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Chieh-Peng Lin ^a

^a Institute of Business & Management, National Chiao Tung University, Taiwan

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Learning Online Brand Personality and Satisfaction: The Moderating Effects of Gaming Engagement

Chieh-Peng Lin

Institute of Business & Management, National Chiao Tung University, Taiwan

This research assesses the association between the perceived brand personality of interactive IT and users' satisfaction. In the model of this study, satisfaction is affected by the perceived brand personality that contains four dimensions: perceived imaginative personality, perceived cheerful personality, perceived successful personality, and perceived interactive personality. Gaming engagement moderates each model path. The statistical results indicate that the influences of imaginative personality, cheerful personality, and successful personality on satisfaction are significant, whereas the influence of interactive personality on satisfaction is insignificant. Meanwhile, the influence of imaginative personality, cheerful personality, and successful personality on satisfaction is moderated by engagement, whereas the remaining model path between interactive personality and satisfaction is not moderated. Last, the discussion and managerial implications based on the empirical results are provided.

1. INTRODUCTION

Interactive hedonic IT (e.g., Bluetooth technology) has grown to be a major portion of the global entertainment sector in a very competitive online market owing to breakthroughs in Internet technology and broadband infrastructure development. The focus of this study on such interactive hedonic IT as online games is motivated by the phenomenal growth of IT in recent years, their transformational role on today's lifestyles, and the relative lack of research on these technologies. Online games accounts for more than \$10 billion in global sales, which makes them one of the most prospective and lucrative segments of the global entertainment industry. Undoubtedly, satisfaction is the most important issue given that interactive online games have dramatically reshaped the way people view entertainment, socialization, and leisure (Lin & Bhattacharjee, in press). Gamer satisfaction in the market is critical for the survival of online game providers given that gamers are

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Correspondence should be addressed to Chieh-Peng Lin, Institute of Business & Management, National Chiao Tung University, No. 118, Sec. 1, Jhongsiao W. Rd., Jhongheng District, Taipei City 100, Taiwan, R.O.C. E-mail: jacques@mail.nctu.edu.tw

likely to continue paying for a game that is perceived as fitting them. However, such satisfaction counts heavily on creating attractive brand personalities of the game.

Previous research has indicated the importance of satisfaction for industries related to information technology (Rau, Gao, & Liu, 2007), but the first step in effectively managing satisfaction in the gaming industry is identifying its antecedents (DeLone & McLean, 1992). This study identifies the critical satisfaction determinants from a perspective of brand personalities and clarifies the moderating effects of gaming engagement in the satisfaction formation. This perspective of brand personalities may be more important than and different from a traditional perspective of information technology (IT) such as technology acceptance model (TAM) and the theory of planned behavior (TPB; Venkatesh, Morris, Davis, & Davis, 2003). Indeed, the application of IT in today's society has expanded beyond its original utilitarian objective to encompass hedonic objectives (nonutilitarian objectives); that is, the key determinants of IT usage such as usefulness and ease-of-use are unable to motivate online gamers for a hedonic purpose (Nocera, Dunckley, & Sharp, 2007). Therefore, instead of focusing on usefulness and ease-of-use, gaming industries should turn to high-grade online brands with inviting personalities to differentiate these brands from those of other online competitors, effectively achieving a high level of gamer satisfaction. Specifically, gamers do not consume online games for material utilities instrumentally but rather consume the symbolic meaning of the games as expressively portrayed in their personalities.

Brand personalities have been recognized from five dimensions: excitement, sincerity, competence, sophistication, and ruggedness (Aaker, 1997). Defined as the set of human characteristics associated with a brand of an online product (Aaker, 1997), online brand personalities are the key toward differentiating a brand in an online product category. It has been indicated that the symbolic use of brands is possible, because gamers often imbue brands with human personality traits (Aaker, 1997). Particularly, brand personalities of an online game substantially enable a gamer to express his own self (Belk, 1988), an ideal self (Malhotra, 1988), or specific dimensions of the self (Kleine, Kleine, & Kernan, 1993) through playing the game of that brand. Additionally, brand personalities are not only a central driver of gamer satisfaction or preference (Aaker, Fournier, & Brasel, 2004; Biel, 1993) but are a common denominator that can be applied to market a brand of online games across cultures (Aaker, 1997; Plummer, 1985).

