EXPLORING SOCIAL INFLUENCE ON HEDONIC BUYING OF DIGITAL GOODS - ONLINE GAMES' VIRTUAL ITEMS

Jung-Kuei Hsieh*
Department of Business Administration,
National Taipei University
No. 151, University Road, San Shia District, New Taipei City 23741, Taiwan
hsiehjk@gm.ntpu.edu.tw

Ching-Yin Tseng
Department of Business Administration,
National Taipei University
No. 151, University Road, San Shia District, New Taipei City 23741, Taiwan
jeantseng16@gmail.com

ABSTRACT

Marketers and scholars are interested in the development of digital goods because of the growing popularity and profitability of these goods. The online game environment provides a perfect setting for investigating hedonic buying of digital goods. Using social influence theory and the theory of sense of community, we developed a research model to investigate the influence of online and offline social groups on consumers' purchase decisions. Partial least squares structural equation modeling was used to analyze the data. The analysis yielded several findings. Online and offline social influences affect purchase intentions. Happiness has a complementary mediating effect on the relationship between online informational influence and purchase intention. Happiness also has an indirect-only mediating effect on the relationships between offline informational influence and purchase intention, and between offline normative influence and purchase intention. Sense of virtual community and sense of community moderate the effects of social influence on happiness and social influence on purchase intention for online and offline social groups, respectively. These findings extend our knowledge of social influence and digital goods and have implications for online businesses.

Keywords: Digital goods; Online games; Social influence theory; Theory of sense of community; Happiness

1. Introduction

Digital goods are goods that can be expressed in bits, so they have no material substance and do not have a physical material form [Lehdonvirta 2012; Loebbecke 2002]. According to the definition of digital goods, they are transacted and used only in the online environment, and digital objects that only appear on an individual's computer or that vanish after the computer is turned off are not digital goods [Hamari 2015; Lehdonvirta 2009]. Like material goods that provide hedonic and utilitarian value to customers [Wohlfeil & Whelan 2006], hedonic-oriented digital goods (e.g., online games) bring consumers aesthetic pleasure through affective and sensory experiences. In contrast, utilitarian-oriented digital goods (e.g., image editors) offer functional or performance advantages [Lehdonvirta 2009; Ozuem et al. 2017]. People's need for entertainment products is growing, and online companies that offer digital goods are eager to generate real revenues from the virtual world [Lambrecht et al. 2014]. Therefore, further empirical research is needed to determine what facilitates consumers' hedonic buying of digital goods.

Unlike buyers of utilitarian goods, consumers of hedonic goods tend to refer to others' opinions, advocacy, and reactions when purchasing hedonic goods [Candi et al. 2016]. The attributes of utilitarian goods are more objective, functional, and tangible [Clement et al. 2006]. Therefore, utilitarian goods can more easily be evaluated using standard criteria. Evaluation of hedonic goods relies more on other consumers' shared experiences than does evaluation of utilitarian goods [Candi et al. 2016; Moretti 2011]. The perspective of social influence therefore offers a suitable perspective from which to explore hedonic buying of digital goods. The interpersonal influence of peer communication and interaction can substantially affect people's behaviors in terms of perceptions of uncertainty and decision-making processes [Adjei et al. 2010; Wang & Chang 2013]. Scholars have used the theory of social influence (i.e., informational influence and normative influence) to understand consumers' purchase behaviors [Burnkrant &

---

* Corresponding Author

Cousineau 1975; Deutsch & Gerard 1955]. For example, online peer communication can determine product attitude, which in turn influences purchase intention [Wang et al. 2012]. Investors' decisions (e.g., number of transactions) can also be explained from the perspective of social influence [Hoffmann & Broekhuizen 2009]. However, most social influence studies have considered just one source of social influence: either online or offline. Few studies have considered online social influence and offline social influence simultaneously. Face-to-face communication in the real world leads to more positive performance feedback, persuasive power, and satisfaction of interaction than computer-mediated communication does [Cappel & Windsor 2000; Hebert & Vorauer 2003]. Face-to-face communication of the offline environment thus facilitates group cohesion of social groups [Shin & Song 2011]. Offline social groups with face-to-face communication and strong group cohesion may notably affect members' purchase decisions when buying digital goods. To address this unexplored issue, we consider how the social influence of online and offline social groups affect consumers' purchase intentions.

Hedonic buying can fulfill consumers' experiential needs, and it is associated with a sense of happiness [Alba & Williams 2013; Guevarra & Howell 2015; Zhong & Mitchell 2010]. Hedonic goods can more effectively bring happiness than utilitarian goods can [Caprariello & Reis 2013; Van Boven & Gilovich 2003]. Therefore, sense of happiness may play an important role in the hedonic buying of digital goods. In addition, social approval and acceptance derived from normative conformity may enhance happiness [Stavrova 2014]. Social relationships and interactions with social groups are associated with a sense of happiness [Caprariello & Reis 2013]. Accordingly, in the context of hedonic buying of digital goods, social influence may encourage consumer happiness, which in turn affects consumers' purchase decisions. However, few studies have empirically tested these relationships. This study thus bridges the gap in the literature, providing insight into the hedonic buying of digital goods.

Group-level factors (e.g., sense of community) may influence members' behaviors [Chih et al. 2017; Tsai et al. 2012]. Groups can affect members' behaviors through group norms and members' informational states, especially for members with strong ties to the group [Hackman 1992]. According to the theory of sense of community [McMillan & Chavis 1986], a social group member with a stronger sense of community will have a stronger feeling of belonging and identification with that group and may thus experience a greater effect from that group's social influence [Chih et al. 2017; Hsu et al. 2016]. This perspective implies that sense of community may act as a moderator and that the impact of social influence may vary depending on the individual's sense of community. Likewise, the sense of virtual community [Koh & Kim 2003], a concept derived from sense of community, may also moderate the effect of online social influence. Therefore, in our research model, sense of community and sense of virtual community are considered as moderators to investigate the effect of social influence on consumers' purchase intentions.

Purchasing virtual items in online games can be regarded as hedonic buying of digital goods [Ozuem et al. 2017]. Although online games have become important entertainment activities [Liao et al. 2016], most online game studies have focused on the continuance of play rather than purchase behaviors [e.g., Huang et al. 2017; Liao et al. 2016]. Because many online games are free to play [Hamari 2015], investigating the factors that affect the purchase of virtual items in online games is beneficial to help practitioners develop revenue models. Furthermore, many online games (e.g., World of Warcraft) need players to form virtual groups. Therefore, purchasing virtual items in online games is a suitable context for this study. In sum, the aim of this study is to investigate how the influences of online and offline social groups affect consumers' hedonic buying of digital goods. Happiness is considered as a mediator, whereas sense of community and sense of virtual community are considered as moderators.

This study contributes to the literature in several ways. First, the findings contribute to social influence theory by describing the impact of social influence on consumers' purchase intention in the context of digital goods. In particular, our research model considers the social influence of both online and offline social groups. Second, few studies have investigated the mediating role of happiness in the context of purchasing digital goods. Third, this study sheds light on how group-level factors (i.e., sense of community and sense of virtual community) derived from the theory sense of community may moderate the relationship between individual-level factors (e.g., social influence and purchase intention). Accordingly, this study enhances our understanding of social influence and digital goods, and offers insights for practitioners of online games.

This article is organized as follows: In the next section, we provide the theoretical background and develop the research hypotheses based on social influence theory, the theory of sense of community, and happiness. We then describe the research method and present the results of the data analysis. Finally, we conclude by discussing all findings, implications, limitations, and future research opportunities.

2. Literature Review
2.1. Social Influence Theory
Social influence can be defined as a type of conformity where an individual agrees with other members of a social group [Jahoda 1959]. Conformity due to social influence can change people's behaviors, attitudes, or beliefs [Aronson

et al. 2010]. According to the dual-process perspective [Burnkrant & Cousineau 1975; Deutsch & Gerard 1955], there are two types of social influence: informational and normative. Informational influence, also called accuracy-based conformity, refers to the extent to which people follow the opinions or actions of social groups to make correct judgments under conditions of uncertainty because others' advice provides accurate information [Bearden et al. 1989; Park & Lessig 1977; Winterich & Nenkov 2015]. For example, when choosing between two similar restaurants, people usually prefer the restaurant with more customers [Kuan et al. 2014]. In the literature, informational influence has been referred to as "the bandwagon effect," "herd behavior," and "social proof" [Kuan et al. 2014]. Normative influence, also called approval-based conformity, refers to the extent to which people comply with the expectations of other members of social groups to obtain status or social approval [Bearden et al. 1989; Park & Lessig 1977; Winterich & Nenkov 2015]. People often perceive social pressure from someone in their social group and consequently decide to perform a specific behavior [Zhu & Chen 2016]. Normative influence is also referred to as "subjective norm," which is a key construct of the theory of planned behavior. Normative influence is exerted by social groups such as family, relatives, and peers [Ajzen 1991; Zhu & Chen 2016].

The theory of social influence (i.e., informational and normative influence) has been widely adopted to explain consumer behaviors. For example, in the online environment, social influence can help form product attitude and affect purchase intention [Wang et al. 2012]. Online group-buying behavior is affected by the informational and normative influences of other online consumers [Kuan et al. 2014]. In the offline environment, investors' transaction frequency is affected by susceptibility to informational and normative influences [Hoffmann & Broekhuizen 2009]. Normative influence affects consumers' purchase intentions for products from different countries [Huang et al. 2010]. Although studies have examined the effect of social influence on consumers' purchase decisions across a range of contexts, these studies have focused exclusively on either online or offline social influence. Yet the prevalence of the Internet means that consumers' purchase behaviors span online and offline environments [Chou et al. 2016]. Because social influence is a determinant of consumers' purchase behaviors in online and offline environments, considering both online and offline social influences may be valuable for investigating consumers' purchase behaviors. To address this unexplored issue and extend our knowledge of social influence, we included both online and offline social influences in the research model.

2.2. Online Games and Happiness

The online game industry is a high-competition, high-growth industry that is expected to be worth US$118 billion in 2019 [Newzoo 2016]. To attract more players, many online games are free to play [Hamari 2015]. Online game producers cannot survive without profits, however, so selling virtual items has become a vital revenue stream [Hamari 2015]. Virtual item transactions are growing fast. Players can buy extra lives, avatar clothing, or better weapons that are useable only in the game environment [Hamari 2015]. Investigating purchase behaviors in virtual games can fill the gap left by studies that have focused only on loyalty in online game play [e.g., Huang et al. 2017; Liao et al. 2016].

The online game industry is a suitable setting to study hedonic buying [Yang & Mai 2010] because playing online games is essentially a hedonic activity [Davis et al. 2013]. Virtual items of online games are the experiential and hedonic products that typically provide consumers with hedonic rewards [Huang 2012; Liu et al. 2015]. Hedonic products can bring an affective, sensory experience of fun, pleasure, and enjoyment that fulfills consumers' experiential needs and enhances consumers' sense of having a meaningful life [Alba & Williams 2013; Zhong & Mitchell 2010]. Therefore, hedonic buying is strongly associated with a sense of happiness [Guevarra & Howell 2015; Hsieh et al. 2017]. A sense of happiness refers to the propensity to experience positive emotions such as joy, contentment, or well-being, which provide a sense of having a good, meaningful, worthwhile life [Hellén & Sääksjärvi 2011]. Happiness and subjective well-being are often viewed as synonyms [Hwang & Kim 2017; Nicolao et al. 2009]. For this study, we adopted Hwang and Kim's [2017] definition of happiness as the positive emotion or feeling derived from purchasing a virtual item, including the immersion experience and emotional satisfaction. The most notable characteristic of the hedonic buying of experiential products is its inherently social nature [Bhattacharjee & Mogilner 2014]. Consumers tend to consider whether the hedonic buying of an experiential product will enable them to relate to others in a meaningful way [Guevarra & Howell 2015] and thereby lead to happiness.

