games, and enjoyment should always be the core component of TAM for studies on games. The wide recommendation is to construct the TAM by incorporating hedonic aspects, with enjoyment being the core factor, with that of utilitarian values such as perceived ease of use to study behavioral intention of consumers in regard to electronic service consumption (Agarwal and Karahanna, 2000).

Self-concept and Self-congruity

Self-concept is defined as “how consumers perceive and value themselves” (Aaker 1999). It is a core aspect in discussing hedonic values in gaming experience, as the consumers have the tendency to make switches among their multiple selves that reside in them. This allows a user to temporarily transform their perceptions of their world, and the consumer can participate to experience and share it with the community (Davis, Lang, and Gautam 2013).

Self-congruity is important also an important factor because “the subjective experience of imagination is often led by the evaluation of the product/service image versus the consumer’s self-concept” (Johar and Sirgy, 1991). Self-congruity is a core factor due to its impact on imagination and experience, as one of the main reasons why gamers are deeply engaged in the virtual world is to create significant distance between their actual selves and their selves in the online world, and hedonic value is observed when the feelings, thoughts and experience online spills over to their actual offline selves or vice versa (Bowman 2015).

Social value

Social value is also an important determinant, as the users of mobile games can share the experience with the community (Davis, Lang, and Gautam 2013). It is defined as “the social approval or enhanced social self-concept generated by service use” (Sweeney and Soutar 2001). Social value is expected to have a greater influence mobile services that are entertaining in nature, as they contain socially cooperative elements that requires the users to interact with each other (Sullivan Mort and Drennan 2005).

2.3.3. Perceived Risk

Another factor that affects purchase intention is perceived risk, and it is widely concluded that customers purchase products that pose the least amount of risks (Baur 1960). Risk is an

important moderating variable that "turns simple causal relationships between consumer perceptions, evaluations and behavioral intention into more insightful conditional relationships" (Featherman and Fuller 2003). As Ha (2002) organized in his research, perceived risk will be categorized into three components: 1) Performance Risk 2) Financial Risk 3) Privacy Risk (Psychological Risk).

Performance Risk

Performance risk is defined as the loss incurred when there is a mismatch between one's expected performance of a product and its actual performance (Horton, 1976). Expectations are influenced by the factors that Helson (1959) suggested, which are as follows: 1) the product itself, including one's prior experience, brand connotations, and symbolic elements, 2) the context including the content of communications from salespeople and social referents, and 3) individual characteristics including persuasibility and perceptual distortion.

Performance risk is largely known to be related to disconfirmation process of customers. According to Oliver and DeSarbo (1993), consumers are "posited to form pre-consumption expectancies, observe product performance, compare performance with expectations, form disconfirmation perceptions, combine these perceptions with expectation levels, and form attitude and create satisfaction judgments." Therefore, performance risk arises when the pre-consumption expectancies do not match with the actual performance. Prior to the finding, performance appeared to impact consumer satisfaction and dissatisfaction directly rather than through disconfirmation process (Churchill and Surprenant 1982). Expectations create a threshold in one's mind for the purpose of comparative judgment and outcomes that are relatively poorer than expected are rated below threshold, and the outcomes than expected are rated above (Oliver, 1980).

In relation to what has been mentioned before, performance risk can be reduced with positive inclination towards a specific brand. Brand value confirms its commitment to the stakeholders and consumers likewise, therefore minimizes performance risk. If a marketer understands the company's dimensions of performance risk, the market will be able to display their brands to inspire confidence in the customers (Assael 1995). Instead, it is rather the uncertainty of information and consumer risk in e-commerce that produces far greater feelings of uneasiness (Tan 1999), and customized information on advertisements for retargeting purposes is known to directly affect performance risk (Ha 2002).

Financial Risk

Financial risk is defined as "a net financial loss to a customer, including the possibility that the product may need to be repaired, replaced or the purchase price refunded" (Horton 1976). It has been found that perceived price is negatively related to perceived value, as high price deters the consumers from making purchases (Boksberger and Melsen 2011). As price is a measure often used to represent the sacrifices the users have to make to obtain a product or service (Hsiao and Chen 2016), high financial risk exists when the loss of money is considered. Ha (2002) has found that positive emotional state exerted a significant influence on reducing financial risk, meaning that in a freemium model where virtual goods can only be obtained through lottery or chance. If the purchase of random item results in satisfaction, the financial risk will be offset by the results.

Privacy Risk

Psychological risk is broadly described as instances where the consumption of a product or service may harm the consumer. In this research, the psychological risk will be deemed as a

privacy risk, the user experiencing anxiety or psychological discomfort arising from the concerns of privacy breach, regretting from the use of products (Perugini and Bagozzi 1999). To devise a marketing plan, the marketer has to utilize the user data to target their specific needs, and regardless of their intention, many consumers today are exposed to a great amount of information through both offline and online advertising (Ha, 2002). In this process, the concern for privacy arises. Customers tend to grow more concerns toward their privacy and the potential for harm, when the firms attempt to expand their pool of data on their customers (Martin, Borah and Palmatier 2017). Customers experience harm at the moment of the breach, regardless of whether their data subsequently are misused, and therefore it is important to consider how much the customers are vulnerable to the breach, rather than how much damage can be done (Fisher 2013). Also, the negative feelings that arise from the concern for privacy risk is not due to actual breach or harm, it is due to the anxiety toward the possibility of violation (Scharf 2007). Interestingly, the increase in e-commerce has been accompanied by the gradual increase in breach of consumer privacy (Feigenbaum, Parkes, and Pennock 2009).

Table 1. The Components of Independent Variables and Authors

Independent Variables	**Components**	**Authors**
Utilitarian Value	Ease of Use	Rohm and Swaminathan 2004
	Brand Value	Agarwal and Teas 2001
	Price	Jacoby, Olson, and Haddock 1971
	Reward	Kim, Kang, and Munkhbazar 2012
Hedonic Value	Enjoyment	Addis and Holbrook 2001

Perceived Risk	Self- concept/ Self-congruity	Aaker 1999; Johar and Sirgy 1991
	Social Value	Sweeney and Soutar 2001
	Performance Risk	Horton 1976
	Financial Risk	Horton 1976
	Privacy Risk	Martin, Borah and Palmatier 2017

III Theoretical Background

Most previous studies done have focused on why users are willing to play mobile games, but have not delved deeper into the reasons why the users would make in-app purchases.

3.1.Theory of Reasoned Action

Among the many attempts that tried to demonstrate the relationship between attitudes and behavior, Theory of Reasoned Action (Ajzen and Fishbein 1977) has demonstrated an unparalleled accuracy for predicting behavior by measuring beliefs, attitudes, and intention (Sheppard, Hartwick, and Warshaw 1988). First discovered by Ajzen and Fishbein, the theory first proposed a belief-attitude-intention-behavior causal framework, whereas the previous studies focused on the attitude-behavior causal framework. The fundamental assumption of the theory is that a person's intention to perform or not perform a given behavior is predictive of the likelihood of that person performing or not performing the behavior defined by the behavioral criterion (Fishbein 1980). Also, attitudes toward the behavior are a function of the person's beliefs that performing the given behavior will result in certain outcomes and an evaluation of those outcomes (Fishbein 1980).

The original model of Ajzen and Fishbein suggested that behavioral beliefs and evaluation of alternative outcomes were sufficient to predict behavioral intention, but the later models of the TRA suggest that another set of beliefs, subjective norms, are also predictive of intention (Ajzen

and Fishbein 1977). Subjective norms are “a function of an individual’s beliefs regarding what important referents will think about that individual performing a specific behavior and that person’s motivation to comply with those important referents” (Fishbein 1980).

3.2.Technology Acceptance Model

As the extension of the Theory of Reasoned Action (Ajzen and Fishbein 1980), Technology Acceptance Model postulates that beliefs affect attitude, which influences intention, which ultimately influences behavior (Davis 1989). According to Davis (1989), TAM suggests that the users’ acceptance is composed of two perceived cognitive beliefs: perceived ease of use and perceived usefulness. Perceived ease of use is defined as “the degree to which a person believes that using a particular system would be free from effort,” and perceived usefulness is defined as “the degree to which a person believes that using a particular system would enhance his or her job performance.” However, with the development of IT, the range of perceived usefulness has been redefined by many researchers, as not necessarily all technological advancements will be related to the user’s job performance such as innovations created for the purpose of daily life usage or education (Liu and Li 2011).

3.3.Prospect Theory

In the mobile market, if there are perceived values, there also lies risks from financial, performance, and privacy aspects, and the users’ behaviors in the presence of risks can be best explained by the prospect theory. Prospect theory suggests that “people behave and build their attitude according to their evaluations of the alternatives, and their evaluations depend on the outcomes as well as their risk attitudes” (Kahneman and Tversky, 1979). It identifies the

consumers have the tendency to avoid losses and when they experience a loss, it has a stronger impact that one unit of gain (Rychalski and Hudson 2017). In the presence of benefit and risk, prospect theory is a tool that allows better understanding of how risk moderates the between values and purchase intention in the traditional B2C business model (Chiu, Wang, Fang, and Huang 2014).