Despite the importance of online brand personalities and gamer satisfaction as mentioned above, the research linking these factors is limited. In response to this phenomenon, this study draws on previous research on brand personalities to develop a research model of online brand personalities and satisfaction so that management can design efficient business strategies.

This study differs from previous works in some important ways. First, it focuses on gamer satisfaction in the area of online entertainment on the Internet. Though the applicability of satisfaction and its antecedents has been extensively studied for many goods or services across various industries, highly intangible and hedonic goods provided via the Internet have received less attention. The reason why intangible and hedonic entertainment games should be treated differently from general ones is that gamers have more difficulty in evaluating the

quality of intangible and hedonic entertainment products than of physical goods prior to, during, and after consumption (Grove, Pickett, & Laband, 1995; Rushton & Carson, 1989). It has even been suggested that the advertising and promotion of intangible products should differ from that of physical ones (Rushton & Carson, 1989). This study, by investigating online gamers, can bring some unique implications for the management of online games providers. Second, this study is one of the earliest to explore the influence of online game personality on satisfaction. More specifically, whereas many empirical studies examine brand personality as a pure construct, this work provides insight into the brand personality of online games by decomposing it into four different dimensions that are important to gamer perception. Finally, gaming engagement is examined as a potential moderator in the development of gamer satisfaction. Although gaming engagement (or addiction) is generally acknowledged to profoundly influence gamers' behaviors (Soule, Shell, & Kleen, 2003; Young, 2004), it has rarely been discussed in the area of satisfaction in online game industries. Specifying the moderating impacts of engagement may guide management to design marketing strategies for online game brands and different gamers, consequently achieving high gamer satisfaction.

2. RESEARCH MODEL

This study examines the relationship between the perceived brand personality of online games and satisfaction using gaming engagement as a moderator. In this study's proposed model, satisfaction is influenced by four factors of perceived brand personality: perceived imaginative personality (IM), perceived cheerful personality (CH), perceived successful personality (SU), and perceived interactive personality (IN). Furthermore, gaming engagement moderates each model path. Note that the four factors of brand personality drawn from previous research were tailored to fit the specific context of interactive online games in this study. Particularly, the four factors examined in this study have been indicated by Aaker (1997), such as the imaginative personality in the excitement category, the cheerful personality in the sincerity category, the successful personality in the competence category, and so on.

2.1. Hypotheses Development

Recognized as an important facet of marketing, satisfaction is defined as the contentment of customers with respect to their prior experiences and perceptions of a given brand (Anderson & Srinivasan, 2003). Previous research has shown that relationship outcomes such as customer satisfaction are influenced by the brand personalities of the product or service involved (Aaker et al., 2004; Robins, Caspi, & Moffitt, 2000). Two brand personalities, sincere personality and exciting personality, merit more attention than the other three personalities in light of their prominence in the commercial landscape, because they fundamentally compose two critical partner ideals in intimate personal relations (Aaker et al., 2004; Fletcher, Simpson, Thomas, & Giles, 1999). Accordingly, the findings in previous research have revealed that these two brand personalities capture the majority of variance

in personality ratings for brands (Aaker, 1997; Caprara, Barbaranelli, & Guido, 2001) and such findings are robust across different product categories and cultural contexts (Aaker, Benet-Martínez, & Garolera, 2001).

Exciting personalities influence satisfaction by building around qualities of energy and youthfulness (Aaker, 1997) and attempting differentiation through unique and imaginative animations, atypical brand logos, special online functions, hip language, and so on (Aaker et al., 2004). For the same reason, imaginative personality, an important characteristic of exciting personalities (Siguaw, Mattila, & Austin, 1999), is likely to influence online gamers' satisfaction. Imaginative personality is the human thinking personality related to a brand, delivering a level of original and creative meaning to consumers. Online brands, particularly those related to online games, have pursued imaginatively exciting personalities when chasing younger demographics (Aaker et al., 2004). This phenomenon may be due in part to the strategies used by online marketers and advertisers to imbue an online game brand with personality traits such as anthropomorphization and the creation of gamer imagery (Aaker, 1997). Consequently, satisfaction increases when the perceived imaginative personality of online games is strengthened given that such a personality is attractive, attention-getting, capable of generating strong interest (Altschiller, 2000), and consequently holds an ideal in intimate relations (Aaker et al., 2004). The hypothesis is thus derived as follows:

H1: Perceived imaginative personality (IM) is positively related to satisfaction.