Online games, which are a new kind of hedonic product, require further research because of their remarkable contribution to economic growth and their growing popularity [Hamari 2015; Liu et al. 2015]. In the context of online games, few studies have explored the influence of social groups on consumer happiness and purchase behaviors. This study addresses this gap in the literature to give marketers deeper insight into hedonic buying.

2.3. Theory of Sense of Community and Sense of Virtual Community

A community is a social group in which people interact with each other and participate in discussions or collective decision-making [Bellah et al. 2007; Tönnies 1955]. The original definition of community (i.e., locational community) restricted that community to a specific physical location (e.g., neighborhood or town). The new definition of community (i.e., relational community) emphasizes the relational interactions or social ties that draw people together

to share common interests or issues (e.g., hobby clubs or religious groups) [Bess et al. 2002; Hsu & Liao 2014]. Sense of community (SOC) refers to the idea that most people want to be part of a larger network of relationships to fulfill their needs to belong, have intimacy, experience diversity, and be useful [Sarason 1974]. Scholars have employed SOC to explain people's behaviors in various types of groups in the workplace [Gupta et al. 2014], classroom [Ferreira & Trudel 2012], and financial services industry [Fraering & Minor 2006]. The most widely accepted SOC index is based on four components: membership, influence, fulfillment of needs, and shared emotional connection [McMillan & Chavis 1986; Perkins et al. 1990].

Membership means that people perceive that they are members of a specific group because they invest part of themselves in that group and have a sense of belonging or interpersonal relatedness within the group [Bess et al. 2002; Rosenbaum et al. 2005].

Influence refers to people's perceptions of making a difference to the group and experiencing an influence from the group [Bess et al. 2002; Chavis et al. 1986].

Fulfillment of needs is the perception that people's needs will be met via their commitment to the group [Bess et al. 2002; McMillan & Chavis 1986].

Shared emotional connection refers to a feeling of attachment or bonding derived from people's shared history, place, and experiences within the group [Bess et al. 2002; Rosenbaum et al. 2005].

Sense of community has been confirmed as a facilitator of offline community interaction, but it has also been applied to the Internet community in the form of sense of virtual community (SOVC) [Cheng et al. 2012; Koh & Kim 2003]. SOVC, however, may differ somewhat from SOC. Koh and Kim [2003] argue that fulfillment of needs and shared emotional connection should be excluded from SOVC because fulfillment of needs (e.g., enjoyment or usefulness) is an antecedent rather than a component of SOVC, and emotional connection correlates strongly with membership in the online context. Koh and Kim [2003] also argue that the feeling of flow during virtual community navigation is critical in the online context. They therefore define SOVC using two of SOC's components (i.e., membership and influence) and a new component (i.e., immersion). The SOVC model with three components has been widely adopted to investigate online groups [e.g., Chen et al. 2013; Cheng et al. 2012; Tsai et al. 2011].

The concepts of SOC and SOVC are thus well suited to explaining how a sense of belonging, a sense of mattering, a shared faith that members' needs will be met, and a feeling of attachment or bonding to a specific group affect an individual's behaviors in this group in offline and online contexts [Cheng et al. 2012; Rosenbaum et al. 2005]. SOC/SOVC can be viewed as a source of group-level power to influence an individual's behaviors. Group members with high levels of SOC/SOVC often have more interactions with other members and care more about suggestions from members of the group [Hsu & Liao 2014]. In other words, the impact of social influence may vary depending on the level of SOC/SOVC. This study focused on the social influence of offline and online groups, so SOC and SOVC are considered as moderators in our research model and are manipulated as formative second-order factors.

3. Hypotheses

Figure 1 illustrates our research model. The model suggests that social influence (i.e., informational influence and normative influence) affects happiness and purchase intention. In the model, SOC and SOVC are formative second-order factors that moderate the impacts of social influence on happiness and purchase intention.

3.1. Online/Offline Social Influence, Happiness, and Purchase Intention

Informational influence and normative influence are two factors of social influence [Burnkrant & Cousineau 1975; Deutsch & Gerard 1955]. A high informational influence means that people believe others' advice represents accurate information [Kuan et al. 2014]. People thus tend to consult others and accept others' opinions under conditions of uncertainty [Bearden et al. 1989; Park & Lessig 1977]. Guidance, advice, and information from social groups can help solve the decision problem of purchasing a virtual item. Support in the form of useful information improves one's sense of happiness [Siedlecki et al. 2014]. Therefore, when social groups suggest action, provide information and assistance in uncertain circumstances, and share experiences of similar situations, individuals feel supported and perceive a sense of happiness [Kim & Lee 2011; Weiser 2001].

Requesting and receiving information from social groups is one type of communication that not only enhances people's social involvement, but also improves the quality of friendships that contribute to an individual's sense of happiness [Valkenburg & Peter 2007; Weiser 2001]. Discussions and conversations with others in relation to a specific purchase can contribute to consumer happiness [Thomas & Millar 2013]. In this study, we proposed hypotheses to test whether requesting and receiving information from online and offline social groups increase people's sense of happiness because doing so builds bridges, creates bonds, and maintains social connections with other people.

H1a: Online informational influence is positively related to happiness.

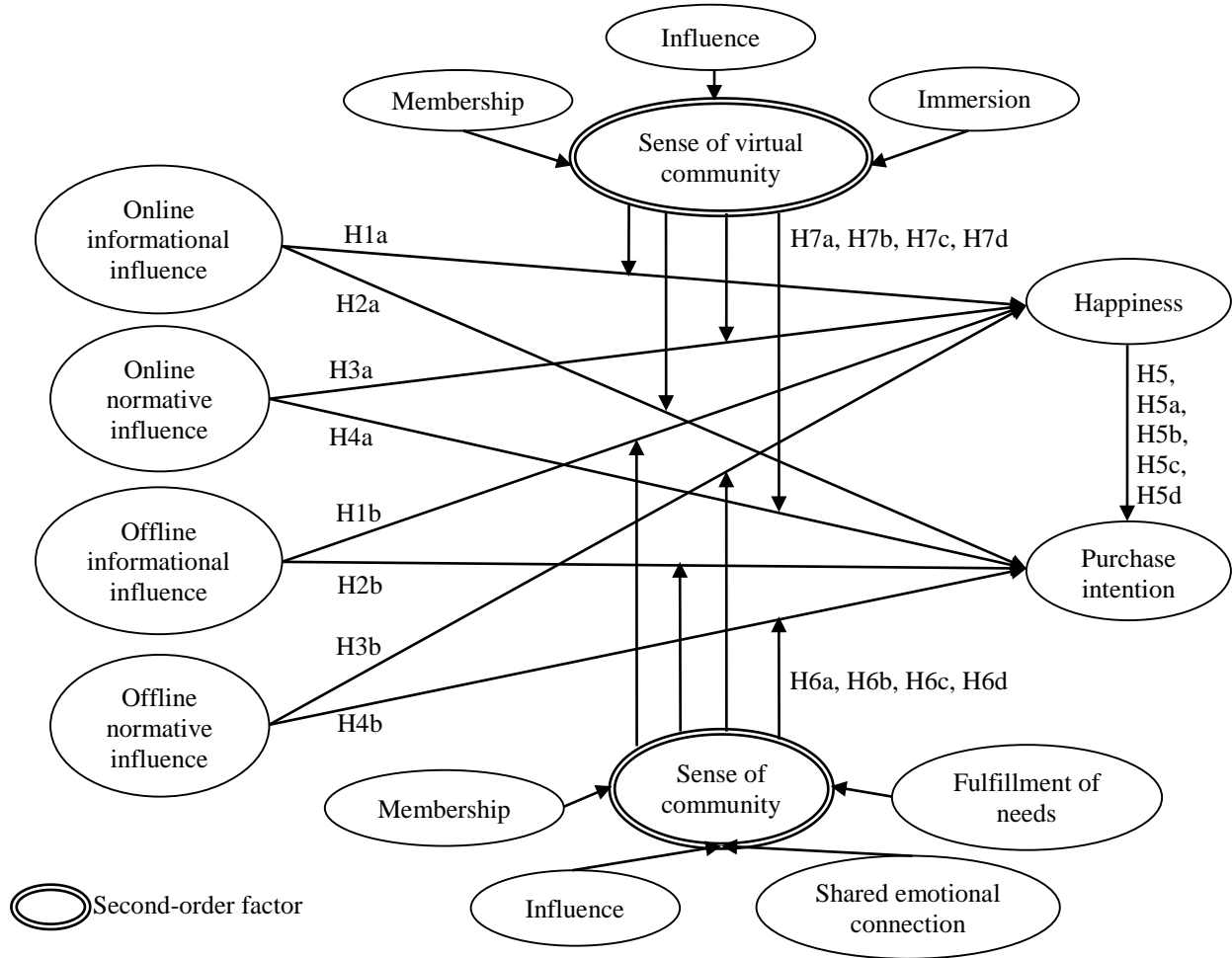*H1b*: Offline informational influence is positively related to happiness.

Figure 1: Research Model

Informational influence can be viewed as the tendency to accept information from knowledgeable/experienced people or to passively observe others during the product search process [Bearden et al. 1989; Park & Lessig 1977]. Accordingly, people who perceive high informational influence will learn about product information from other members of their social group when they make a purchase decision. Through informational influence, people can obtain product evaluations that affect their final decisions by consulting knowledgeable, experienced members of their social group [Wang et al. 2012]. Because herd behavior or accepting others' judgments may help individuals make appropriate decisions [Winterich & Nenkov 2015], informational influence has been confirmed as a determining factor of purchase decisions in the online environment [Kuan et al. 2014] and offline environment [Hoffmann & Broekhuizen 2009]. In this study, we investigated the determinants of consumers' purchase intentions for any virtual item rather than a particular virtual item in online games. We thus assumed that accepting information from experts or observing what experts buy helps consumers correctly choose virtual items. Accordingly, we adopted an integrated perspective to predict that offline and online social groups exert an informational influence on purchasing virtual items in online games. The recommendations and suggestions from peers—both in the real world and on the Internet—can affect consumers' purchase intentions for digital goods.

H2a: Online informational influence is positively related to purchase intention.
H2b: Offline informational influence is positively related to purchase intention.

Normative influence can affect people via the reward system in their social group [Bickart & Schindler 2001], so it offers a positive incentive for people to conform to the rules of a specific social group. Adherence to group norms can increase one's sense of belonging and improve one's position in a specific group, thereby increasing one's happiness [Baumeister & Leary 1995; Rimal et al. 2005]. Furthermore, purchase behaviors based on normative influence to maintain a social relationship contribute to people's sense of happiness [Caprariello & Reis 2013; Diener & Seligman 2004]. According to social comparison theory [Festinger 1954], people compare and imitate the members

of their social group to create a sense of satisfaction or build confidence. Consumption emulation theory also suggests that people obtain satisfaction from emulating their social group's consumption behaviors [Douthitt et al. 1992; Duesenberry 1949]. Accordingly, the normative influence of online and offline social groups can lead people to feel happy.

H3a: Online normative influence is positively related to happiness.

H3b: Offline normative influence is positively related to happiness.