3.4. Attitude

Attitude is fundamentally defined as "an index of the degree to which a person likes or dislikes an object" (Ajzen and Fishbein 1980). The most recognized and influential models that investigates attitude is Fishbein and AJzen's model (Ajzen and Fishbein 1975; Ajzen and Fishbein 1980). The model assumes that behavior is directly caused by intentions, which are caused by attitudes, which in turn reflect beliefs about the consequences of behavior weighted by the subjective evaluation of the consequences (Liska 1984).

Attitude has also been discovered to act as the mediator of perceived value and behavior for mobile games. Liu and Li (2011) has indicated in their finding that utilitarian and hedonic values did not have direct impact on behavioral intention, and their indirect impacts were mediated by attitude. The more enjoyment the user experiences in a game, the more they will play the game with a positive attitude or with stronger motivations including loyalty and intention to pay (or make in-app purchase) (Colwell 2007).

3.5. Means End Chain Theory (MEC Theory)

The Means End Chain Theory explains the major factors that link consumer's values to behavior. It also poses that consumer's behaviors are driven by values, and therefore perceived values are ultimately the determinants of consumer's choices (Gutman 1997). Gutman (1982)

proposes this model to tie the achievement of desired ends (values) to the consumption of products. He indicates that "means" are objects or activities in which people engage in such as games or exercises and "ends" are valued states of being such as joy, achievement, and security. The model is based on two fundamental assumptions about consumer behavior: 1) values play a dominant role in guiding behavior 2) people have the tendency to group the diverse products into groups to reduce the complexity in the decision-making process which can potentially satisfy them (Gutman 1982).

3.6. Satisfaction

The concept of satisfaction in marketing emphasizes delivering satisfaction on top of products to consumers and obtaining profits in return (Yi 1989). There are two types that define consumer satisfaction either as an outcome or a process (Yi 1989). Numerous researches have also underlined that a satisfied customer is more loyal, buys more, is less sensitive to product/service prices, buys other/ services from the same company, and generates positive word of mouth, serving as the cornerstone of marketing defensive strategies (Audrain and Balague 2008).

Satisfaction as an outcome

Satisfaction is "the buyer's cognitive state of being adequately or inadequately rewarded for the sacrifice he has undergone" (Howard and Sheth 1969). Satisfaction is the outcome of purchase and use, when the buyer compares the rewards and the costs of the purchase in relation to the anticipated consequences (Churchill and Surprenant 1982).

Satisfaction has been believed to be the outcome of disconfirmation process. It is widely conceptualized with the view that satisfaction is a post choice evaluative judgment concerning a

specific purchase selection (Westbrook and Oliver 1991). Consumers are posited to form pre-consumption expectancies, observe its attributes, compare the actual performance with expectations, form disconfirmation perceptions, combine these perceptions with expectation levels, and form attitude and create satisfaction judgments (Oliver and DeSarbo 1993).

Oliver (1996) asserts that satisfaction is a collective impression of singular events leading up to consumption outcomes. Moreover, consumers can be satisfied or dissatisfied with the level of satisfaction received, and consumers desire more "satisfaction" from their satisfaction, suggesting that current levels of consumer satisfaction may be dissatisfying at a higher level of abstraction (Oliver 1997).

Satisfaction as a process

Satisfaction appears to mediate changes between pre-exposure and post-exposure attitudinal components (Oliver 1980). Pre-exposure cognitions serve as the consumer's adaptation level (Helson 1948). Satisfaction may best be understood as an evaluation of the surprise inherent in a product acquisition and/or consumption experience (Oliver 1980). In essence, it is the psychological state resulting when the emotion surrounding disconfirmed expectations is coupled with the consumer's prior feelings about the consumption experience (Oliver 1981). Moreover, the surprise or excitement of this evaluation is thought to be of finite duration, so that satisfaction soon decays into one's overall attitude toward purchasing products, particularly with regard to specific retail environments (Oliver 1981). Customer satisfaction has been shown to affect choice and purchase behavior at the individual consumer level (Oliver 1997). Satisfaction is the consumer's response to the evaluation of the perceived discrepancy between prior expectations

and the actual performance of the product as perceived after its consumption (Tse and Wilton 1988).

Satisfaction and dissatisfaction could lead to purchase intentions in a mobile setting. The relationship between satisfaction and purchase intentions that have been advocated in both offline and online settings has been confirmed in the context of branded mobile applications (Alnawas and Aburub 2016).

3.7.Dissatisfaction

Just as satisfaction, the definition of dissatisfaction comes from Oliver's disconfirmation between prior expectations and post-purchase outcomes (Oliver 1980). Outcomes that exceed the prior expectation results in satisfaction, while outcomes that are worse that expectation result in dissatisfaction (Oliver 1980). Fornell and Wenerfelt (1987) define dissatisfaction as "a state of cognitive/ affective discomfort caused by an insufficient return relative to the resources spent by the consumer at any stage of the purchase/ consumption process." The prior belief was that dissatisfaction was the result of a cognitive process (logical and rational comparison of expectations and outcomes), but later it was discovered that affective factors could also lead to customer dissatisfaction (Lu, Lu, and Wang 2012).

Dissatisfaction in online settings refer to dissatisfaction with the use of a website or with the purchase process (Anderson and Srinivasa 2003). Audrain and Balague (2008) empirically studied the outcomes of the customers who were dissatisfied after making a purchase online, and discovered that dissatisfaction is significantly related to complaining behavior, exit, and referrals. Similarly, in their research, Lu, Lu and Wang (2012) defines online purchase dissatisfaction as cognitive discomfort and affective discomfort.

3.8. Loyalty

Oliver (1999) defines loyalty as "a deeply held commitment to rebuy or repatrionize a preferred product/service consistently in the future, thereby causing repetitive same-brand or same brand-set purchases, despite situational influences and marketing efforts having the potential to causes switching behavior." Oliver's definition emphasizes the two different aspects of loyalty as that of behavioral and attitudinal: behavioral loyalty has the disposition to make repeated purchases, and attitudinal loyalty consists of linking some values to the brand (Chaudhuri and Holbrook 2001). Cohen and Houston (1972) examined part of the belief structure of brand-loyal consumers and define the general characteristics of loyal customers. According to their study, loyal consumers justify their decision of brand choice. The loyal consumers perceived their own brand as superior compared to the competing brand. Furthermore, even though when objective price information is readily available, they still show such justification. More recent study found similar attitude in the study of how committed consumers process information about the brand that they are loyal to. Loyal consumers will defend their brands from attacks from outside, and at the same time underrate competitive brands (Raju, Unava and Montgomery 2009).

Online loyalty has been defined as "a consumer's intention to buy from a website or to visit it again" (Flavian 2006). As it became easier to access the internet on mobile devices, companies use their website as a source of promoting products and services and consumers get information from such website. Brand-loyal consumers frequently visit website but they spend less time on each occasion, the more often they use the site (Thorbjornsen and Supphellen, 2004).

In this study, loyalty will refer to a gamer's willingness to replay or recommend that mobile game. Chang and Chen (2009) suggest that loyalty can be of substantial value to both customers

and companies: 1) loyalty reduces the amount of time a consumer has to spend on searching for or evaluating the alternative purchase options 2) loyal customers are the ones that bring in the most amount of revenue to the company.

3.9. Exit

Simply put, dissatisfied customers might exit or simply put, stop consuming the product or service (Hirschman 1970). In an offline environment, it has been suggested the more the customer is dissatisfied, the more likely he is to exit or stop consuming the product (Maute and Forrester 1983). In online settings, it was shown that e-commerce platform satisfaction or dissatisfaction is significantly related to referral, retention, and online conversion. Utilizing this knowledge, Audrain-Pontevia and Balague (2008) show that there is a significant relationship between dissatisfaction and online exit behavior. To be precise, dissatisfaction entails higher propensity to exit and a smaller likelihood to recommend, and become a loyal customer (Audrain-Pontevia and Balague 2008).

IV Hypothesis Development

This research extends Theory of Reasoned Action (Ajzen and Fishbein 1977), incorporating elements from Technology Acceptance Model (Davis 1989) and Means-End Chain Model (Gutman 1997) to study a mobile game user's behavior by measuring beliefs, attitudes, and intention with satisfaction and dissatisfaction serving as a process between attitude and intention. The study also observes satisfaction and dissatisfaction as a two-stage factor, each appearing pre-purchase and post-purchase stages.