Compared to the young and trendy characteristics of an exciting brand, a sincere brand should harbor inherent advantages in fostering and encouraging a strong relationship quality (e.g., satisfaction, intimacy, and so on). Business organizations pursue sincere personality, seeking to establish themselves as cheerful, warmer, and more down-to-earth in consumer-brand interactions (Aaker et al., 2004). Thus, cheerful personality, an important subcharacteristic of sincere personalities, is likely to garner relationship advantages (e.g., satisfaction; Aaker et al., 2004). Perceived cheerful personality reflects perceptions of consumers about a brand that leads to genuine joy (e.g., Aaker, 1997; Aaker et al., 2004). Satisfaction increases when the perceived cheerful personality of an online game brand is strengthened given that such personality sparks inferences of gamer trustworthiness and dependability and supports satisfaction growth (Aaker et al., 2004; Moorman, Deshpande, & Zaltman, 1993). Thus, the hypothesis is derived as follows.

H2: Perceived cheerful personality (CH) is positively related to satisfaction.

Perceived successful personality derived from the competent personality should be considered in research related to online games given that games today are linked heavily to gamer performance (e.g., scores, skills, and/or kung fu) and incentives for performance (e.g., virtual currency, weapons, treasures), which stimulate the need for achievement in the virtual world (Tesch, Miller, Jiang, & Klein, 2007). Perceived successful personality serves as a symbolic or self-expressive function of obtaining individuals' accomplishments, representing an indispensable image or reputation of important achievement (e.g., Upshaw, 1995). Gamers

may prefer a specific brand of online games as if they were celebrities, heroes, or famous historical figures (Rook, 1985) or as they relate to their own self (Fournier, 1994). For these reasons, the greater the congruity is between the human nature and characteristics that consistently and distinctively characterize a gamer's actual or ideal self and those that characterize an online game brand, the greater the gamer preference and satisfaction will be for the brand (Malhotra, 1988; Sirgy, 1982). Therefore, the hypothesis is proposed as below.

H3: Perceived successful personality (SU) is positively related to satisfaction.

Although the above three personalities reflect a large proportion of variances for an online game brand, this study performs a theoretical extension, proposing a new construct that is salient to understanding our use of interactive entertainment technologies such as online games. Restated, given that online games alter patterns of social communication and interpersonal relationships (e.g., Griffiths, 2001), this study gives a probative effort to include a new personality—interactive personality—which is constructed by its characteristics of mutuality and the fascinating interaction process between human and computer.

Perceived interactive personality is particularly perceived more highly for online brands than for offline brands (Childers, Carr, Peck, & Carson, 2001; Chiu, Chiu, & Chang, 2007). For example, interactive technologies, such as video gaming, chat rooms, E-mail, and instant messaging, have greatly altered the way users interact with others, communicate, and express individual values and opinions (Venkatesh, 1985; Venkatesh & Vitalari, 1987). To date, online games provide not only purely entertainment but interactive channels that gamers may utilize to communicate, team up, and establish enduring partnerships with other online gamers. Given that this brand personality, which reveals interactive, concerted, and consolidated characteristics, is not available in the traditional five dimensions of personalities, this study proposes this new additional construct that may help learn how different brand personalities influence satisfaction. More explicitly, interactive personality refers to the extent to which the online game brand allows gamers to cultivate, foster, and maintain online relationships with others in their social network, including such capabilities as forming online teams and communicating with team members, which leads to strengthened gamer satisfaction.

H4: Perceived interactive personality (IN) is positively related to satisfaction.