Within a social group, normative influence causes people to modify their judgments and behaviors to imitate the actions of other group members or follow group norms [Kuan et al. 2014]. Based on a reward or punishment system, people behave as the social group expects [Bickart & Schindler 2001]. To be rewarded or avoid punishment in a social group, people comply with group norms and conform to the expectations of other group members [Bearden & Etzel 1982; de Valck et al. 2009]. This tacit force, referred to as normative influence, creates social pressure that induces people to buy a specific product because people without that product are treated as asocial. Normative influence has been shown to be positively associated with consumer behaviors of online shopping [Zhu & Chen 2016], investment decisions [Hoffmann & Broekhuizen 2009], and the selection of products in different real-world countries [Huang et al. 2010]. The theory of planned behavior echoes social influence theory by stating that an individual's behavioral intention is affected by perceptions of the thoughts of important people close to that individual [Ajzen 1991; Burnkrant & Cousineau 1975]. In the context of online games, this study explored the antecedents of consumers' purchase intentions for any virtual item rather than a specific virtual item. We postulated that consumers choose virtual items that enhance their personal image within the social group or follow other members' preferences when choosing virtual items in online games. Accordingly, drawing on the integrated viewpoint, we hypothesized that people would be affected by normative influences from their online and offline social groups when purchasing digital goods.

H4a: Online normative influence is positively related to purchase intention.

H4b: Offline normative influence is positively related to purchase intention.

3.2.   Happiness and Purchase Intention

Consumers' emotions are powerful predictors of purchase intentions [Hansen 2005]. Positive emotions (e.g., happiness) are strongly related to goal attainment, which usually results in the decision to continue with a plan [Bagozzi et al. 1999]. In the purchase context, happiness can encourage consumers to continue shopping. According to the heuristic-systematic model [Chaiken 1980], positive emotions can cause the heuristic mode to positively affect purchase intention in the context of online games [Zhu & Chang 2015]. Labroo and Patrick [2009] found that happy consumers had greater purchase intentions after viewing an advertisement. Hwang and Kim [2017] also indicated that happiness can increase purchase intention. Accordingly, we assumed that happiness affects consumers' purchase intentions.

H5: Happiness is positively related to purchase intention.

Social influence can be viewed as a cognitive process [Schmitz & Fulk 1991]. In terms of informational influence, people evaluate whether the acceptance of informational influence can maximize personal value and whether the information source is credible [Burnkrant & Cousineau 1975; Kelman 1961]. In terms of normative influence, people estimate whether the act of complying with group norms and conforming to the expectations of other members yields a reward or helps them avoid punishment [Bearden & Etzel 1982; Burnkrant & Cousineau 1975]. Furthermore, happiness can be treated as an emotional factor that influences people's behaviors [Cohn et al. 2009; Hwang & Kim 2017].

According to the cognition-emotion-intention model [Lazarus 1991b], cognition is the antecedent of emotion, which then influences intention of behavior. Cognition is a necessary and sufficient condition for emotion [Lazarus 1991a]. Accordingly, cognition can produce emotions, and emotions cannot be generated without some cognition. In this study, the factors of social influence represented the role of the cognition dimension, whereas happiness represented the role of the emotion dimension. Based on the cognition-emotion-intention model [Lazarus 1991b], we assumed that social influence factors affect happiness, which in turn facilitates purchase intention. In other words, we tested whether happiness mediates the relationships between each of the four factors of social influence and purchase intention.

H5a: The effect of online informational influence on purchase intention is mediated by happiness.

H5b: The effect of online normative influence on purchase intention is mediated by happiness.

H5c: The effect of offline informational influence on purchase intention is mediated by happiness.

H5d: The effect of offline normative influence on purchase intention is mediated by happiness.

3.3.   The Moderating Role of SOC and SOVC

SOC is rooted in interactions among members connected by similar interests or common goals [Westheimer & Kahne 1993]. Because discussing purchase decisions with others can contribute to consumer happiness [Thomas & Millar 2013], individuals with stronger SOC spend more time communicating with other members of the social group

and may thus perceive greater happiness. Accordingly, members with strong SOC may tend to exchange information with other members through face-to-face interaction [McMillan & Chavis 1986], thereby enhancing perceptions of happiness. Furthermore, social group members with strong SOC care more about information from this group than from other groups and expend greater effort processing this information [Hsu & Liao 2014]. Therefore, we assumed that offline informational influence has a greater effect on purchase decisions by individuals with high SOC than on purchase decisions by individuals with low SOC.

According to the theory of planned behavior [Ajzen 1991], individuals are more likely to perform behaviors that are encouraged by others who are important to them. Furthermore, the perception of conforming to other members of social groups and acceptance by these group members can produce a greater sense of happiness [Caprariello & Reis 2013]. Social group members with stronger SOC have closer relationships with other group members, and these members become important to them. High-SOC consumers have stronger social connections and bonds with group members. These exceptionally strong bonds mean that normative influence plays a key role in these high-SOC consumers' behaviors. Thus, the social norm of the group is more likely to be internalized by high-SOC consumers, who take other members' opinions particularly seriously [Zhao et al. 2012]. Accordingly, we predicted that the effects of the offline normative influence of a social group on happiness and purchase intention are stronger for people with high SOC than for people with low SOC. Four hypotheses of the moderating role of SOC were proposed.

H6a: The positive relationship between offline informational influence and happiness is stronger for consumers with high SOC than for consumers with low SOC.

H6b: The positive relationship between offline informational influence and purchase intention is stronger for consumers with high SOC than for consumers with low SOC.

H6c: The positive relationship between offline normative influence and happiness is stronger for consumers with high SOC than for consumers with low SOC.

H6d: The positive relationship between offline normative influence and purchase intention is stronger for consumers with high SOC than for consumers with low SOC.

Without the constraints of geographical location and physical interaction, people can form online groups based on common interests and build SOVC [Kardaras et al. 2003; Keng et al. 2015]. Online social group members with high SOVC often have strong feelings of belonging and identification with the group [Tonteri et al. 2011]. Therefore, high-SOVC members of an online social group may have fewer misgivings about the information from this group because they believe that other members will not intentionally cheat them. Accordingly, the informational influence on high-SOVC members may be greater than the informational influence on low-SOVC members. For example, receiving purchase hints or tips from other members of the group leads to a sense of support and happiness [Kim & Lee 2011; Weiser 2001], so the happiness induced by informational influence may be enhanced among high-SOVC members because they have a greater sense of immersion and belonging to their online groups. Furthermore, other members' purchase suggestions may be more persuasive for high-SOVC members because they feel "in the group" and feel they have close relationships with other members. Luo et al. [2015] also found that the message credibility of a virtual community is stronger for members with high sense of membership than for members with low sense of membership. Members with low SOVC have less of a sense of belonging and mattering, leading to low involvement or participation [Lin 2008]. Therefore, informational influence may have a weaker effect on low-SOVC members' purchase intentions and perceptions of happiness.

The high tendency to conform to the expectations of social groups may strengthen the effect of normative influence. When members have high SOVC, they sense that the group exerts a stronger influence on them. They thus perceive greater normative expectations from other members [Rosenbaum et al. 2005]. Because conformity and gaining acceptance within social groups can enhance members' sense of happiness [Caprariello & Reis 2013], we predicted that consumers who modify their attitudes and behaviors according to other members' expectations achieve a greater sense of happiness when they have high SOVC. Although members of online social groups communicate with each other exclusively in the virtual world, the normative influence of these online members can affect people's behaviors (e.g., purchase decisions) [Pentina et al. 2008]. Members with high SOVC often sense that the group has some influence on them and feel a strong inclination to follow other members' behaviors [Cialdini & Goldstein 2004], so the normative pressures from this group may exert a strong effect on high-SOVC members' purchase intentions. Therefore, we predicted that the positive effect of normative influence on members' purchase intentions is stronger for members with high SOVC. On the contrary, members who have low SOVC and feel outside an online social group may comply less with other members' expectations. Consequently, the effects of normative influence on members' purchase intentions and perceptions of happiness may weaken. Four hypotheses of the moderating role of SOVC were proposed.

H7a: The positive relationship between online informational influence and happiness is stronger for consumers with high SOVC than for consumers with low SOVC.

H7b: The positive relationship between online informational influence and purchase intention is stronger for consumers with high SOVC than for consumers with low SOVC.

H7c: The positive relationship between online normative influence and happiness is stronger for consumers with high SOVC than for consumers with low SOVC.

H7d: The positive relationship between online normative influence and purchase intention is stronger for consumers with high SOVC than for consumers with low SOVC.

Finally, studies have identified several factors that affect consumer loyalty and purchase behaviors in the online game industry, so we included six control variables to enhance the rigor of our study. First, consumers with greater experience in a specific online game have more skill and knowledge of that game, which enhances their loyalty [Liao & Teng 2017]. Therefore, the number of months of experience in this online game was the first control variable included in this study. Second, if consumers spend more time on an online game, it implies that they have greater enthusiasm and loyalty for this game [Liao & Teng 2017]. Therefore, this study used the average number of minutes per day spent playing the online game as the second control variable. The third control variable was personal income because purchase intentions of consumers are greatly influenced by their income [Qing et al. 2012]. The other control variables were age, gender, and education level, which have been widely used as control variables in online game studies [Liao et al. 2016; Teng 2017].

4. Method
4.1. Data Collection

We conducted an online survey using an electronic questionnaire that was open to public. Following the approach of other online game studies [e.g., Kong et al. 2012; Liao & Teng 2017; Moon et al. 2013; Teng 2017], we posted invitations on popular online game Facebook pages, forums, and community websites (e.g., www.gamer.com.tw, www.gamebase.com.tw, and www.ptt.cc). The research setting was Taiwan, a critical location in the global online game industry and a good sample source for studies of online games [Commerce Development Research Institute 2016; Liao et al. 2016; Teng 2017]. Online gamers who consented to participate clicked a link in the invitation to access the online questionnaire. To qualify to participate in this study, respondents answered two screening questions: (1) When was the last time you played online games? (2) Have you purchased virtual items in the past six months? Only respondents who had played online games in the last week and had purchased virtual items in the past six months qualified. The qualified respondents read the instructions (Appendix A).

Respondents were also informed that they would be entered into a lottery with prizes worth a total of US$300 in gift certificates. Finally, 605 valid questionnaires were collected. Among the respondents, 496 were male (82%), and 109 were female (18%). The majority of respondents were aged between 20 and 29 years (66.3%), and most respondents had a bachelor's degree (69.8%). Detailed demographic data for our sample appear in Table 1. Nonresponse bias was tested by comparing the respondent profiles of early and late waves of returned surveys [Armstrong & Overton 1977; Moon et al. 2013]. We classified respondents into three groups based on when they returned the survey. We used analysis of variance (ANOVA) to evaluate the extent to which later respondents systematically differed from earlier respondents. The results revealed no significant differences, suggesting that nonresponse bias was not a problem.

4.2. Measurement

All measurement items used a seven-point Likert-type scale. Items were adapted from the literature wherever possible. We adapted four items from Park and Lessig [1977] and Bearden et al. [1989] to measure informational influence. We also adapted six items from Park and Lessig [1977] and Bearden et al. [1989] to measure normative influence. Informational influence and normative influence were adapted to fit the online and offline contexts. Three items were adapted from Wang et al. [2012] to measure purchase intention. Five items were adapted from Diener et al. [1985], Chiu et al. [2013], and Hwang and Kim [2017] to measure happiness. Eight items were adapted from Perkins et al. [1990] and Obst and White [2004] to measure sense of community. Eight items were adapted from Cheng et al. [2012] to measure sense of virtual community. Following Banville et al.'s [2000] guidelines, all items were translated from English to Chinese and then back into English to ensure accuracy. Two experts in marketing and information systems assessed the face validity of the measurement items and concluded that the items were suitable for this study.