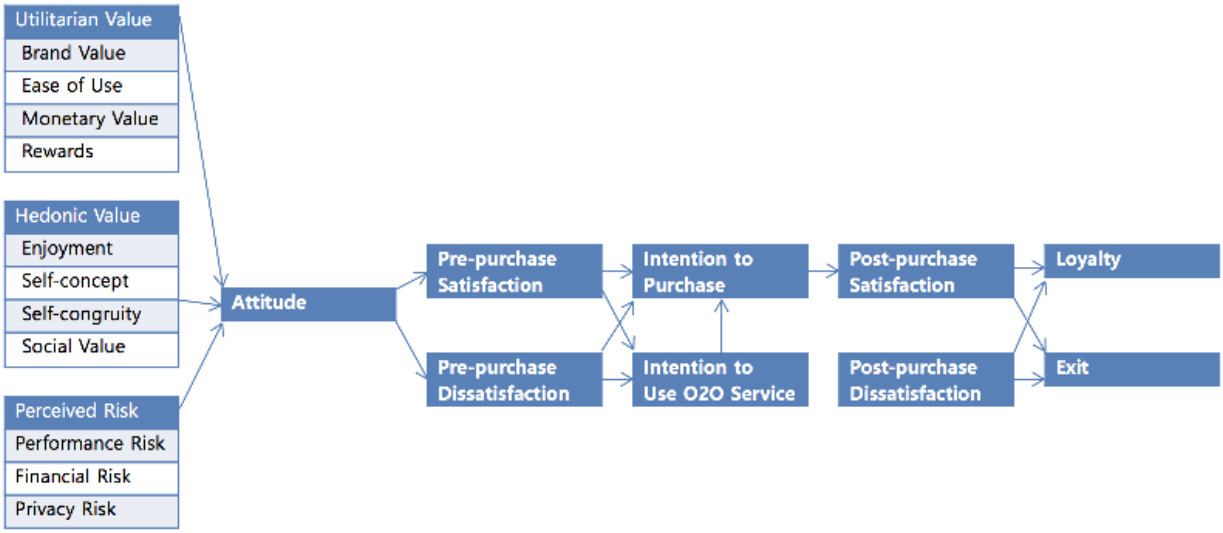

Figure 1. Proposed Model of Factors that Affect Mobile Games. Extended version of Theory of Reasoned Action (Ajzen and Fishbein 1977), Technology Acceptance Model (Davis1989), and Means-End Chain Theory (Gutman 1997).

4.1. Effects of Utilitarian Values on Attitude

Utilitarian consumer behavior has been described as "ergic, task-related, and rational" (Batra and Ahtola 1991). Utilitarian motives usually reflect a work mentality and are dependent on whether the tax at hand has been accomplished (Babin, Darden, and Griffin 1994). The consumer will then form a positive attitude once they feel that the consumption was efficient and purposeful, freemium use in our context. (Dholakia 1999). Games are thought to have higher hedonic than utilitarian value, as consumers seek for more emotional ecstasy to relieve of their stress or emerge in a fantasy life. However, as previously mentioned, the existence of utilitarian value keeps hedonic values constrained, preventing it from becoming a meaningless activity (Davis, Lang, and Gautam 2013). Therefore,

H1: Utilitarian values will have a positive effect on user attitude toward mobile games.

4.2. Effects of Hedonic Values on Attitude

Hedonic consumption links consumer behavior to the multi-sensory, fantasy and emotive aspects of one's experience with products (Hirschman and Holbrook 1982). Hedonic value is also

the behavior to receive pleasant feelings, entertainment by being emerged in gaming experience (Davis, Lang, and Gautam 2013). Therefore, the experience of hedonic consumption is often related to the enjoyment of consumers and their interest in self-concepts, and in extreme cases the higher level of playfulness results in good mood and satisfaction (Arnold and Reynolds, 2003). Triandis (1971) have also argued that argued that affection, joy, pleasure, depression, disgust, displeasure, or hate affects a person's attitude when associated with a particular act. Gaming generates high levels of emotion and excitement (Fiore, Jon, Kim 2005) and its environments provide a platform for internal self-experience (Childers Carr, Peck, and Carson 2001). Therefore,

H2: Hedonic values will have a positive effect on user attitude toward mobile games.

4.3.Effects of Perceived Risks on Attitude

It is natural that customers purchase goods that pose the least amount of threat (Baur 1960). To the extent that a consumer cannot always purchase exactly what he is searching for, risk is perceived to be a factor in most purchase decisions (Ha 2002). The concept of perceived risk is also often defined as "consumer's perceptions of the uncertainty and adverse consequences of buying a product or service" (Dowling and Staelin 1994). Before deciding to make a purchase, consumers put in considerable amount of effort to search for enough information and evaluate them, and if one does acquire such information in interest, it can lower the consumer's perceived risk. Nevertheless, efforts from the producers of the games could offset the search for information in the freemium stage. Therefore,

H3: Perceived risks will have a negative effect on user attitude toward mobile games.

4.4. Effects of Attitude on Pre-purchase Satisfaction/ Dissatisfaction

Attitude is fundamentally defined as an index of the degree to which a person likes or dislikes an object (Ajzen and Fishbein 1980). Satisfaction appears to mediate changes between

pre-exposure and post-exposure attitudinal components (Oliver 1980). According to Engel model, pre-purchase satisfaction/ dissatisfaction occurs at the alternative evaluation stage. Liu, Au, and Choi (2014) indicates in their research that a typical user tries out freemium stage of mobile game, forms an attitude, which leads to pre-purchase satisfaction that will determine future behavior. Pre-purchase satisfaction acts as a determinant in achieving post-purchase satisfaction when the consumers' needs are met by the level of product performance (Chae, Black, and Heitmeyer 2006). Therefore,

H4: User attitude will positively affect Pre-Purchase Satisfaction

H5: User attitude will positively affect Pre-Purchase Dissatisfaction

4.5. Effects of Pre-purchase Satisfaction/ Dissatisfaction on Intention to Make In-app Purchase

Customer satisfaction has been shown to affect choice and purchase behavior at the individual consumer level (Oliver 1997). Purchase intention is a direct determinant of purchase behavior of actual purchasing and this purchase intention is regarded to be led to the purchase intention of proceeding a series of products and services which are planned to be purchased in the situations where the consumers need the products or services (Kang and Sin 2006). Satisfaction serves as a mediator in allowing the consumer to decide to purchase a product. For "freemium" mobile games, satisfaction results from the comparison of pre-exposure and post-exposure process before making purchase decision. Thus, the more satisfied the users are, the higher the purchase intention appears to be, as they will seek to obtain even higher level of satisfaction through in-app purchase (Lee and Park 2013).

Also, in line with Hirschman's (1970) framework, many researchers have discovered that the more consumers are dissatisfied after they make a purchase, the more likely they will complain

(Cho, Im, Hilz, Fjermesad 2002). If this complaining behavior is resolved, the users will be turned to loyal customers. In the case where dissatisfaction occurs prior to making a purchase, consumers will then seek to relieve of their dissatisfaction through either making the decision to purchase or not. Consequently, this study hypothesizes that for mobile games, the users will seek for satisfaction on top of their current level of satisfaction and those who are dissatisfied will seek to resolve their dissatisfaction by attempting to acquire satisfaction through in-app purchase. Therefore,

H6: Pre-purchase Satisfaction will positively affect Intention to make In-app Purchase

H7: Pre-purchase Dissatisfaction will positively affect Intention to Make In-app Purchase.

4.6. Effects of Pre-purchase Satisfaction/Dissatisfaction on Intention to use O2O Service

O2O in the form of sales promotion provides various benefits to the consumers, which ultimately lowers the relative cost that is incurred upon them. Such economic benefits provide additional satisfaction to the beneficiaries, allowing them to purchase products with higher quality with the reduction in relative prices (Park 2013). This study hypothesizes that because O2O promotional services provide benefits that removes the cost burden incurred on the consumers, regardless of whether consumers are satisfied or dissatisfied prior to purchase, they will have intention to use O2O services. Therefore,

H8: Pre-purchase Satisfaction will positively affect Intention to Use O2O Service.

H9: Pre-purchase Dissatisfaction will positively affect Intention to Use O2O Service.

4.7.Effects of Intention to Use O2O Service on Intention to make In-app Purchase

Chandon et al (2000) indicated that such promotions could lead to increase in purchase intention, differing in its degree depending on the type of promotions. For example, promotions that reduce cost includes coupon, refund, or rebate, promotions that adds value includes rewards,

prizes, contests, raffle, and premiums. For cost reduction type, the consumers will feel that there is less chance of loss, whereas value added type allows the consumer to feel affective value, as if they have earned something in addition (Campbell and Diamond 1990). However, in the case of O2O service, the consumers do not just receive benefit but they incur various types of opportunity costs as well. A simple example is the travel cost incurred when the consumer travels to the designated location to receive the benefits. If the consumers perceive the benefits to be greater than the incurred costs, O2O services will lead to intention to make in-app purchases.