2.2. Gaming Engagement as a Moderator

Gaming engagement has been a widespread phenomenon, but has attracted little attention in previous research (Nichols & Nicki, 2004). Considered to be nonchemical, excessive human–game interaction can be behaviorally defined as online gaming engagement (Soule et al., 2003) that contains reinforcing and motivating features that encourage continued gaming for hours (Nichols & Nicki, 2004). Previous research has indicated that Internet use itself, such as gaming and

gambling, might have addictive characteristics for engagement (Neumann, 1998). It is not surprising to see how much individuals' behaviors and personalities have substantially changed ever since the Internet has engulfed people's lives (Young, 2004). Given this, the influences of perceived brand personalities on satisfaction may be hypothetically moderated by gamer engagement that first dramatically changes their personalities and subsequently their perception about online game brands.

Hedonic IT such as online games has been widely acknowledged as a social medium that connects people to enhance social support via the IT with interactive personality, to obtain power via the IT with successful personality, to become attracted via the IT with imaginative personality, and to have fun via the IT with cheerful personality. Due to a great diversity of personalities of hedonic IT, online game players are likely to perceive a game brand differently according to time spent by the gamers or their gaming engagement, so to speak. This phenomenon suggests that gaming engagement may play a critical moderating role in the relationship between brand personalities and satisfaction.

For instance, the satisfaction of high-engagement gamers is more sensitively affected by the perceived imaginative personality (e.g., adventure, violence) than that of low-engagement gamers (Griffiths, 2000; Griffiths, Davies, & Chappell, 2004), given that high-engagement gamers familiar with special effects of online games respond strongly to game stimuli only by evoking more elaborate descriptions and more associative, imagery-laced perceptions. This phenomenon is consistent with previous research suggesting that a reasonable sense of world reality for high-engagement Internet users is likely lost through an immersion in virtual reality (Neumann, 1998).

H1a: The relationship between perceived imaginative personality (IM) and satisfaction is stronger among gamers with high engagement than those with low engagement.

In comparison with the satisfaction of high-engagement gamers, the satisfaction of low-engagement gamers is more likely influenced by the perceived cheerful personality. This phenomenon occurs because the low-engagement gamers sensitively respond to the amusing and playful effects under the stimuli of the games (Brody, 1992). Accordingly, the satisfaction of low-engagement gamers is more sensitively influenced by the perceived successful personality than that of high-engagement gamers, because low-engagement gamers experience fewer varieties of incentive-driven games easily and sensitively respond to game stimuli by evoking more triumphant and more prosperous, winning perceptions. Of course, it would be inaccurate to say that high-engagement gamers are not affected by the perceived cheerful and successful personalities. However, having already mastered plenty of games habitually (Neumann, 1998) and won a lot of game incentives and achieved certain gaming levels, high-engagement gamers become less sensitive with the perceived cheerful and successful personalities associated with enjoying, winning, or achieving something. Consequently, the hypotheses for the perceived cheerful and successful personalities are derived as follows.

- H2a: The relationship between perceived cheerful personality (CH) and satisfaction is stronger among gamers with low engagement than those with high engagement.
- H3a: The relationship between perceived successful personality (SU) and satisfaction is stronger among gamers with low engagement than those with high engagement.

The satisfaction of high-engagement gamers is hypothesized to be more sensitively influenced by the perceived interactive personality than that of low-engagement gamers. This is understandable, because high-engagement gamers who spend plenty of time online are likely to count on the game interactive feature more heavily than others. To put it differently, due to a long stay inside an online game, high-engagement gamers have stronger needs for discussing gaming strategies with online team members, chatting with online friends (Neumann, 1998), and sharing gaming experiences with online gamers, leading to their sensitive, interactive personalities being much greater than low-engagement gamers. Compared to the satisfaction of low-addiction gamers, the satisfaction of high-engagement gamers may be amplified more highly by relevant instrumental features (e.g., instant interactive personality). Thus, a hypothesis is formed as below.

- H4a: The relationship between perceived interactive personality (IN) and satisfaction is stronger among gamers with high engagement than those with low engagement.