Table 1: Sample Demographics (N = 605)

Item	Category	Count	Percentage (%)
Gender	Male	496	82.0
	Female	109	18.0
Age (years)	Under 20	160	26.4
	20–29	401	66.3
	30–39	44	7.3
Education	Junior high school	12	2
	Senior high school	83	13.7
	Undergraduate	422	69.8
	Graduate school	88	14.5
Income (USD)	Over 2000	6	1.0
	1000–1999	40	6.6
	500–999	73	12.1
	100–499	346	57.2
	Under 100	140	23.1
Name of online game	League of Legends	152	25.1
	Tower of Saviors	135	22.3
	Puzzle & Dragons	101	16.7
	Hearthstone	68	11.2
	World of Warcraft	53	8.8
	Others	96	15.9
Months of experience in this online game	Over 100	6	1.0
	50–99	33	5.5
	10–49	463	76.5
	Under 10	103	17.0
Minutes per day spent on this online game	Over 180	72	11.9
	121–180	135	22.3
	61–120	209	34.5
	30–60	177	29.3
	Under 30	12	2.0

5. Results

We used partial least squares structural equation modeling (PLS-SEM) in SmartPLS 3.2.7 and SPSS 20 to test the research model. The variance-based approach of PLS-SEM was suitable for this research context for three reasons [Hair et al. 2011]. First, the aim of the analysis was to develop a prediction model. Second, the method imposed minimal restrictions in terms of the normal distribution of the data. Third, indicators were reflective and formative.

5.1.   Measurement Properties of Constructs

As Table 2 shows, the values for Cronbach's α and composite reliability (CR) for the reflective constructs were all greater than .90 and .93, respectively. The average variance extracted (AVE) values exceeded .71, and the factor loadings ranged from .80 to .99. All values thus met the criteria for reflective construct reliability and validity [Hair et al. 2006]. The validation of formative constructs differs from the validation of reflective constructs [Diamantopoulos & Winklhofer 2001; Lowry & Gaskin 2014]. We therefore followed the suggestions of Han et al. [2015] and Peng and Lai [2012] to validate the second-order formative constructs. As Table 3 shows, all values of the item weights were statistically significant and greater than .10, and the signs of the item weights were positive, consistent with the theoretical foundation of SOC and SOVC [Han et al. 2015; Peng & Lai 2012]. The results also showed that there was no multicollinearity among the first-order factors because the variance inflation factor (VIF) values were less than 5, as recommended by Hair et al. [2011]. Two measures were used to establish discriminant validity. First, the results of the heterotrait-monotrait ratio (HTMT) in Table 4 show that all values were less than the threshold of .85 [Henseler et al. 2015]. Second, the square root of the AVE of each construct was greater than the correlations between the construct and other constructs in the model (Table 5) [Fornell & Larcker 1981].

Table 2: Measurement Properties of Reflective Constructs

Construct/Item	λ	α	CR	AVE
Online Informational Influence		.93	.95	.82
1. I seek information from friends in [the online group] as experts who know the virtual items.	.83			
2. I frequently gather information from friends in [the online group] about virtual items before I buy them.	.93			
3. What friends in [the online group] do influences my choice of virtual items.	.94			
4. To make sure I buy the right virtual items, I often observe what friends in [the online group] are buying and using.	.93			
Online Normative Influence		.95	.96	.79
1. To satisfy the expectations of friends in [the online group], my decision to purchase virtual items is influenced by their preferences.	.88			
2. My decision to purchase virtual items is influenced by the preferences of friends in [the online group] who have social interactions with me.	.89			
3. I feel that the purchase or use of virtual items will enhance the image that friends in [the online group] have of me.	.91			
4. I feel that friends in [the online group] who purchase or use virtual items possess the characteristics that I would like to have.	.92			
5. I feel that the people who purchase virtual items are admired or respected by friends in [the online group].	.84			
6. I feel that the purchase of virtual items helps me show friends in [the online group] who I am.	.88			
Offline Informational Influence		.92	.94	.80
1. I seek information from friends in [the offline group] as experts who know the virtual items.	.89			
2. I frequently gather information from friends in [the offline group] about the virtual items before I buy them.	.91			
3. What friends in [the offline group] do influences my choice of virtual items.	.91			
4. To make sure I buy the right virtual items, I often observe what friends in [the offline group] are buying and using.	.87			
Offline Normative Influence		.92	.94	.71
1. To satisfy the expectations of friends in [the offline group], my decision to purchase virtual items is influenced by their preferences.	.83			
2. My decision to purchase virtual items is influenced by the preferences of friends in [the offline group] who have social interactions with me.	.82			
3. I feel that the purchase or use of virtual items will enhance the image that friends in [the offline group] have of me.	.88			
4. I feel that friends in [the offline group] who purchase or use virtual items possess the characteristics that I would like to have.	.88			
5. I feel that the people who purchase virtual items are admired or respected by friends in [the offline group].	.80			
6. I feel that the purchase of virtual items helps me show friends in [the offline group] who I am.	.83			
Purchase Intention		.98	.98	.95
1. In the next six months, I am likely to purchase virtual items offered by this game.	.97			
2. In the next six months, I am certain to purchase virtual items offered by this game.	.99			
3. In the next six months, I will definitely purchase virtual items offered by this game.	.98			
Happiness		.90	.92	.71
1. I achieve happiness from purchasing virtual items offered by this game.	.84			
2. Based on my purchases of virtual items offered by this game, my social relationships are supportive and rewarding.	.85			
3. Purchasing virtual items offered by this game satisfies my values.	.87			
4. Based on my purchases of virtual items offered by this game, I feel competent and capable in the activities that are important to me.	.84			
5. Purchasing virtual items offered by this game fits my personality traits.	.81			

Note: λ denotes indicator loading; α denotes Cronbach's alpha; CR denotes composite reliability; AVE denotes average variance extracted.

Because the data were collected from the same source, common method bias was a potential concern. Common method bias was assessed using three tests [Sharma et al. 2009]. First, Harman's single factor test [Podsakoff et al. 2003] was conducted using exploratory factor analysis. The first factor accounted for 33.68% of the variance. Second, Lindell and Whitney's [2001] marker variable assessment technique was used. Emotional stability of personality was chosen as the marker variable because it is theoretically unrelated to the two dependent variables (i.e., happiness and purchase intention) [Gosling et al. 2003]. The correlation coefficient between emotional stability and the two dependent variables was small (-.02 for happiness and -.07 for purchase intention). No significant correlations in the overall model became nonsignificant after adjustment. Third, the correlation matrix (Table 5) showed that the highest correlation coefficient was .66, which was less than the highest correlation coefficient ($r > .90$) resulting from the common method bias [Pavlou et al. 2007]. Therefore, the data did not show evidence of a substantial common method variance problem.

Table 3: Measurement Properties of Formative Constructs

Construct/Item	Item weight	p-value	VIF
Sense of Community			
Membership	.27	< .001	3.94
I can recognize the names of most members in this group.			
I feel at home in this group.			
Influence	.27	< .001	4.26
I care about what other group members think of my actions.			
If there is a problem in this group, there are members who can solve it.			
Fulfillment of Needs	.27	< .001	3.73
I think this group is a good place for me to be a member.			
Other members and I want the same thing from this group.			
Shared Emotional Connection	.28	< .001	4.42
It is very important to me to be a member of this group.			
I expect to stay in this group for a long time.			
Sense of Virtual Community			
Membership	.40	< .001	2.76
I feel as if I belong to this virtual group.			
I feel as if members of this virtual group are my close friends.			
I like the members of this virtual group.			
Influence	.42	< .001	3.10
I am a well-known member of this virtual group.			
My posts on this virtual group are often reviewed by other members.			
Replies to my posts appear frequently on this virtual group.			
Immersion	.28	< .001	2.32
I spend more time than I expected navigating around this virtual group.			
I feel as if I am addicted to this virtual group.			

Note: VIF denotes variance inflation factor.

Table 4: Heterotrait-Monotrait Ratio (HTMT) for Discriminant Validity

Construct		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
II-N	(1)	-							
NI-N	(2)	.69	-						
II-F	(3)	.38	.39	-					
NI-F	(4)	.39	.71	.63	-				
PI	(5)	.46	.45	.28	.34	-			
H	(6)	.39	.44	.48	.47	.41	-		
SOC	(7)	.22	.28	.37	.44	.24	.46	-	
SOVC	(8)	.30	.48	.18	.36	.36	.68	.32	-

Note: II-N = online informational influence; NI-N = online normative influence; II-F = offline informational influence; NI-F = offline normative influence; PI = purchase intention; H = happiness; SOC = sense of community; SOVC = sense of virtual community.

Table 5: Mean, Standard Deviation (SD), Correlation Matrix of Constructs, and Discriminant Validity

Construct		Mean	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
II-N	(1)	5.00	1.61	**.91**							
NI-N	(2)	3.94	1.61	.65	**.89**						
II-F	(3)	5.07	1.51	.36	.36	**.90**					
NI-F	(4)	3.93	1.50	.36	.66	.58	**.84**				
PI	(5)	4.25	1.92	.44	.43	.27	.33	**.98**			
H	(6)	5.15	1.10	.34	.39	.42	.41	.37	**.84**		
SOC	(7)	4.65	1.44	.21	.26	.35	.41	.23	.41	-	
SOVC	(8)	3.92	1.28	.28	.45	.17	.33	.35	.58	.30	-

Note: n = 605; values on the diagonal represent the square root of the average variance extracted (AVE); II-N = online informational influence; NI-N = online normative influence; II-F = offline informational influence; NI-F = offline normative influence; PI = purchase intention; H = happiness; SOC = sense of community; SOVC = sense of virtual community.

5.2.   Hypothesis Testing

We used PLS-SEM to test the structural relationships among the latent constructs. The first factor of social influence was informational influence. Both online and offline informational influence were positively related to happiness ($\beta = .13$, t = 2.04, $p < .05$ and $\beta = .30$, t = 5.94, $p < .001$, respectively), thereby supporting H1a and H1b. Furthermore, online informational influence was positively related to purchase intention ($\beta = .27$, t = 4.70, $p < .001$), whereas offline informational influence was not significantly related to purchase intention ($\beta = .05$, t = 0.77, *n.s.*). These results thereby support H2a but not H2b. The second factor of social influence was normative influence. Offline normative influence was positively related to happiness ($\beta = .14$, t = 2.31, $p < .05$), whereas online normative influence was not significantly related to happiness ($\beta = -.06$, t = .43, *n.s.*). These results support H3b but not H3a. Furthermore, online normative influence was positively related to purchase intention ($\beta = .17$, t = 2.57, $p < .05$), whereas offline normative influence was not ($\beta = .07$, t = 1.21, *n.s.*). These results thereby support H4a but not H4b.