H10: Intention to Use O2O Service will positively affect Intention to make In-app Purchase

4.8. Effects of Intention to Make In-app Purchase on Post-Purchase Satisfaction/ Post-purchase Dissatisfaction

Post-purchase satisfaction is "the buyer's cognitive state of being adequately or inadequately rewarded for the sacrifice he has undergone" (Howard and Sheth 1969). It is the result of the purchase process, when buyers make comparison of the rewards and the costs of the purchase (Churchill and Surprenant 1982). Post-purchase satisfaction is defined to be a collective impression of consumption outcome (Oliver 1996), meaning that mobile game users will receive either a level of satisfaction or dissatisfaction depending on the outcome of in-app purchase, as they initially seek for higher level of satisfaction although they were satisfied, or relieve of their dissatisfaction by attempting to obtain satisfaction in the end. Therefore,

H11: Intention to Make In-app Purchase will positively affect Post-Purchase Satisfaction

H12: Intention to Make In-app Purchase will negatively affect Post-Purchase Dissatisfaction

4.9.Effects of Post-Purchase Satisfaction/Dissatisfaction on Loyalty

According to Sirdeshmukh, Singh, and Sabol (2002), customer loyalty is reflected through repeat purchases of a product or intention to use the product/service again. Naturally, gaming frequency is essential in sustaining loyalty and demonstrates the value of a game. Customer loyalty in today's market is an important asset in the competitive environment, and as companies find themselves under more pressure in the marketplace, they seek to improve customer loyalty in the hope of securing future sales and revenue (Kamran-Disfani, Mantrala, Izquierdo-Yusta, and Martínez-Ruiz 2017). Also, a decision not to become a loyal user is riskier when there is a level of satisfaction. The customer has to make an effort to find an alternative service, and cost of switching and repeating the process again is very high (Burnham, Frels, and Mahajan 2003). On the other hand, dissatisfaction is negatively related to repatronage decisions. Recommending a service is a strategy that should relieve the recommender's feelings, reducing dissonance, anxiety, and dissatisfaction (Rychalski and Hudson 2017). Therefore,

H13: Post-purchase satisfaction will positively affect Loyalty

H14: Post-purchase dissatisfaction will negatively affect Loyalty

4.10. Effects of Post-Purchase Satisfaction/Dissatisfaction on Exit

When consumers are not satisfied with the results of their purchase, they have higher tendency to not show repurchase behavior or stop using the product. It is the opposite to the factors that affect loyalty, meaning the consumers are willing to take on the risk of searching for an alternative even if the search cost may be high. The exit behavior is usually attributed to high level of dissatisfaction. Therefore,

H15: Post-purchase satisfaction will negatively affect Exit

H16: Post-purchase dissatisfaction will positively affect Exit

V Quantitative Analysis

5.1.Methodology

This study conducted surveys, which was consisted of online questionnaires. The survey measured customer's perceived utilitarian values, hedonic values, and risks toward mobile games, their attitude, pre-purchase satisfaction and dissatisfaction levels, intention to make in-app purchases, intention to use O2O services, post-purchase satisfaction and dissatisfaction levels, loyalty and exit in the environment of mobile games. They were also asked demographic questions and basic questions on their tendencies in playing mobile games. There were total of 44 questions. All questions regarding the factors that affect mobile games were measured in 7-point Likert Scale from Strongly Disagree to Strongly Agree. The other questions were multiple choice formats. The list of questions is attached in Exhibit 1.

5.2.Demographics

Of 1584 respondents in total, 1055 have experienced playing mobile games before, and the data of these respondents have been used in the analysis. Of the 1055 respondents, 30.1% were male, and 69.9% were female. 1.5% were under 20 years old, 24.6% were 21~30 years old, 57.6% were 31-40 years old, and 16.1% were over 41 years old. In terms of income, 3.9% of the respondents earned annual salary of less than 10 million KRW, 10.9% earned 10 million KRW~ 20 million KRW, 23.7% earned 20 million KRW ~ 30 million KRW, 18.5% earned 30 million KRW ~ 40 million KRW, 11.3% earned 40 million KRW ~ 50 million KRW, 7.7% earned 50 million KRW ~ 60 million KRW, and the final 6.0% earned more than 60 million KRW.

As for educational background, 13% were high school graduates, 76.6% were college graduates, 8.2% had master's degree or higher, 1.8% were still in school and 0.4% answered other.

Lastly, for occupation, 6.0% were students, 63.4% were employees, 18% were housewives, 5.1% were self-employed, 2.7% were government officials, and 4.8% had other occupation.

5.3.Game play tendencies

Of the 1055 respondents, 49.2% plays mobile games less than 1 hour per day, 33.6% plays 1~ 2 hours, 12.1% plays 2~3 hours, 2.5% plays 3~4 hours, 2.7% plays more than 4 hours. To the question of the main reason for selecting a mobile game to play, 12.8% answered Good Reviews, 12.9% answered interesting AD, 8.2% answered Brand Value, 12.2% answered peer recommendation, 52.7% answered ease of use, while 1.1% answered Other.

37.3% have answered that they will not make any in-app purchases, 24.9% answered they are willing to pay less than 1,000 KRW, 28.3% answered less than 10,000 KRW, 7.6% answered less than 50,000 KRW, 1.4% answered less than 100,000 KRW, 0.5% answered more than 100,000 KRW.

16.5% have answered that the price of the packages is the main reason for making in-app purchases, 30.5% have answered purchase events, 46.8% have answered to proceed to the next level, 2.8% have answered habitually, and 3.3% have answered other.

5.4. Hypothesis Testing

The study applied factor analysis to check validity of major constructs. Using principal components analyses as the extraction method and Varimax rotation methods with Kaiser Normalization, the most relevant data emerged. The results of factor analyses show that successfully represented the major constructs, with Eigen values greater than 1.00. Tables 2 to 8 summarize the result of factor analysis for value dimension (Cho 2015). To see the reliability of the components, Cronbach’s Alpha Reliability Test was also carried out as shown in Table 9.

Items		Components		
Factors	Scale Items	1	2	3
Utilitarian	I believe that brand value is important for a mobile game	.749		
	I believe that mobile games are easy to use	.736		
	I believe that in-app purchase can save my time in the game	.777		
	I believe that rewards provided in the mobile games are reasonable	.721		
Hedonic	I believe that mobile games are exciting		.630	
	I play as if the character in the game is myself		.715	
	I tend to be deeply engaged in mobile games		.834	
	I gain pleasant feelings when I play mobile games		.795	
Risk	I believe that advertisements tend to carry certain level of risk			.825
	I believe that mobile games overly induce me to make in-app purchase			.825
	I believe that personal privacy is an important factor in mobile games			.774

Table 2. Component Matrix: Utilitarian Value, Hedonic Value, Perceived Risk

Items		Components		
Factors	Scale Items	1	2	3
Attitude	Overall, I believe that mobile game is a meaningful activity	.848		
	I believe that mobile games are entertaining	.800		
	I believe that mobile game is an important daily activity	.758		

Table 3. Component Matrix: Attitude

Items		Components		
Factors	Scale Items	1	2	3
Pre-purchase Satisfaction	I believe that playing a mobile game is a pleasant experience	.914		
	I am satisfied with mobile games	.914		
Pre-purchase Dissatisfaction	I am dissatisfied with mobile games as I gain unpleasant feeling		.880	
	I believe that playing a mobile game is an unpleasant experience		.880	

Table 4. Component Matrix: Pre-purchase Satisfaction and Dissatisfaction

Items		Components		
Factors	Scale Items	1	2	3
Intention to Make In-App Purchase	I have the intention to make in-app purchase in the future	.855		
	I believe that in-app purchase is important in mobile game gameplay	.855		

Table 5. Component Matrix: Intention to Make In-App Purchase

Items		Components		
Factors	Scale Items	1	2	3
Intention to Use O2O Service	I believe that such O2O event is effective	.894		
	I believe that such events make me want to play mobile games	.870		
	I have the intention to participate in O2O service in the future.	.859		

Table 6. Component Matrix: Intention to Use O2O Service

Items		Components		
Factors	Scale Items	1	2	3
Post-purchase Satisfaction	I believe that result of in-app purchase will give me satisfaction	.851		
	I believe that satisfaction from in-app purchase is important for my future behavior	.851		
Post-purchase Dissatisfaction	I believe that results of in-app purchase will give me dissatisfaction		.786	
	I believe that I will be less likely to continue playing mobile games if the result of in-app purchase is not satisfactory		.786	

Table 7. Component Matrix: Post-purchase Satisfaction and Dissatisfaction

Items		Components		
Factors	Scale Items	1	2	3
Loyalty	I believe that higher quality service will increase loyalty toward the game	.843		
	I have the intention to recommend mobile game to my friends	.818		
	I will continue to play the game if I am satisfied	.803		

Table 8. Component Matrix: Loyalty

Items		Components		
Factors	Scale Items	1	2	3
Exit	If I am not satisfied with the results of in-app purchase, I will quit playing mobile games	.865		
	If I am not satisfied with O2O service, I will quit playing mobile games	.860		
	Regardless of the results, I will quit playing mobile games after a while	.771		

Table 9. Component Matrix: Exit

Case	Cronbach's Alpha
Utilitarian Value	.734
Hedonic Value	.734
Risk Value	.735
Attitude	.724
Pre-purchase Satisfaction	.795
Pre-purchase Dissatisfaction	.652
Intention to Make In-app Purchase	.630
Intention to Use O2O Service	.845
Post-purchase Satisfaction	.620
Post-purchase Dissatisfaction	.680
Loyalty	.851
Exit	.778

Table 10. Cronbach's Alpha Reliability Statistics

Regression analysis was used to test the various hypotheses using factor scores. Table 4 first provides the results of multiple regression analysis for the effects of the three values on attitude. Overall, the results of the ANOVA indicated that the models were significant at the .01 level with F = 364.532 (*r-square* = .510). Based on these findings, Hypotheses 1 and 2 were accepted while Hypothesis 3 was rejected at the .05 level. In other words, the perceived utilitarian and hedonic values positively affect attitude, while risk value does not. Also, the findings are in line with the other previous studies that hedonic values affect attitude the most for games.