Happiness had a significant effect on purchase intention ($\beta = .13$, t = 2.95, $p < .01$). The results thereby support H5. H5a, H5b, H5c, and H5d state that happiness mediates the relationships between each of the four social influence factors and purchase intention. We used the mediation bootstrapping technique suggested by Hayes [2009] to test the mediating role of happiness. For the 95% confidence interval (CI), if zero is not between the lower and upper limit, then the effect is not zero (with 95% confidence) [MacKinnon 2008; Zhao et al. 2010]. The mediating effect of happiness on the relationship between online informational influence and purchase intention was significant (CI = .0011, .0521) and the direct effect of online informational influence on purchase intention was significant (CI = .1971, .4219). The results thereby support H5a and suggest that happiness has a complementary mediating effect on the relationship between online informational influence and purchase intention [Zhao et al. 2010]. The mediating effect of happiness on the relationship between offline informational influence and purchase intention, and on the relationship between offline normative influence and purchase intention were both significant (CI = .0194, .0974 and CI = .0047, .0579, respectively). Furthermore, the direct effects of offline informational influence and offline normative influence on purchase intention were both nonsignificant (CI = -.0856, .1463 and CI = -.0728, .2051, respectively). The results thereby support H5c and H5d and suggest that the effects of offline informational influence and offline normative influence on purchase intention are indirect-only mediated by happiness [Zhao et al. 2010]. The mediating effect of happiness on the relationship between online normative influence and purchase intention was nonsignificant (CI = -.0298, .0181), thereby failing to support H5b. The results of the mediation testing appear in Table 6.

To test the moderating roles of SOC and SOVC, we used SmartPLS's moderating effect function to include interactive terms in the research model. The results showed that SOC positively moderated the effect of offline informational influence on happiness ($\beta = .05$, t = 2.41, $p < .05$), the effect of offline informational influence on purchase intention ($\beta = .05$, t = 2.91, $p < .01$), and the effect of offline normative influence on purchase intention ($\beta = .05$, t = 2.85, $p < .01$). However, the moderating effect of SOC on the relationship between offline normative influence and happiness was nonsignificant ($\beta = .02$, t = 1.01, *n.s.*). The results thereby support H6a, H6b, and H6d but not H6c. Furthermore, the results showed that SOVC positively moderated the effect of online informational influence on purchase intention ($\beta = .05$, t = 1.99, $p < .05$), and the effect of online normative influence on purchase intention ($\beta = .05$, t = 2.28, $p < .05$). However, the moderating effects of SOVC on the relationship between online informational influence and happiness ($\beta = .03$, t = 1.53, *n.s.*) and on the relationship between online normative influence and happiness ($\beta = .02$, t = 1.13, *n.s.*) were nonsignificant. The results thereby support H7b and H7d but not H7a or H7c. The results of the moderation testing appear in Table 7. The adjusted R-squared values of the two dependent variables

were .21 and .27 for happiness and purchase intention, respectively. The results of the hypothesis testing appear in Figure 2.

Finally, the effects of the control variables on the two dependent variables were nonsignificant: experience with online games (happiness: β = -.04, t = .83, *n.s.*; purchase intention: β = -.03, t = .74, *n.s.*), time spent on online games (happiness: β = -.03, t = .66, *n.s.*; purchase intention: β = .05, t = 1.61, *n.s.*), income (happiness: β = -.06, t = 1.31, *n.s.*; purchase intention: β = .04, t = .14, *n.s.*), age (happiness: β = .04, t = .31, *n.s.*; purchase intention: β = .04, t = 1.14, *n.s.*), gender (happiness: β = .06, t = 1.78, *n.s.*; purchase intention: β = .07, t = 1.94, *n.s.*), and education level (happiness: β = .04, t = .84, *n.s.*; purchase intention: β = .04, t = 1.20, *n.s.*).

Table 6: Mediation Testing for Happiness

Independent variable	Mediation test (*ab*)			Direct effect (*c'*)			Type of mediation	Hypothesis testing
	Lower limit	Upper limit	Zero included	Lower limit	Upper limit	Zero included		
Online informational influence	.0011	.0521	No	.1971	.4219	No	Complementary mediation	H5a supported
Online normative influence	-.0298	.0181	Yes	.0746	.3482	Yes	Direct-only nonmediation	H5b not supported
Offline informational influence	.0194	.0974	No	-.0856	.1463	Yes	Indirect-only mediation	H5c supported
Offline normative influence	.0047	.0579	No	-.0728	.2051	Yes	Indirect-only mediation	H5d supported

Note: Mediator: happiness; Dependent variable: purchase intention; Number of bootstrap samples: 5000; Confidence interval: 95%; Path *a*: the path from the independent variable to the mediating variable; Path *b*: the path from the mediating variable to the dependent variable; Path *c'*: the path from the independent variable to the dependent variable (when considered simultaneously with paths *a* and *b*).

Table 7: Moderation Testing for SOC and SOVC

| Main path	Path coefficient of interactive term	t-value of interactive term	*p*-value of interactive term	Hypothesis testing
Moderator: Sense of community (SOC)				
Offline informational influence → Happiness	.05	2.41	< .05	H6a supported
Offline informational influence → Purchase intention	.05	2.91	< .01	H6b supported
Offline normative influence → Happiness	.02	1.01	> .05	H6c not supported
Offline normative influence → Purchase intention	.05	2.85	< .01	H6d supported
Moderator: Sense of virtual community (SOVC)				
Online informational influence → Happiness	.03	1.53	> .05	H7a not supported
Online informational influence → Purchase intention	.05	1.99	< .05	H7b supported
Online normative influence → Happiness	.02	1.13	> .05	H7c not supported
Online normative influence → Purchase intention	.05	2.28	< .05	H7d supported
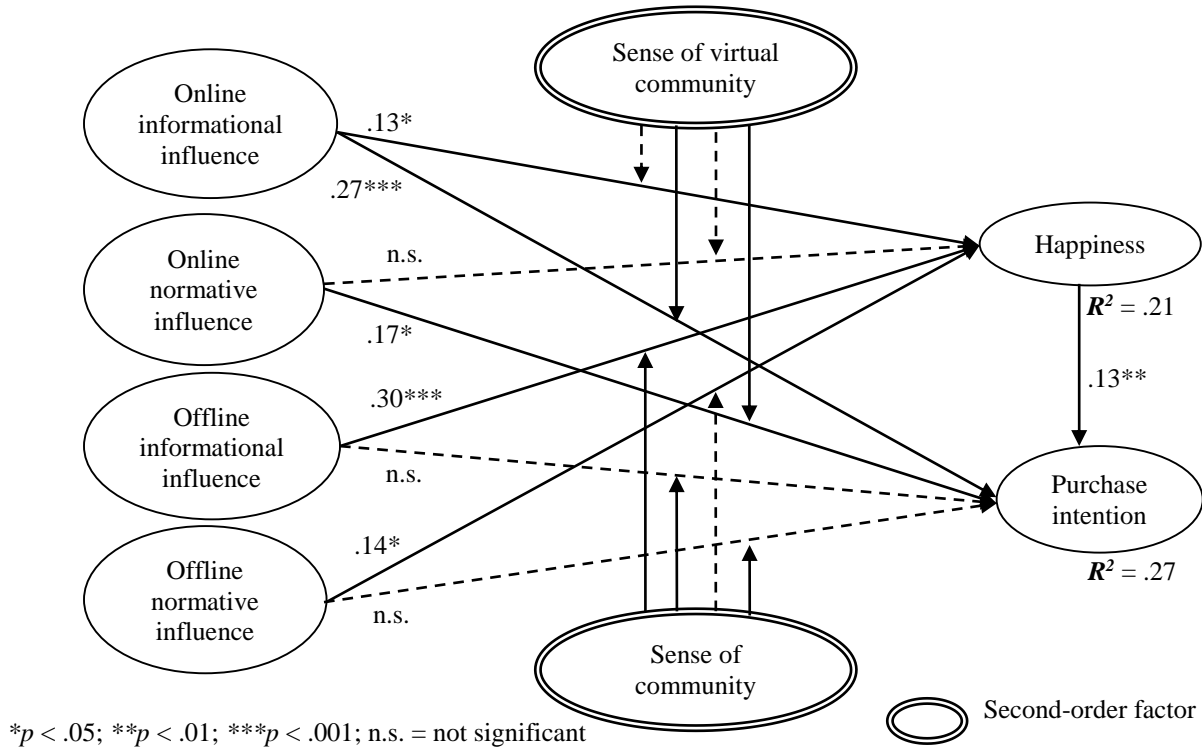
Figure 2: Results of Analysis

6. Discussion

A growing number of people experience a "digitally extended self" and enjoy the hedonic and social functions of digital goods [Belk 2013; Hamari 2015; Huang 2012]. In response to this trend, this pioneering study empirically examined how the influence of social groups affects consumers' hedonic buying of digital goods. Drawing on social influence theory [Ajzen 1991] and the theory of sense of community [McMillan & Chavis 1986], we specified a research model to predict how social influence affects consumer behaviors. The findings show that online and offline social groups affect consumers' decisions to purchase digital goods. The findings also confirm the mediating role of happiness and show that SOC and SOVC moderate the effects of social influence on purchase intention. This study's findings advance our understanding of hedonic buying of digital goods, and have theoretical and managerial implications for the role of social influence and marketers.

6.1. Theoretical Implications

First, the results indicate that the influence of offline groups indirectly affects (via the perception of happiness) consumers' purchase intentions to buy virtual items. Previous studies have shown that people's behaviors can be affected by either online or offline sources of social influence [e.g., Hoffmann & Broekhuizen 2009; Kuan et al. 2014; Wang et al. 2012]. Our research model confirms that social influence from both online and offline environments can simultaneously sway people's behaviors. Virtual items in online games are digital goods that are transacted and consumed exclusively in the online environment [Hamari 2015]. Nevertheless, social influence from the offline environment can indirectly affect online game players' purchase decisions. Consumers intend to purchase virtual items because they derive a sense of happiness from real-world social influence and interaction with peers. An online game can be viewed as a social purchase that allows consumers to relate to others in a meaningful way and thereby achieve happiness [Guevarra & Howell 2015]. The findings support this idea by demonstrating that social influence in the context of hedonic buying can bring happiness and further increase the intention to purchase virtual items in online games. Our findings not only empirically verify that happiness is a determining factor of hedonic buying [Hellén & Sääksjärvi 2011; Hwang & Kim 2017], but also show that happiness is an indirect-only mediator of the effects of offline informational and normative influences on the intention to purchase virtual items. This study suggests that face-to-face interaction with peers to exchange information and conform to offline group norms can lead to a perception of happiness, which in turn facilitates consumers' purchase intentions to buy virtual items in online games.

Second, the results suggest that online informational influence can enhance consumers' purchase intentions to buy digital goods. Some members of a specific online group have professional knowledge of the topic of this group

(e.g., virtual group of online games), so consulting with these experts can yield useful information for purchase intentions. This finding confirms that purchase decisions of hedonic products rely heavily on others' shared experiences [Candi et al. 2016], and enriches our knowledge of social influence theory in the context of hedonic buying of virtual items. Happiness was also identified as a complementary mediator of the positive effect of online informational influence on purchase intention. This finding implies that consulting with other members of online social groups can not only yield useful information, but also enhance relationships with other members, leading to a sense of happiness. We found that offline and online social influences can increase purchase intentions via the mediating role of happiness. The results imply that offline and online social influences bring consumers happiness, which in turn enhances purchase intentions, as proposed by the cognition-emotion-intention model [Lazarus 1991a, 1991b]. The online normative influence was observed to have a direct effect on purchase intentions. This finding implies that consumers want to buy virtual items because they are concerned about gaining the approval or respect of other members of online social groups. Although consumers meet other members of online social groups in the virtual world only, these online peers can nonetheless exert a normative influence on consumers' decisions to purchase virtual items.

Third, the results imply that SOC moderates the effects of offline social influence on happiness and purchase intention. In the context of hedonic buying, group members with high SOC care more about the information, opinions, and norms of the group. For offline social groups, the results suggest that SOC moderates the relationships between informational influence and happiness, informational influence and purchase intention, and normative influence and purchase intention. High-SOC consumers perceive a greater sense of happiness when they communicate with other members about purchasing virtual items. The results also indicate that consumers who feel intense SOC have greater incentives to follow other members' suggestions and normative expectations to purchase virtual items. Although offline informational influence and offline normative influence were not found to significantly affect purchase intention, SOC reinforces their effects. The results imply that for high-SOC consumers, social influence (i.e., informational and normative influences) directly enhances purchase intentions.

Finally, for online social groups, the results imply that SOVC strengthens the positive relationships between informational influence and purchase intention and between normative influence and purchase intention. Just as group-level factors can affect individual-level factors [Chih et al. 2017], SOVC can enhance the effect of online social influence on consumer behavior. The findings indicate that the effect of social influence on consumers' purchase intentions depends on the level of SOVC. For consumers with high SOVC, suggestions and normative expectations of other members can increase purchase intentions. Conversely, group members with low SOVC have a weaker sense of belonging and mattering, so informational and normative pressures from this group have less power to affect these group members' purchase behaviors. Under similar conditions, low SOVC makes it more difficult for peers to influence other group members' purchase decisions. Furthermore, the results fail to confirm our prediction that the effects of offline and online normative influences on happiness are moderated by SOC and SOVC, respectively. This finding implies that the effect of normative influence on consumers' perceptions of happiness is constant, regardless of whether the consumer has high or low SOC/SOVC within offline/online social groups. Normative pressures affect the behaviors of consumers with high SOC/SOVC more than the behaviors of consumers with low SOC/SOVC, but they cannot arouse greater happiness in consumers with high SOC/SOVC. The effect of online informational influence on consumers' perceptions of happiness is also constant for consumers with high and low SOVC.

In summary, this study combined social influence theory [Deutsch & Gerard 1955] with the theory of sense of community [McMillan & Chavis 1986] to show that the effects of social influence are stronger for consumers with high SOC/SOVC than for consumers with low SOC/SOVC. Measuring the moderating effects of SOC and SOVC on the relationships between social influence and purchase decisions advances our understanding of social influence and digital goods.

6.2.　　Managerial Implications

The digital goods market continues to grow, and the online game industry has become an important driver of economic growth [Belk 2013; Liu et al. 2015]. Therefore, the findings of this study have relevant implications for practitioners. First, our results indicate that online social groups have a strong effect on consumers' purchase decisions to buy virtual items. For example, in online games, consumers tend to perceive opinion leaders as those who possess certain virtual items. Consumers therefore want the same virtual items to enhance their image. Marketers of online games can periodically give specific virtual items free of charge to opinion leaders and highlight the special values of these items through promotions. Because of the effect of social influence on purchase intentions, consumers will develop an interest in these new items, and their purchase intentions will grow.

Second, our research model suggests that happy consumers have greater intentions to buy virtual items and that happiness mediates the relationship between social influence and purchase intention. Happiness can be used by businesses to satisfy customers' needs. Offline social influence has a strong effect on consumers' happiness, so

marketers of online games should organize parties for members of numerous virtual groups to interact with each other via face-to-face communication. Transferring social interaction from the online to the offline environment may enhance online game players' purchase intentions via happiness.

Finally, the results show that SOC/SOVC can moderate the effects of social influence on hedonic purchase intentions. These findings imply that group members with greater SOC/SOVC are highly influenced by other members of the group when deciding to purchase virtual items because they care deeply about the opinions of group members and seek to conform to this group's norms. Marketers can identify segments of consumers with high SOC/SOVC to deliver promotional messages about group members' possession of virtual items. Such a marketing promotion may enhance social influence and encourage herd behavior in these consumers, leading them to purchase the same virtual item in the hope of winning the group's approval.

7. Limitations and Future Research

Inevitably, this study has some limitations that should be addressed in future research. First, the research sample comprised gamers from a collectivist culture, so we cannot generalize the findings to other locations without exercising caution. The people within collectivist societies (i.e., in Eastern cultures) are more likely to align their behaviors with the behaviors of others around them. In contrast, people with individualistic tendencies (i.e., in Western cultures) are less likely to be affected by social influence because of weaker bonds with others [Baek & Choo 2015; Posey et al. 2010]. Therefore, future research should examine whether the effect of social influence on buying digital goods is weaker in individualistic cultures. Second, the research target was virtual items in online games. Therefore, we cannot generalize the findings to other products without exercising caution. We advocate future research based on our research model to cover other products and enhance generalizability. For example, consumers have different concerns when purchasing hedonic goods and utilitarian goods [Liao et al. 2016], so scholars should adopt the integrated perspective of this study to examine consumer behavior when buying utilitarian goods. Third, our research model did not consider the content of reviews of the virtual item. The valence (i.e., positive or negative) of reviews may act as a moderator [Qiu et al. 2012]. Future studies should consider more variables such as the valence of reviews or advice to investigate how these variables affect consumers' attitudes and intentions. Finally, a large portion of the sample was male, so we cannot generalize the findings to female players without exercising caution. Future research should verify our findings for samples of women.

REFERENCES

Adjei, M.T., S.M. Noble and C.H. Noble, "The Influence of C2c Communications in Online Brand Communities on Customer Purchase Behavior," *Journal of the Academy of Marketing Science*, Vol. 38, No. 5:634-653, 2010.

Ajzen, I., "The Theory of Planned Behavior," *Organizational Behavior and Human Decision Processes*, Vol. 50, No. 2:179-211, 1991.

Alba, J.W. and E.F. Williams, "Pleasure Principles: A Review of Research on Hedonic Consumption," *Journal of Consumer Psychology*, Vol. 23, No. 1:2-18, 2013.

Armstrong, J.S. and T.S. Overton, "Estimating Nonresponse Bias in Mail Surveys," *Journal of Marketing Research*, Vol. 14, No. 3:396-402, 1977.

Aronson, E., T.D. Wilson and R.M. Akert, Social Psychology, Upper Saddle River, NJ: Prentice Hall, 2010.

Baek, E. and H.J. Choo, "Effects of Peer Consumption on Hedonic Purchase Decisions," *Social Behavior and Personality*, Vol. 43, No. 7:1085-1099, 2015.

Bagozzi, R.P., M. Gopinath and P.U. Nyer, "The Role of Emotions in Marketing," *Journal of the Academy of Marketing Science*, Vol. 27, No. 2:184-206, 1999.

Banville, D., P. Desrosiers and Y. Genet-Volet, "Translating Questionnaires and Inventories Using a Cross-Cultural Translation Technique," *Journal of Teaching in Physical Education*, Vol. 19, No. 3:374-387, 2000.

Baumeister, R.F. and M.R. Leary, "The Need to Belong: Desire for Interpersonal Attachments as a Fundamental Human Motivation," *Psychological Bulletin*, Vol. 117, No. 3:497, 1995.

Bearden, W.O. and M.J. Etzel, "Reference Group Influence on Product and Brand Purchase Decisions," *Journal of Consumer Research*, Vol. 9, No. 2:183-194, 1982.

Bearden, W.O., R.G. Netemeyer and J.E. Teel, "Measurement of Consumer Susceptibility to Interpersonal Influence," *Journal of Consumer Research*, Vol. 15, No. 4:473-481, 1989.

Belk, R.W., "Extended Self in a Digital World," *Journal of Consumer Research*, Vol. 40, No. 3:477-500, 2013.

Bellah, R.N., R. Madsen, W.M. Sullivan, A. Swidler and S.M. Tipton, Habits of the Heart: Individualism and Commitment in American Life, Berkeley and Los Angeles, California: Univ of California Press, 2007.

Bess, K.D., A.T. Fisher, C.C. Sonn and B.J. Bishop, "Psychological Sense of Community: Theory, Research, and Application," *Psychological Sense of Community: Research, Applications, and Implications*, A. T. Fisher, C. C. Sonn and B. J. Bishop (Eds.), Kluwer Academic/Plenum Publishers, New York, pp. 3-22, 2002.

Bhattacharjee, A. and C. Mogilner, "Happiness from Ordinary and Extraordinary Experiences," *Journal of Consumer Research*, Vol. 41, No. 1:1-17, 2014.

Bickart, B. and R.M. Schindler, "Internet Forums as Influential Sources of Consumer Information," *Journal of Interactive Marketing*, Vol. 15, No. 3:31-40, 2001.

Burnkrant, R.E. and A. Cousineau, "Informational and Normative Social Influence in Buyer Behavior," *Journal of Consumer Research*, Vol. 2, No. 3:206-215, 1975.

Candi, M., J. Ende and G. Gemser, "Benefits of Customer Codevelopment of New Products: The Moderating Effects of Utilitarian and Hedonic Radicalness," *Journal of Product Innovation Management*, Vol. 33, No. 4:418-434, 2016.

Cappel, J.J. and J.C. Windsor, "Ethical Decision Making: A Comparison of Computer-Supported and Face-to-Face Group," *Journal of Business Ethics*, Vol. 28, No. 2:95-107, 2000.

Caprariello, P.A. and H.T. Reis, "To Do, to Have, or to Share? Valuing Experiences over Material Possessions Depends on the Involvement of Others," *Journal of Personality and Social Psychology*, Vol. 104, No. 2:199-215, 2013.

Chaiken, S., "Heuristic Versus Systematic Information Processing and the Use of Source Versus Message Cues in Persuasion," *Journal of Personality and Social Psychology*, Vol. 39, No. 5:752-760, 1980.

Chavis, D.M., J.H. Hogge, D.W. McMillan and A. Wandersman, "Sense of Community through Brunswik's Lens: A First Look," *Journal of Community Psychology*, Vol. 14, No. 1:24-40, 1986.

Chen, G.-L., S.-C. Yang and S.-M. Tang, "Sense of Virtual Community and Knowledge Contribution in a P3 Virtual Community: Motivation and Experience," *Internet Research*, Vol. 23, No. 1:4-26, 2013.

Cheng, S.-Y., M.-T. Tsai, N.-C. Cheng and K.-S. Chen, "Predicting Intention to Purchase on Group Buying Website in Taiwan: Virtual Community, Critical Mass and Risk," *Online Information Review*, Vol. 36, No. 5:698-712, 2012.

Chih, W.-H., L.-C. Hsu and D.-K. Liou, "Understanding Virtual Community Members' Relationships from Individual, Group, and Social Influence Perspectives," *Industrial Management & Data Systems*, Vol. 117, No. 6:990-1010, 2017.

Chiu, C.-M., H.-L. Cheng, H.-Y. Huang and C.-F. Chen, "Exploring Individuals' Subjective Well-Being and Loyalty Towards Social Network Sites from the Perspective of Network Externalities: The Facebook Case," *International Journal of Information Management*, Vol. 33, No. 3:539-552, 2013.

Chou, S.-Y., G.C. Shen, H.-C. Chiu and Y.-T. Chou, "Multichannel Service Providers' Strategy: Understanding Customers' Switching and Free-Riding Behavior," *Journal of Business Research*, Vol. 69, No. 6:2226-2232, 2016.

Cialdini, R.B. and N.J. Goldstein, "Social Influence: Compliance and Conformity," *Annual Review of Psychology*, Vol. 55, No. February:591-621, 2004.

Clement, M., S. Fabel and C. Schmidt-Stolting, "Diffusion of Hedonic Goods: A Literature Review," *International Journal on Media Management*, Vol. 8, No. 4:155-163, 2006.

Cohn, M.A., B.L. Fredrickson, S.L. Brown, J.A. Mikels and A.M. Conway, "Happiness Unpacked: Positive Emotions Increase Life Satisfaction by Building Resilience," *Emotion*, Vol. 9, No. 3:361-368, 2009.