Variable (Independent → Dependent)	Standardized Coefficient (t-value-Sig)
Utilitarian Value → Attitude (H1)	.241 (8.055) ***
Hedonic Value → Attitude (H2)	.520 (18.978) ***
Risk Value → Attitude (H3)	.042 (1.671) *

Table 4. Effects of Values on Attitude

This study then conducted factor and regression analysis for Pre-purchase Satisfaction and Pre-purchase Dissatisfaction and the results are shown in Table 5. Overall, the results of the ANOVA find the models significant at the .01 level with F = 1131.461 (r-square = .518) and F = 39.295 (r-square = .036). Based on these findings, Hypotheses 4 and 5 were accepted.

Variable (Independent → Dependent)	Standardized Coefficient (t-value-Sig)
Attitude → Pre-purchase Satisfaction (H4)	.720 (33.637) ***
Attitude → Pre-purchase Dissatisfaction (H5)	.190 (6.269) ***

Table 5. Effects of Attitude on Satisfaction and Dissatisfaction

Factor and simple regression analysis was conducted to see each of the effects of Pre-purchase Satisfaction and Pre-purchase Dissatisfaction on Intention to Make In-app Purchases and the results are shown in Table 6. Overall, the results of the ANOVA find the models significant at the .01 level with F = 332.347 (r-square = .239) and F = 75.624 (r-square = .067). Although Satisfaction had more effect on Intention to Make In-app Purchase, it is worthwhile to notice that Dissatisfaction had positive effect on Intention to Make In-app Purchase even though the r-square indicates that the influence seems to be minimal. Based on these findings, Hypotheses 6 and 7 were accepted.

Variable (Independent → Dependent)	Standardized Coefficient (t-value-Sig)
Pre-purchase Satisfaction → Intention to Make In-app Purchase (H6)	.490 (18.230) ***
Pre-purchase Dissatisfaction → Intention to Make In-app Purchase (H7)	.259 (8.696) ***

Table 6. Effects of Satisfaction and Dissatisfaction on Intention to Make In-app Purchase

Factor and simple regression analysis was conducted to see each of the effects of Pre-purchase Satisfaction and Pre-purchase Dissatisfaction on Intention to Use O2O Service and the results are shown in Table 7. Overall, the results of the ANOVA find the models significant at the .01 level with F = 390.105 (r-square = .270) and F = 33.967 (r-square = .031). Based on these findings, Hypotheses 8 and 9 were accepted.

Variable (Independent → Dependent)	Standardized Coefficient (t-value-Sig)
Pre-purchase Satisfaction → Intention to Use O2O Service (H8)	.520 (19.751) ***
Pre-purchase Dissatisfaction → Intention to Use O2O Service (H9)	.177 (5.828) ***

Table 7. Effects of Satisfaction and Dissatisfaction on Intention to Use O2O Service

Factor and simple regression analysis was conducted to see the effects of Intention to Use O2O Service on Intention to Make In-app Purchase, and the results are displayed in Table 8. Overall, the results of the ANOVA find the models significant at the .01 level with F = 384.022 (r-square .267). Based on these findings, Hypothesis 10 is accepted.

Variable (Independent → Dependent)	Standardized Coefficient (t-value-Sig)
Intention to Use O2O Service → Intention to Make In-app Purchase (H10)	.517 (19.596) ***

Table 8. Effects of Intention to Use O2O Service on Intention to Make In-app Purchase

Factor and simple regression analysis was then conducted to see the effects of Intention to Make In-app Purchase on Post-Purchase Satisfaction and Post-purchase Dissatisfaction, and the results are displayed in Table 9. Overall, the results of the ANOVA find the models significant at the .01 level with F = 727.350 (r-square = .409) and F = 205.222 (r-square = .163). Based on these findings, Hypotheses 11 and 12 were accepted.

Variable (Independent → Dependent)	Standardized Coefficient (t-value-Sig)
Intention to Make In-app Purchase → Post-purchase Satisfaction (H11)	.639 (26.969) ***
Intention to Make In-app Purchase → Post-purchase Dissatisfaction (H12)	.404 (14.326) ***

Table 9. Effects of Intention to Make In-app Purchase on Post-Purchase Satisfaction/ Dissatisfaction

Next, factor and simple regression analysis was conducted to see the effects of Post-Purchase Satisfaction and Dissatisfaction on Loyalty, and the results are displayed in Table 10. Overall, the results of the ANOVA find the models significant at the .01 level with F = 1022.320 (r-square = .493) and F = 629.882 (r-square .374). Based on these findings, Hypotheses 13 and 14 were accepted.

Variable (Independent → Dependent)	Standardized Coefficient (t-value-Sig)
Post-purchase Satisfaction → Loyalty (H13)	.702 (31.974) ***
Post-purchase Dissatisfaction → Loyalty (H14)	.612 (25.097) ***

Table 10. Effects of Post-Purchase Satisfaction and Dissatisfaction on Loyalty

Lastly, factor and simple regression analysis was conducted to see the effects of Post-Purchase Satisfaction and Dissatisfaction on Exit, and the results are displayed in Table 11. Overall, the results of the ANOVA indicated that the models were significant at .01 level with F = 75.806 (r-square = .067) and F = 247.796 (r-square = .190). Based on these findings, Hypotheses 15 and 16 are accepted.

Variable (Independent → Dependent)	Standardized Coefficient (t-value-Sig)
Post-purchase Satisfaction → Exit (H15)	.259 (8.707) ***
Post-purchase Dissatisfaction → Exit (H16)	.436 (15.742) ***

Table 11. Effects of Post-Purchase Satisfaction and Dissatisfaction on Exit

Additionally, test of One-way ANOVA was conducted to investigate the relationship between demographic characteristics and willing to pay in mobile games. Subsequently, another test was conducted to investigate the relationship between demographic characteristics and the amount the users are willing to pay. The results are shown in Table 10. According to the results, at 1% level, only the mean of Income level equaled to the mean of willingness to pay in mobile games.

Variable	F-value (Sig.)
Intention to make In-app Purchase	
Income level	10.209 (.000)
Education Background	.697 (.594)
Age	.570 (.685)
Occupation	3.036 (.017)
Amount users are willing to pay for In-app Purchase	
Income level	14.022 (.000)
Education Background	2.445 (.032)
Age	.660 (.654)
Occupation	1.235 (.291)

Table 11: ANOVA Analysis Results

VI Conclusion

6.1.Findings

According to the results of the factor and regression analyses, at the .05 significance level, most hypotheses were accepted, while only Hypothesis 3 was rejected. This indicates that perceived risk is not an important factor in forming an attitude toward the use of freemium mobile games, whereas utilitarian and hedonic values positively affected attitude, indicating the higher the level of perceived values, the more positive the user's attitude. Attitude also affected both Satisfaction and Dissatisfaction prior to In-app Purchase, which in turn both affected Purchase Intention. Pre-purchase Satisfaction and Dissatisfaction both had positive effects on Intention to Use O2O service as well, and Intention to Use O2O Service affected Purchase Intention. Both Post-Purchase Satisfaction and Dissatisfaction affected Loyalty and Exit. Satisfaction had positive effect on Loyalty and negative effect on Exit, and vice versa for Dissatisfaction on Loyalty and Exit. Also, based on the demographic frequencies, it was observed that income level and occupation mattered in the intention to make in-app purchase.

Also, only the income level determined the amount the users are willing to pay for in-app purchases.

6.2. Significant Findings

Among the findings, the most meaningful result was that Pre-purchase Dissatisfaction showed positive relationship with purchase intention with t-value of 8.696, although Pre-purchase Satisfaction seemed to affect purchase intention stronger.

Another interesting finding was that the respondents showed intention to make in-app purchases and use O2O promotional services even if they are dissatisfied. The positive relationship between Intention to Use O2O Service and Intention to Make In-App Purchases indicate that such promotional services could be used to turn dissatisfied users, as long as the users are willing to incur the cost in the offline world.

6.3.Managerial Implication

This study provides a few managerial implications. Even though the respondents to the survey have indicated that it was the frustration from not being able to advance to the next level that causes them to make in-app purchases, the results of the analysis indicate that satisfaction is a more deterministic factor that leads to purchase intention. This implies that the quality of the game in the initial stages that users consume before showing purchase intention should be the priority when developing mobile games.

Also, the findings indicated that even if the users are dissatisfied in the earlier stages, the still have the intention to use O2O promotional services, which then positively affect intention to make in-app purchases. This is an indicator that such promotional events could also be used as a mechanism to collect more revenue from the users. However, what should be first considered is that the level of Pre-purchase Satisfaction affects purchase intention more than Pre-purchase

Dissatisfaction and Intention to Use O2O Service, meaning that the quality of the game should be considered first to maximize the satisfaction of the users. Even though dissatisfied users still show intention to make in-app purchases, satisfaction is still initially the most important determinant in making purchase decisions. Attending to customer dissatisfaction appears to be more important in the post-purchase stage. Therefore, even though unpleasant feelings from mobile games will induce the users to purchase virtual goods to seek for satisfaction in the post-purchase stage, satisfied users will seek for more satisfaction more enthusiastically.

6.4.Theoretical Implication

Previous studies on the mobile game market primarily focused on the Utilitarian and Hedonic aspects and even less number of studies focused on the effect of satisfaction or dissatisfaction on purchase intention. This study hypothesized that prior to making a purchase, the customers have initial experience of the game in the freemium stage, and form either positive or negative attitude. This attitude formed would then lead to pre-purchase satisfaction and pre-purchase dissatisfaction that would determine the user's purchase intention. The method used in this study indicates that dissatisfaction is an indicator that directly leads to purchase intention.

Also, not many studies have observed the role of promotional services, which in this study is referred to as O2O services, on purchase intention. The findings of this study also indicate that such services would allow the users to form positive feelings and will eventually have positive relationship with Intention to Make In-app Purchases.

6.5.Limitation of Study and Future Studies

As more games are being developed, different models have stemmed from the freemium model. Whereas the early freemium models only charged for type of boosts or to unlock next stages, recent games provide random boxes or lottery to acquire items or characters that purely

depends on luck. This research did not achieve in observing the effects of the factors that affect consumption choices in mobile games by separating the freemium games into subcategories.

O2O is effective to secure more dissatisfied users, actively utilize O2O through targeting mechanisms, primarily done through the use of Big Data. Referred to as Programmatic Marketing, the use of Big Data allows marketers to specifically target the customers that they want, send out information customized for the specific group of customers, to maximize cost efficiency and revenue. Future studies might examine whether targeted promotional services could be a factor that affects purchase intention.

References

Aaker DA (1996), "Building Strong Brands," Free Press, New York.

Aaker, J.I. (1999), "The Malleable Self: The Role of Self-Expression in Persuasion," *Journal of Marketing Research*, 36(1), 45-57.

Addis, Michela and Morris Holbrook (2001), "On the Conceptual Link Between Mass Customization and Experiential Consumption: An Explosion of Subjectivity," Journal of Consumer Behavior, 1(1), 50-66.

Agarwal, Sanjeev, and Kenneth Teas (2001), "Perceived value: Mediating Role of Perceived Risk," *Journal of Marketing Theory and Practice*, 9(4), 1-14.

Ajzen, I. and M. Fishbein (1975), "Belief, Attitudes, Intention, and Behavior: An Introduction to Theory and Research," New York, Addison Wesley Publishing Company, Inc.

Ajzen, I. and M. Fishbein (1977), "Attitude-behavior Relations: A Theoretical Analysis and Review of Empirical Research," Psychological Bulletin, 84, 888-918.

Ajzen, I. and M. Fishbein (1980), "Understanding Attitudes and Predicting Social Behavior," Englewood Cliffs, NJ: Prentice-Hall.

Alnawas, Ibrahim and Faisal Aburub (2016), "The Effect of Benefits Generated from Interacting With Branded Mobile Apps on Consumer Satisfaction and Purchase Intentions," *Journal of Retailing and Consumer Services*, 31, 313-322.

Arnold, M.J. and K.E. Reynolds (2003), "Hedonic Shopping Motivations," *Journal of Retailing*, 79(2), 27-51.

Assael, H. (1995), "Consumer behavior and marketing action," Cincinnati, South-Western College Publishing.

Atchariyachanvanich, K., Okada, H., and N. Sonehara (2008), "Exploring Factors Effecting the Continuance of Purchasing Behavior in Internet Shopping: Extrinsic Benefits and Intrinsic Benefits," ISPJ Digital Courier, 4, 91-102.

Audrain-Pontevia, A. F. and C. Balague (2008), "The Relationships Between Dissatisfaction, Complaints and Subsequent Behavior in Electronic Marketplace," Advances in Consumer Research, 35, 475-482

Ba, S. and P. A. Pavlou (2002), "Evidence of the Effect of Trust in Electronic Markets: Price Premiums and Buyer Behavior," *MIS Quarterly*, 23(4), 243-268.

Babin, B.J., Darden, W.R., and M. Griffin (1994), "Work and/or Fun: Measuring Hedonic and Utilitarian Shopping Value," *Journal of Consumer Research*, 20(4), 644-656.

Babu, Venkatesha (2016 April 24), *Online to Offline: Rise of O2O Commerce,* Retrieved from http://www.businesstoday.in/magazine/cover-story/how-businesses-are-benefitting-from-the-online-boom/story/230733.html

Bakos, J.Y. (1997), "Reducing Buyer Search Costs: Implications for Electronic Marketplaces," *Management Science*, 43(12), 1676-1692.

Basarir-Ozel, Birgul (2017), "Factors Affecting E-commerce Adoption: A Case of Turkey," *The International Journal of Management Science and Information Technology*, 23, 1-11.

Batra, Rajeev and Olli T. Ahtola (1991), "Measuring the He- donic and Utilitarian Sources of Consumer Attitudes," *Marketing Letters,* 2 (April), 159-170.

Beneke, Justin, Flynn, Ryan, Greig, Tamsin, and Melissa Mukaiwa (2013), "The Influence of Perceived Product Quality, Relative Price, and Risk on Customer Value and Willingness to Buy: A Study of Private Label Merchandise," *Journal of Product & Management*, 22(3), 218-228.

Bhattacherjee, Anol (2002), "Individual Trust in Online Firms: Scale Development and Initial Test," *Journal of Management Information Systems*, 19(1), 211-241.

Boksberger, P.E., and L. Melson (2011), "Perceived Value: A Critical Examination of Definitions, Concepts, and Measures for the Service Industry," Journal of Services Marketing, 25(3), 229-240.

Bose, Indranil and Xinwei Yang (2011), "Enter the Dragon: Khillwar's Foray into the Mobile Gaming Market of China," *Communications of the Association for Information Systems* 29, 551–564.

Bowman, Sarah, L. (2015 March 2), *Bleed: The Spillover Between Player and Character,* Retrieved from https://nordiclarp.org/2015/03/02/bleed-the-spillover-between-player-and-character/.

Burnham, T.A., Frels, J.K. and V. Mahajan (2003), "Consumer Switching Costs: A Typology, Antecedents, and Consequences," *Journal of the Academy of Marketing Science*, 31(2), 109-126.

Cash, J.I., and B.R. Konsynski (1985), "IS Redraws Competitive Boundaries," *Harvard Business Review*, 63(2), 134-142.

Chae Myung-hee, Black, Catherine, and Jeanne Heitmeyer (2006), "Pre-purchase and Post-purchase Satisfaction and Fashion Involvement of Female Tennis Wear Consumers," *International Journal of Consumer Studies,* 30(1), 25-33.

Chaudhuri, Arjun and Morris B. Holbrook (2001), "The Chain of Effects from Brand Trust and Brand Affect to Brand Performance: The Role of Brand Loyalty," Journal of Marketing, 65(April), 81-93.

Chentao, Shen and Wang Yongle (2014), "Online to Offline Business Model"

Cho, Yooncheong, Im, Il, Hilz, Roxane, and Jerry Fjermestad (2002), "The Effects of Post-purchase Evaluations Factors on Online verus Offline Customers Complaining Behavior: Implications for Customer Loyalty," *Advances in Consumer Research,* 29, 318-326.

Childers, T.L., Carr, C.L., Peck, J. and Carson, S. (2001), "Hedonic and utilitarian motivations for online shopping behaviour", Journal of Retailing, Vol. 77 No. 4, pp. 511-35

Chiu, Chao-Min, Wang, Eric, Fang, Yu-Hui, and Huang Hsin-Yi (2014), "Understanding Customers' Repeat Purchase Intentions in B2C E-commerce: The Roles of Utilitarian Value, Hedonic Value, and Perceived Risk," *Information Systems Journal*, 24, 85-114.

Chung, Seungmyeong, Kim, Woosuk, and Young Han Bae (2017), "O2O Trend and Future: Focused on Difference from Each Case," *Journal of Marketing Thought*, 3(4), 49-66.

Churchill, Gilbert A., Jr. and Carol Surprenant (1982), "An Investigation into the Determinants of Customer Satisfaction," Journal of Marketing Research, 19 (November), 491-504.

Cohen, Joel B., and Michael J. Houston (1972), "Cognitive consequences of brand loyalty," *Journal of Marketing Research*, Vol. 9, Feb, P 97-99.

Davenport, T.H. (2000), "Sticky business," *CIO Magazine*, 13(8), 58-60.

Davis, F. D. (1989), "Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology," *MIS Quarterly*, 13(3), 319–340.