Commerce Development Research Institute, "The Market Trend and Opportunity of Taiwan Online Gaming Industry in 2016," http://www.pershing.com.tw/tw/download/seminar/20160311_seminar/handouts/160311_Session1_TW_Game_Industry_Dev_and_Trend_DrFan.pdf, 2016.

Davis, R., B. Lang and N. Gautam, "Modeling Utilitarian-Hedonic Dual Mediation (UHDM) in the Purchase and Use of Games," *Internet Research*, Vol. 23, No. 2:229-256, 2013.

de Valck, K., G.H. van Bruggen and B. Wierenga, "Virtual Communities: A Marketing Perspective," *Decision Support Systems*, Vol. 47, No. 3:185-203, 2009.

Deutsch, M. and H.B. Gerard, "A Study of Normative and Informational Social Influences Upon Individual Judgment," *Journal of Abnormal and Aocial Psychology*, Vol. 51, No. 3:629-636, 1955.

Diamantopoulos, A. and H.M. Winklhofer, "Index Construction with Formative Indicators: An Alternative to Scale Development," *Journal of Marketing Research*, Vol. 38, No. 2:269-277, 2001.

Diener, E., R.A. Emmons, R.J. Larsen and S. Griffin, "The Satisfaction with Life Scale," *Journal of Personality Assessment*, Vol. 49, No. 1:71-75, 1985.

Diener, E. and M.E. Seligman, "Beyond Money toward an Economy of Well-Being," *Psychological Science in the Public Interest*, Vol. 5, No. 1:1-31, 2004.

Douthitt, R.A., M. MacDonald and R. Mullis, "The Relationship between Measures of Subjective and Economic Well-Being: A New Look," *Social Indicators Research*, Vol. 26, No. 4:407-422, 1992.

Duesenberry, J.S., Income, Savings, and the Theory of Consumer Behavior, Cambridge, MA: Harvard University, 1949.

Ferreira, M.M. and A.R. Trudel, "The Impact of Problem-Based Learning (PBL) on Student Attitudes toward Science, Problem-Solving Skills, and Sense of Community in the Classroom," *Journal of Classroom Interaction*, Vol. 47, No. 1:23-30, 2012.

Festinger, L., "A Theory of Social Comparison Processes," *Human Relations*, Vol. 7, No. 2:117-140, 1954.

Fornell, C. and D.F. Larcker, "Evaluating Structural Equation Models with Unobservables and Measurement Error," *Journal of Marketing Research*, Vol. 18, No. 1:39-50, 1981.

Fraering, M. and M.S. Minor, "Sense of Community: An Exploratory Study of Us Consumers of Financial Services," *International Journal of Bank Marketing*, Vol. 24, No. 5:284-306, 2006.

Gosling, S.D., P.J. Rentfrow and W.B. Swann, "A Very Brief Measure of the Big-Five Personality Domains," *Journal of Research in Personality*, Vol. 37, No. 6:504-528, 2003.

Guevarra, D.A. and R.T. Howell, "To Have in Order to Do: Exploring the Effects of Consuming Experiential Products on Well-Being," *Journal of Consumer Psychology*, Vol. 25, No. 1:28-41, 2015.

Gupta, M., V. Kumar and M. Singh, "Creating Satisfied Employees through Workplace Spirituality: A Study of the Private Insurance Sector in Punjab (India)," *Journal of Business Ethics*, Vol. 122, No. 1:79-88, 2014.

Hackman, J.R., "Group Influences on Individuals," *Handbook of Industrial and Organizational Psychology*, M. Dunnette (Ed.), Rand McNally, Chicago, pp. 1455-1525, 1992.

Hair, J.F., W.C. Black, B.J. Babin, R.E. Anderson and R.L. Tatham, Multivariate Data Analysis, Upper Saddle River, New Jersey: Pearson Prentice Hall, 2006.

Hair, J.F., C.M. Ringle and M. Sarstedt, "PLS-SEM: Indeed a Silver Bullet," *Journal of Marketing theory and Practice*, Vol. 19, No. 2:139-152, 2011.

Hamari, J., "Why Do People Buy Virtual Goods? Attitude toward Virtual Good Purchases Versus Game Enjoyment," *International Journal of Information Management*, Vol. 35, No. 3:299-308, 2015.

Han, W., S. Ada, R. Sharman and H.R. Rao, "Campus Emergency Notification Systems: An Examination of Factors Affecting Compliance with Alerts," *MIS Quarterly*, Vol. 39, No. 4:909-929, 2015.

Hansen, T., "Perspectives on Consumer Decision Making: An Integrated Approach," *Journal of Consumer Behaviour*, Vol. 4, No. 6:420-437, 2005.

Hayes, A.F., "Beyond Baron and Kenny: Statistical Mediation Analysis in the New Millennium," *Communication Monographs*, Vol. 76, No. 4:408-420, 2009.

Hebert, B.G. and J.D. Vorauer, "Seeing through the Screen: Is Evaluative Feedback Communicated More Effectively in Face-to-Face or Computer-Mediated Exchanges?," *Computers in Human Behavior*, Vol. 19, No. 1:25-38, 2003.

Hellén, K. and M. Sääksjärvi, "Happiness as a Predictor of Service Quality and Commitment for Utilitarian and Hedonic Services," *Psychology & Marketing*, Vol. 28, No. 9:934-957, 2011.

Henseler, J., C.M. Ringle and M. Sarstedt, "A New Criterion for Assessing Discriminant Validity in Variance-Based Structural Equation Modeling," *Journal of the Academy of Marketing Science*, Vol. 43, No. 1:115-135, 2015.

Hoffmann, A.O. and T. Broekhuizen, "Susceptibility to and Impact of Interpersonal Influence in an Investment Context," *Journal of the Academy of Marketing Science*, Vol. 37, No. 4:488-503, 2009.

Hsieh, Y.-C., H.-C. Chiu, Y.-C. Tang and W.-Y. Lin, "Does Raising Value Co-Creation Increase All Customers' Happiness?," *Journal of Business Ethics*, Vol. forthcoming, 2017.

Hsu, C.-L. and Y.-C. Liao, "Exploring the Linkages between Perceived Information Accessibility and Microblog Stickiness: The Moderating Role of a Sense of Community," *Information & Management*, Vol. 51, No. 7:833-844, 2014.

Hsu, L.-C., W.-H. Chih and D.-K. Liou, "Investigating Community Members' Ewom Effects in Facebook Fan Page," *Industrial Management & Data Systems*, Vol. 116, No. 5:978-1004, 2016.

Huang, E., "Online Experiences and Virtual Goods Purchase Intention," *Internet Research*, Vol. 22, No. 3:252-274, 2012.

Huang, H.-C., L.-S. Huang, Y.-J. Chou and C.-I. Teng, "Influence of Temperament and Character on Online Gamer Loyalty: Perspectives from Personality and Flow Theories," *Computers in Human Behavior*, Vol. 70:398-406, 2017.

Huang, Y.-A., I. Phau and C. Lin, "Consumer Animosity, Economic Hardship, and Normative Influence: How Do They Affect Consumers' Purchase Intention?," *European Journal of Marketing*, Vol. 44, No. 7/8:909-937, 2010.

Hwang, K. and H. Kim, "Are Ethical Consumers Happy? Effects of Ethical Consumers' Motivations Based on Empathy Versus Self-Orientation on Their Happiness," *Journal of Business Ethics*, Vol. forthcoming, 2017.

Jahoda, M., "Conformity and Independence: A Psychological Analysis," *Human Relations*, Vol. 12, No. 2:99-120, 1959.

Kardaras, D., B. Karakostas and E. Papathanassiou, "The Potential of Virtual Communities in the Insurance Industry in the UK and Greece," *International Journal of Information Management*, Vol. 23, No. 1:41-53, 2003.

Kelman, H.C., "Processes of Opinion Change," *Public Opinion Quarterly*, Vol. 25, No. 1:57-78, 1961.

Keng, C.-J., C.-H. Pao, H.-Y. Ting and N.-Y. Chang, "Impact of Machine and Interpersonal Virtual Experience Combinations on Sense of Virtual Community: The Moderating Roles of Optimum Stimulation Level and Motives for Reading Customer Articulations," *Journal of Electronic Commerce Research*, Vol. 16, No. 1:34-55, 2015.

Kim, J. and J.-E.R. Lee, "The Facebook Paths to Happiness: Effects of the Number of Facebook Friends and Self-Presentation on Subjective Well-Being," *CyberPsychology, Behavior, and Social Networking*, Vol. 14, No. 6:359-364, 2011.

Koh, J. and Y.-G. Kim, "Sense of Virtual Community: A Conceptual Framework and Empirical Validation," *International Journal of Electronic Commerce*, Vol. 8, No. 2:75-94, 2003.

Kong, J.S.-L., R.C.-W. Kwok and Y. Fang, "The Effects of Peer Intrinsic and Extrinsic Motivation on Mmog Game-Based Collaborative Learning," *Information & Management*, Vol. 49, No. 1:1-9, 2012.

Kuan, K.K.Y., Y. Zhong and P.Y.K. Chau, "Informational and Normative Social Influence in Group-Buying: Evidence from Self-Reported and Eeg Data," *Journal of Management Information Systems*, Vol. 30, No. 4:151-178, 2014.

Labroo, A.A. and V.M. Patrick, "Psychological Distancing: Why Happiness Helps You See the Big Picture," *Journal of Consumer Research*, Vol. 35, No. 5:800-809, 2009.

Lambrecht, A., A. Goldfarb, A. Bonatti, A. Ghose, D.G. Goldstein, R. Lewis, A. Rao, N. Sahni and S. Yao, "How Do Firms Make Money Selling Digital Goods Online?," *Marketing Letters*, Vol. 25, No. 3:331-341, 2014.

Lazarus, R.S., "Cognition and Motivation in Emotion," *American Psychologist*, Vol. 46, No. 4:352-367, 1991a.

Lazarus, R.S., Emotion and Adaptation, New York: Oxford University Press, 1991b.

Lehdonvirta, V., "Virtual Item Sales as a Revenue Model: Identifying Attributes That Drive Purchase Decisions," *Electronic Commerce Research*, Vol. 9, No. 1:97-113, 2009.

Lehdonvirta, V., "A History of the Digitalization of Consumer Culture," *Digital Virtual Consumption*, Mike Molesworth and Janice Denegri-Knott (Eds.), Routledge, London, pp. 11-28, 2012.

Liao, C., P.-L. To, Y.-C. Wong, P. Palvia and M.D. Kakhki, "The Impact of Presentation Mode and Product Type on Online Impulse Buying Decisions," *Journal of Electronic Commerce Research*, Vol. 17, No. 2:153-168, 2016.

Liao, G.-Y., H.-C. Huang and C.-I. Teng, "When Does Frustration Not Reduce Continuance Intention of Online Gamers? The Expectancy Disconfirmation Perspective," *Journal of Electronic Commerce Research*, Vol. 17, No. 1:65-79, 2016.

Liao, G.-Y. and C.-I. Teng, "You Can Make It: Expectancy for Growth Increases Online Gamer Loyalty," *International Journal of Electronic Commerce*, Vol. 21, No. 3:398-423, 2017.

Lin, H.-F., "Determinants of Successful Virtual Communities: Contributions from System Characteristics and Social Factors," *Information & Management*, Vol. 45, No. 8:522-527, 2008.

Lindell, M.K. and D.J. Whitney, "Accounting for Common Method Variance in Cross-Sectional Research Designs," *Journal of Applied Psychology*, Vol. 86, No. 1:114-121, 2001.