Davis, F. D., Bagozzi, R., and P. Warshaw (1992), "Extrinsic and Intrinsic Motivation To Use Computers In The Workplace," *Journal of Applied Social Psychology*, 22(14), 1111–1132.

Davis, Robert, Lang, Bodo, and Neil Gautam (2013), "Modeling Utilitarian-Hedonic Dual Mediation in the Purchase and Use of Games," Internet Research, 23(2), 229-256.

Del Rio BA, Vazquez R, and V Iglesias (2001), "The Effects of Brand Associations on Consumer Response," *Journal of Consumer Marketing*, 18(5), 410-425.

Delone, W.H., and E. R. McLean (2003), "The DeLone and McLean model of Information Systems Success: a Ten-Year Update," *Journal of Management Information Systems*, 19(3), 9-30.

Dholakia, R.R. (1999), "Going Shopping: Key Determinants of Shopping Behaviours and Motivations," *International Journal of Retail and Distribution*, 27(4), 407-428.

Dowling, R., Grahame and Richard Staelin (1994), "A Model of Perceived Risk and Intended Risk-Handling Activity," *Journal of Consumer Research*, 21(1), 119-134.

Featherman, M, and M., Fuller (2003), "Applying TAM to E-services Adoption: The Moderating Role of Perceived Risk," *Proceedings of the 36th Hawaii International Conference on System Sciences (HICSS-36),* Big Island, HI, USA.

Fiore, A., Jon, H. and Kim, J. (2005), "For Fun and Profit: Hedonic Value from Image Interactivity and Responses Toward an Online Store," Psychology and Marketing, 22(8), 669-694.

Fishbein, M. (1980), "A Theory of Reasoned Action: Some Applications and Implications," In H. E. Howe (Ed.), *1979 Nebraska Symposium on Motivation*, Lincoln: University of Nebraska Press.

Griffith, Erin (2014 September 9), *In B2B e-Commerce, Alibaba Has Solved the One Problem Amazon Can't,* Retrieved from http://fortune.com/2014/09/08/alibaba-amazon-b2b-ecommerce/.

Gutman, Jonathan (1982), "A Means-End Chain Model Based on Consumer Categorization Processes," Journal of Marketing, 46(2), 60-72.

Gutman, Jonathan (1997), "Means-end Chains as Goal Hierarchies," *Psychology & Marketing*, 14, 545-560.

Ha, H-Y. (2002), "The Relationships between 3-D Advertisings and Risk Perceptions on the Web: The Mediating Role of Brand and Emotion." *Working Paper*, UMIST, UK.

Ha, J. and S. Jang (2010), "Perceived Values, Satisfaction and Behavioral Intentions: The Role of Familiarity in Korean Restaurants," *International Journal of Hospitality Management*, 29, 2-13.

Ha, I., Yoon, Y., and M. Choi (2007), "Determinants of adoption of mobile games under mobile broadband wireless access environment," *Information & Management*, 44(3), 276–286.

Hanzaee, Heidarzadeh, Kambiz and Saber Porgham Rezaeyeh (2013), "Investigation of the Effects of Hedonic Value and Utilitarian Value on Customer Satisfaction and Behavioral Intentions," *African Journal of Business Management*, 7(11), 818-825.

Heijden, H. (2003), "Factors Influencing the Usage of Website: The Case of Generic Portal in the Netherlands," *Information & Management*, 40(6), 541–549.

Helson, Harry (1948), "Adaptation-Level as a Basis for a Quantitative Theory of Frames of Reference," Psychological Review, 55 (November), 297-313.

Hirschman, Albert O. (1970*), Exit, Voice, and Loyalty*, Cambridge, MA: Harvard University Press.

Hirschman, C., Elizabeth and Morris B. Holbrook (1982), "Hedonic Consumption: Emerging Concepts Methods and Propositions," Journal of Marketing, 46(Summer), 92-101.

Holbrook, Morris and Elizabeth C. Hirschman (1982), "The Experiential Aspects of Consumption: Consumer Fantasies, Feelings, and Fun," Journal of Consumer Research, 9 (September), 132-140.

Horton, L., Raymond (1976), “The Structure of Perceived Risk,” *Journal of the Academy of Marketing Science*, 4, 694–706.

Howard, John A. and Sheth, Jagdish N. (1969), *The Theory of Buyer Behavior*, New York, John Wiley and Sons.

Hsiao, Kuo-Lun, and Chia-Chen Chen (2016), “What Drives In-app Purchase Intention for Mobile Games? An Examination of Perceived Values and Loyalty,” *Electronic Commerce Research and Applications*, 16(2016), 18-19.

Jung, H.S., Kim, K.H., and C.H. Lee (2014), "Influences of Perceived Product Innovation Upon Usage Behavior for MMORPG: Product Capability, Technology Capability, and User Centered Design," *Journal of Business Research*, 67(10), 2171–2178.

Kahneman, Daniel and Amos Tversky (1979), “An analysis of decision under risk,” *Econometrica*, 47, 263-291.

Kamran-Disfani, Omid, Mantrala, K., Murali, Izquierdo-Yusta, Alicia, and María Pilar Martínez-Ruiz (2017), “The Impact of Retail Store Format on the Satisfaction-loyalty Link: An Empirical Investigation,” *Journal of Business Research*, 77, 14-22.

Kang, L.J. and J.B. Sin (2006), “An Analysis on the Determinants of Consumers’ Decision to Purchase Cosmetics by Their Consumption Propensity,” *Journal of Consumption Culture*, 9(4), 83-103.

Kaplan, S., and M. Sawhney (2000), “The New B2B Marketplaces,” *Harvard Business Review*, 78(3), 97-103.

Kim, Jae min, Lee, Young Joo and Lee, Hye Won (2014), “Factors on the Intention to Purchase Charged Items in Mobile Social Network Game,” *Journal of Korea Contents Association*, 14(1).

Kim, Jin Baek (2013), “Understanding the Repurchase Abandonment Process of Consumers in the Online Environment: Integrating Dissatisfaction and Distrust,” *Journal of Internet Commerce*, 12(2), 154-194.

Kim, Ji-Hern, Kang, Hyunmo, and M. Munkhbazar (2011), “Effects of Reward Programs on Brand Loyalty in Online Shopping Contexts,” *Asia Marketing Journal*, 14(2), 39-63.

Kotler, P.H. (1997), *Marketing Management: Analysis, Planning and Control*, 9th ed., Prentice-Hall Inc.

Koufaris, M., “Applying the Technology Acceptance Model and Flow Theory to Online Consumer Behavior,” *Information Systems Research*, 13(2), 205-223.

Lee, J.H. and C. Park (2013), “Antecedents and Consequences of Satisfaction of Social Game,” Korea Marketing Review, 28(2), 135-153.

Lin, Chien-Hsin, Sher, Sher, J., Peter, and Hsin-Yu Shih (2005), "Past Progress and Future Directions in Conceptualizing Customer Perceived Value*," International Journal of Service Industry Management*, 16, 318-336.

Liska, Allen (1984), "A Critical Examination of the Causal Structure of the Fishbein/ Ajzen Attitude-Behavior Model," Social Psychology Quarterly, 47(1), 61-74.

Liu, Y. and H Li (2011), "Exploring the Impact of Use Context on Mobile Hedonic Services Adoption: An Empirical Study on Mobile Gaming in China," *Computers in Human Behaviour*, 27(2), 890-898.

Liu, Z., Charles, Au, A., Yoris, and Hoon Seok Choi (2014), "Effects of Freemium Strategy in the Mobile App Market: An Empirical Study of Google Play," *Journal of Management Information Systems*, 31(3), 326-254.

Lu, H.P. and K.L. Hsiao (2010), "The Influence of Extro/introversion on the Intention to Pay for Social Networking Sites," *Information and Management*, 47(3), 150-157.

Lu, Yunfan, Lu, Yaobin, and Bin Wang (2012), "Effects of Dissatisfaction on Customer Repurchase Decisions in E-commerce- An Emotion-based Perspective," Journal of Electronic Commerce Research, 13(3), 224-237.

Meuter, M. L., Ostrom, A. L., Roundtree, R. I., and M.J. Bitner (2000), "Self-service Technologies: Understanding Customer Satisfaction with Technology-based Service Encounters," *Journal of Marketing*, 64, 50–64.

Murray, K.B. and Bellman, S. (2011), "Productive play time: the effect of practice on consumer demand for hedonic experiences," *Journal of the Academy of Marketing Science*, 39(3), 376-91.

Newman, J. (2004), *Video Games*, Taylor Francis Group, Routledge, London.

Ok, Chihyung, Choi, Young Gin, and Hyun Seunghyup Seon (2011), "Roles of Brand Value Perception in the Development of Brand Credibility and Brand Prestige," *International CHRIE Conference-Refereed Track*. 13.

Okyu (2017 February 26), *Hearthstone: Heroes of Online Gaming Platform,* Retrieved from https://digit.hbs.org/submission/hearthstone-heroes-of-online-gaming-platform/

Oliver, Richard (1980), "A Cognitive Model of the Antecedents and Consequences of Satisfaction Decisions," Journal of Marketing Research, 17(4), 460-469.

Oliver, Richard (1981), "Measurement and Evaluation of Satisfaction Processes in Retail Settings," *Journal of Retailing*, 57, 25-48.

Oliver, Richard (1997), "Satisfaction: A Behavioral Perspective on the Consumer," Boston: Richard D. Irwin/McGraw-Hill.

Olsson, Björn and Louise Sidenblom (2010), "Business Models for Video Games," Master's Thesis, Retrieved from http://lup.lub.lu.se/student-papers/record/1672034/file/1672035.doc.

Olson, J.S., and G. M. Olson (2000), "i2i Trust in E-Commerce," *Communications of the ACM*, 43(12), 41-44.

Park, Minjung (2013), "The Effects of Strategic Alliances of Online Retail Companies and Sales Promotions on Purchase and Recommendation Intentions," *The e-Business Studies*, 14(4), 217-236.

Pavlou, A., Paul and Mendel Fygenson (2006), "Understanding and Predicting Electronic Commerce Adoption: An Extension of the Theory of Planned Behavior," *MIS Quarterly*, 30(1), 115-143.

Perugini, Marco and Richard P. Bagozzi (1999), "The role of desires and anticipated emotions in goal-directed behaviors: expanding and deepening the theory of planned behavior," Working Paper, The University of Michigan, Ann Arbor, MI.

Pine, B. J., & Gilmore, J. H. (1999), "The experience economy," Cambridge: Harvard Business School Press.

Ratiu, A., Bogdan (2016), "A Reversed Engineered Pitch Based on Rietveld (2016), Creating Value Through the Freemium Business Model: A Consumer Perspective*," Accounting and Management Information Systems*, 15(4), 810-818.

Raju, Sekar, H. Rao Unnava, and Nicole Votolato Montgomery (2009), "The moderating effect of brand commitment on the evaluation of competitive brands," *Journal of Advertising*, Vol. 38, No. 2, p21-35.

Ralston, R.W. (2003), "The Effects of Customer Service, Branding, and Price on the Perceived Value of Local Telephone Service," *Journal of Business Research*, 56(3), 201-213.

Rietveld, Joost (2017), "Creating and Capturing Value from Freemium Business Models: A Demand-Side Perspective," Retrieved from SSRN: https://ssrn.com/abstract=2737388 or http://dx.doi.org/10.2139/ssrn.2737388.

Rohm, J., Andrew and Vanitha Swaminathan (2004), "A Typology of Online Shoppers Based on Shopping Motivations," *Journal of Business Research*, 57, 748-757.

Rose, G., Khoo, H., and D. W. Straub (1999), "Current Technological Impediments to Business-to-Consumer Electronic Commerce," *Communications of the AIS*, 1(16), 1-73.

Rychalski, Aude and Sarah Hudson (2017), "Asymmetric Effects of Customer Emotions on Satisfaction and Loyalty in a Utilitarian Service Context," *Journal of Business Research*, 71, 84-91.

Ryu K., Han, H., and Jang S. (2010). "Relationships Among Hedonic and Utilitarian Values, Satisfaction and Behavioral Intentions in the Fast-casual Restaurant Industry," *International Journal of Contemporary Hospitality Management*, 22(3), 416-432.

Sheppard, B., Hartwick, J., and P. Warshaw (1988), "The Theory of Reasoned Action: A Meta-analysis of Past Research with Recommendations for Modifications and Future Research," *Journal of Consumer Research*, 15, 325-343.

Sirdeshmukh, D., Singh, J., and B. Sabol (2002), "Consumer Trust, Value, and Loyalty in Relational Exchanges," Journal of Marketing, 66(1), 15-37.

Soscia, Isabella, Girolamo, Simona, and Bruno Busacca (2010), "The Effect of comparative Advertising on Consumer Perceptions: Similarity or Differentiation?" *Journal of Business and Psychology*, 25, 1067-1073.

Staykova, S., Kalina and Jan Damsgaard (2015.) "The race to dominate the mobile payments platform: Entry and expansion strategies." *Electronic Commerce Research and Applications.* 14 (5), 319–330.

Strahilevitz, Michal A. and John G. Myers (1998), "Donations to Charity as Purchase Incentives: How Well They Work May Depend on What You Are Trying to Sell," Journal of Consumer Research, 24(March), 434-436.

Su, Yu-Shan, Chiang, Wei-Lun, Lee, J., Chin-Tarn, and Han-Chao Chang (2016), "The Effect of Flow Experience on Player Loyalty in Mobile Game Application," *Computers in Human Behavior*, 63, 240-248.

Sullivan Mort, G., and J. Drennan (2005), "Marketing M-services: Establishing a Usage Benefit Typology Related to Mobile User Characteristics," *Database Marketing & Customer Strategy Management*, 12, 327–341.

Sweeney, C., Jillian and Geoffrey N. Soutar (2001), "Consumer perceived value: the development of a multiple item scale," *Journal of Retailing*, 77 (2), 203–220.

Tan, S.J. (1999), "Strategies for Reducing Consumers' Risk Aversion in Internet Shopping," *Journal of Consumer Marketing*, 16(2), 163-180.

Triandis, H. C. (1971), "Attitude and Attitude Change," NY: Wiley.

Tse, David K. and Wilton, Peter C. (1985), "History and Future of Consumer Satisfaction Research," *in Historic Perspective in Consumer Research: National and International Perspectives*, Proceedings of the Association for Consumer Research, National University of Singapore, Jagdish N. Sheth and Chin-Tiang, Tan, eds. 251-6.

Voss, Kevin, Spangenberg, Eric, and Bianca Grohmann (2003), "Measuring the Hedonic and Utilitarian Dimensions of Consumer Attitude," Journal of Marketing Research, 40(3), 310-320.

Wagenheim, F. and T. Bayon (2007), "Behavioural Consequences of Overbooking Service Capacity," *Journal of Marketing*, 71(4), 36-47.
Xing, Xia and Zhu Junxuan (2014), "The Study of O2O Business Model Development Strategy in SMEs," *International Journal of Business and Social Science*, 5(9).
Yi, Youjae (1990), "A Critical Review of Consumer Satisfaction," in *Review of Marketing*, Valerie A. Zeithaml, ed. Chicago, American Marketing Association.
Zhang, Yan and Leilei Gao (2016), "Wanting Ever More: Acquisition Procedure Motivates Continued Reward Acquisition," *Journal of Consumer Research*, 43(2), 230-245.

Exhibit 1

Survey items

Mobile Gameplay Tendencies

1. How many hours do you play mobile games per day?
2. What is the major reason for playing mobile games?
3. How much are you willing to pay for an in-app purchase?
4. What is the main reason for making in-app purchases?
5. How likely are you to stick to a mobile game?

Utilitarian Values

6. I believe that brand value is important for a mobile game
7. I believe that mobile games are easy to use
8. I believe that in-app purchase can save my time in the game
9. I believe that rewards provided in the mobile games are reasonable

Hedonic Values

10. I believe that mobile games are exciting
11. I play as if the character in the game is myself
12. I tend to be deeply engaged in mobile games
13. I gain pleasant feelings when I play mobile games

Risk Values

14. I believe that advertisements tend to carry certain level of risk
15. I believe that mobile games overly induce me to make in-app purchase
16. I believe that personal privacy is an important factor in mobile games

Attitude

17. Overall, I believe that mobile game is a meaningful activity
18. I believe that mobile games are entertaining
19. I believe that mobile game is an important daily activity

Pre-purchase Satisfaction

20. I believe that playing a mobile game is a pleasant experience
21. I am satisfied with mobile games

Pre-purchase Dissatisfaction

22. I am dissatisfied with mobile games as I gain unpleasant feeling
23. I believe that playing a mobile game is an unpleasant experience

Intention to Make In-App Purchase

24. I have the intention to make in-app purchase in the future
25. I believe that in-app purchase is important in mobile game gameplay

Intention to Use O2O Service

26. I believe that such O2O event is effective
27. I believe that such events make me want to play mobile games
28. I have the intention to participate in O2O service in the future.

Post-purchase Satisfaction

29. I believe that result of in-app purchase will give me satisfaction
30. I believe that satisfaction from in-app purchase is important for my future behavior

Post-purchase Dissatisfaction

31. I believe that results of in-app purchase will give me dissatisfaction
32. I believe that I will be less likely to continue playing mobile games if the result of in-app purchase is not satisfactory

Loyalty

33. I believe that higher quality service will increase loyalty toward the game
34. I have the intention to recommend mobile game to my friends
35. I will continue to play the game if I am satisfied

Exit

36. If I am not satisfied with the results of in-app purchase, I will quit playing mobile games
37. If I am not satisfied with O2O service, I will quit playing mobile games
38. Regardless of the results, I will quit playing mobile games after a while

Demographics

39. What is your gender?
40. What is your age?
41. What is your annual income level?
42. What is your educational background?
43. What is your occupation?
44. What is your city of residence?