Liu, Y., E.S. Mai and J. Yang, "Network Externalities in Online Video Games: An Empirical Analysis Utilizing Online Product Ratings," *Marketing Letters*, Vol. 26, No. 4:679-690, 2015.

Loebbecke, C., Digital Goods: An Economic Perspective, San Diego: Academic Press, 2002.

Lowry, P.B. and J. Gaskin, "Partial Least Squares (PLS) Structural Equation Modeling (SEM) for Building and Testing Behavioral Causal Theory: When to Choose It and How to Use It," *IEEE Transactions on Professional Communication*, Vol. 57, No. 2:123-146, 2014.

Luo, C., X.R. Luo, Y. Xu, M. Warkentin and C.L. Sia, "Examining the Moderating Role of Sense of Membership in Online Review Evaluations," *Information & Management*, Vol. 52, No. 3:305-316, 2015.

MacKinnon, D.P., Introduction to Statistical Mediation Analysis, Mahwah, NJ: Lawrence Erlbaum Associates, 2008.

McMillan, D.W. and D.M. Chavis, "Sense of Community: A Definition and Theory," *Journal of Community Psychology*, Vol. 14, No. 1:6-23, 1986.

Moon, J., M.D. Hossain, G.L. Sanders, E.J. Garrity and S. Jo, "Player Commitment to Massively Multiplayer Online Role-Playing Games (MMORPGS): An Integrated Model," *International Journal of Electronic Commerce*, Vol. 17, No. 4:7-38, 2013.

Moretti, E., "Social Learning and Peer Effects in Consumption: Evidence from Movie Sales," *Review of Economic Studies*, Vol. 78, No. 1:356-393, 2011.

Newzoo, "The Global Games Market Reaches $99.6 Billon in 2016, Mobile Generating 37%," https://newzoo.com/insights/articles/global-games-market-reaches-99-6-billion-2016-mobile-generating-37/, 2016.

Nicolao, L., J.R. Irwin and J.K. Goodman, "Happiness for Sale: Do Experiential Purchases Make Consumers Happier Than Material Purchases?," *Journal of Consumer Research*, Vol. 36, No. 2:188-198, 2009.

Obst, P.L. and K.M. White, "Revisiting the Sense of Community Index: A Confirmatory Factor Analysis," *Journal of Community Psychology*, Vol. 32, No. 6:691-705, 2004.

Ozuem, W., M. Borrelli and G. Lancaster, "Leveraging the Co-Evolution of Offline and Online Video Games: An Empirical Study," *Journal of Strategic Marketing*, Vol. 25, No. 1:75-97, 2017.

Park, C.W. and V.P. Lessig, "Students and Housewives: Differences in Susceptibility to Reference Group Influence," *Journal of Consumer Research*, Vol. 4, No. 2:102-110, 1977.

Pavlou, P.A., H. Liang and Y. Xue, "Understanding and Mitigating Uncertainty in Online Exchange Relationships: A Principal-Agent Perspective," *MIS Quarterly*, Vol. 31, No. 1:105-136, 2007.

Peng, D.X. and F. Lai, "Using Partial Least Squares in Operations Management Research: A Practical Guideline and Summary of Past Research," *Journal of Operations Management*, Vol. 30, No. 6:467-480, 2012.

Pentina, I., V.R. Prybutok and X. Zhang, "The Role of Virtual Communities as Shopping Reference Groups," *Journal of Electronic Commerce Research*, Vol. 9, No. 2:114-136, 2008.

Perkins, D.D., P. Florin, R.C. Rich, A. Wandersman and D.M. Chavis, "Participation and the Social and Physical Environment of Residential Blocks: Crime and Community Context," *American Journal of Community Psychology*, Vol. 18, No. 1:83-115, 1990.

Podsakoff, P.M., S.B. MacKenzie, J.Y. Lee and N.P. Podsakoff, "Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies," *Journal of Applied Psychology*, Vol. 88, No. 5:879-903, 2003.

Posey, C., P.B. Lowry, T.L. Roberts and T.S. Ellis, "Proposing the Online Community Self-Disclosure Model: The Case of Working Professionals in France and the UK Who Use Online Communities," *European Journal of Information Systems*, Vol. 19, No. 2:181-195, 2010.

Qing, P., A. Lobo and C. Li, "The Impact of Lifestyle and Ethnocentrism on Consumers' Purchase Intentions of Fresh Fruit in China," *Journal of Consumer Marketing*, Vol. 29, No. 1:43-51, 2012.

Qiu, L., J. Pang and K.H. Lim, "Effects of Conflicting Aggregated Rating on Ewom Review Credibility and Diagnosticity: The Moderating Role of Review Valence," *Decision Support Systems*, Vol. 54, No. 1:631-643, 2012.

Rimal, R.N., M.K. Lapinski, R.J. Cook and K. Real, "Moving toward a Theory of Normative Influences: How Perceived Benefits and Similarity Moderate the Impact of Descriptive Norms on Behaviors," *Journal of Health Communication*, Vol. 10, No. 5:433-450, 2005.

Rosenbaum, M.S., A.L. Ostrom and R. Kuntze, "Loyalty Programs and a Sense of Community," *Journal of Services Marketing*, Vol. 19, No. 4:222-233, 2005.

Sarason, S.B., The Psychological Sense of Community: Prospects for a Community Psychology, San Francisco: Jossey-Bass, 1974.

Schmitz, J. and J. Fulk, "Organizational Colleagues, Media Richness, and Electronic Mail: A Test of the Social Influence Model of Technology Use," *Communication Research*, Vol. 18, No. 4:487-523, 1991.

Sharma, R., P. Yetton and J. Crawford, "Estimating the Effect of Common Method Variance: The Method—Method Pair Technique with an Illustration from Tam Research," *MIS Quarterly*, Vol. 33, No. 3:473-490, 2009.

Shin, Y. and K. Song, "Role of Face‐to‐Face and Computer‐Mediated Communication Time in the Cohesion and Performance of Mixed‐Mode Groups," *Asian Journal of Social Psychology*, Vol. 14, No. 2:126-139, 2011.

Siedlecki, K.L., T.A. Salthouse, S. Oishi and S. Jeswani, "The Relationship between Social Support and Subjective Well-Being across Age," *Social Indicators Research*, Vol. 117, No. 2:561-576, 2014.

Stavrova, O., Fitting in and Getting Happy: How Conformity to Societal Norms Affects Subjective Well-Being, Frankfurt, Germany: Campus Verlag, 2014.

Tönnies, F., Community and Association:(Gemeinschaft Und Gesellschaft): Routledge & Paul, 1955.

Teng, C.-I., "Strengthening Loyalty of Online Gamers: Goal Gradient Perspective," *International Journal of Electronic Commerce*, Vol. 21, No. 1:132-151, 2017.

Thomas, R. and M. Millar, "The Effects of Material and Experiential Discretionary Purchases on Consumer Happiness: Moderators and Mediators," *Journal of Psychology*, Vol. 147, No. 4:345-356, 2013.

Tonteri, L., M. Kosonen, H.-K. Ellonen and A. Tarkiainen, "Antecedents of an Experienced Sense of Virtual Community," *Computers in Human Behavior*, Vol. 27, No. 6:2215-2223, 2011.

Tsai, H.-T., H.-C. Huang and Y.-L. Chiu, "Brand Community Participation in Taiwan: Examining the Roles of Individual-, Group-, and Relationship-Level Antecedents," *Journal of Business Research*, Vol. 65, No. 5:676-684, 2012.

Tsai, M.-T., N.-C. Cheng and K.-S. Chen, "Understanding Online Group Buying Intention: The Roles of Sense of Virtual Community and Technology Acceptance Factors," *Total Quality Management & Business Excellence*, Vol. 22, No. 10:1091-1104, 2011.

Valkenburg, P.M. and J. Peter, "Online Communication and Adolescent Well- Being: Testing the Stimulation Versus the Displacement Hypothesis," *Journal of Computer- Mediated Communication*, Vol. 12, No. 4:1169-1182, 2007.

Van Boven, L. and T. Gilovich, "To Do or to Have? That Is the Question," *Journal of Personality and Social Psychology*, Vol. 85, No. 6:1193-1202, 2003.

Wang, J.-C. and C.-H. Chang, "How Online Social Ties and Product-Related Risks Influence Purchase Intentions: A Facebook Experiment," *Electronic Commerce Research and Applications*, Vol. 12, No. 5:337-346, 2013.

Wang, X., C. Yu and Y. Wei, "Social Media Peer Communication and Impacts on Purchase Intentions: A Consumer Socialization Framework," *Journal of Interactive Marketing*, Vol. 26, No. 4:198-208, 2012.

Weiser, E.B., "The Functions of Internet Use and Their Social and Psychological Consequences," *CyberPsychology & Behavior*, Vol. 4, No. 6:723-743, 2001.

Westheimer, J. and J. Kahne, "Building School Communities: An Experience-Based Model," *Phi Delta Kappan*, Vol. 75:324-324, 1993.

Winterich, K.P. and G.Y. Nenkov, "Save Like the Joneses: How Service Firms Can Utilize Deliberation and Informational Influence to Enhance Consumer Well-Being," *Journal of Service Research*, Vol. 18, No. 3:384-404, 2015.

Wohlfeil, M. and S. Whelan, "Consumer Motivations to Participate in Event-Marketing Strategies," *Journal of Marketing Management*, Vol. 22, No. 5-6:643-669, 2006.

Yang, J. and E.S. Mai, "Experiential Goods with Network Externalities Effects: An Empirical Study of Online Rating System," *Journal of Business Research*, Vol. 63, No. 9:1050-1057, 2010.

Zhao, L., Y. Lu, B. Wang, P.Y.K. Chau and L. Zhang, "Cultivating the Sense of Belonging and Motivating User Participation in Virtual Communities: A Social Capital Perspective," *International Journal of Information Management*, Vol. 32, No. 6:574-588, 2012.

Zhao, X., J.G. Lynch Jr and Q. Chen, "Reconsidering Baron and Kenny: Myths and Truths About Mediation Analysis," *Journal of Consumer Research*, Vol. 37, No. 2:197-206, 2010.

Zhong, J.Y. and V.-W. Mitchell, "A Mechanism Model of the Effect of Hedonic Product Consumption on Well-Being," *Journal of Consumer Psychology*, Vol. 20, No. 2:152-162, 2010.

Zhu, D.H. and Y.P. Chang, "Effects of Interactions and Product Information on Initial Purchase Intention in Product Placement in Social Games: The Moderating Role of Product Familiarity," *Journal of Electronic Commerce Research*, Vol. 16, No. 1:22-33, 2015.

Zhu, S. and J. Chen, "E-Commerce Use in Urbanising China: The Role of Normative Social Influence," *Behaviour & Information Technology*, Vol. 35, No. 5:357-367, 2016.

Appendix A. Instruction for Respondents

This research focuses on purchasing virtual items in online games. Please recall the most familiar online game that you have played in the last six months and the experience of purchasing virtual items in this online game. Please also write the name of this online game. Before answering the questions that relate to the online group, please recall a virtual group/community that you are involved in and write the name of this group/community and three members of this group/community. The main topic of this virtual group/community should be online games, and interactions between group members should take place exclusively online. Before answering the questions that relate to the offline group, please recall an offline group/community that you are involved in and write the name of this group/community and three members of this group/community. The main topic of this offline group/community can be any subject, and the interactions with members of this group should take place mainly in the real world. Questionnaires that are missing the names of the two groups and three members of each group will be treated as invalid.