3. METHOD

3.1. Subjects

The hypothesized research model in this study was empirically tested using survey data collected from online respondents regarding their use of online games. The questionnaires for this study were distributed via E-mail to online gamers in several large game Web sites. Gamers were recruited online for this study to help facilitate improved external validity. Respondents were selected for data collection purposes with the requirement that participating subjects must have had direct experience with playing at least one online multi-user game of the RPG (role-playing game) genre that may be more addictive and engaging than solitary games in general (Neumann, 1998) and represents a sizable proportion of the online game market. This particular genre was selected because our first pilot study (discussed below) indicated that an existing majority of the target subjects played RPG type games. Specifying RPG in this study helped researchers to offer appropriate question items that are easily understood by subjects given that different types of online games (e.g., RPGs, MUD games, simulation games, and shooting games) reflect different features (Kim, Park, Kim, Moon, & Chun, 2002) and require different question items for survey.

Of the 340 questionnaires distributed to subjects, 301 usable questionnaires were collected for a response rate of 88.5%. Respondents include 36 persons of

ages less than 20 (12.0%), 247 persons between 20 and 29 (82.1%), and the remaining 18 persons 30 or older (5.9%). In addition, respondents consisted of 67.1% males and 32.9% females. Two hundred sixteen gamers (71.8%) played online games for less than 4 hours a day on average (forming the low-engagement group), the remaining 85 gamers (28.2%) played for at least 4 hours or more per day (forming the high-engagement group). This is consistent with industry surveys in Taiwan, which indicate that over 30% gamers who are heavily addicted and engaged to online games spend more than 4 hours per day playing games (Yahoo News, 2006). Furthermore, researchers investigating the engaging potential of the Internet have supported that a significant relationship exists between the time spent online (a proxy of gaming engagement) and the negative consequences reported by users (Soule et al., 2003).

3.2. Measures

The constructs in this study are measured using 5-point Likert scales drawn and modified from the existing literature, and several steps are employed to choose items for measurement. First, the items from the existing literature were translated into Chinese. Second, some university professors and students were invited to examine the Chinese wording of each scale item and comment on its readability and content validity. These comments were used to reword inappropriate items correctly. Third, two pilot tests were conducted prior to the actual survey study to improve item readability and clarity. Finally, back-translation points proposed by Reynolds, Diamantopoulos, and Schlegelmilch (1993) were employed to compare the measurement of the Chinese version to that of the English version. A high degree of correspondence between the two versions of questionnaires assured us that the translation process did not introduce artificial translation biases in our Chinese language questionnaire.

Satisfaction with three items was modified from Maxham (2001). For example, an item "I am satisfied with (Internet provider)'s online service" from Maxham was revised to the item "I am satisfied with [Name of RPG]" in this study. Perceived successful personality with four items was modified from Choi and Kim (2004). A sample is: "I feel successful when obtaining more skills on [Name of RPG]." Perceived cheerful personality with four items was modified from Choi and Kim (2004), Richins (2004), and Wolfinbarger and Gilly (2001). A sample item is "Playing [Name of RPG] is interesting to me." Fun, interesting, and joy were main elements in these previous works for measuring individuals' cheerfulness or happiness and thus were included in this study for developing scale items. Perceived imaginative personality with four items was modified from Choi and Kim (2004) and Mathwick and Rigdon (2004). A sample item includes: "I feel entirely absorbed in the scene of [Name of RPG]." Perceived interactive personality with four items was modified from Wolfinbarger and Gilly (2001). A sample item includes: "I share my experience of online games with other gamers." These previous works are selected as key references for the development of measurement items in this study because the works emphasize the issue of consumers' perceptions toward specific services, which are analogous to that of this study.

4. RESULTS

4.1. Confirmatory Factor Analysis

For data analysis, this study first conducts confirmatory factor analysis (CFA) and then a hierarchical regression. In CFA, every construct in the measurement model is measured using at least three indicator variables as in Table 1. The overall goodness-of-fit indices shown in Table 1 (root mean square residual (RMR) smaller than 0.05; comparative fit index (CFI) and GFI larger than 0.8 despite normed fit index (NFI) and non-normed fit index (NNFI) being slightly smaller than 0.9) indicate that the fits are acceptable from an empirical aspect. In addition, reliabilities for all the constructs exceed 0.7, indicating that the reliabilities are acceptable. All factor loadings for indicators measuring the same construct are statistically significant (see Table 1), showing that all indicators effectively measure their corresponding construct and support convergent validity. Additionally, the average variance extracted (AVE) for each construct exceeds 0.50, suggesting that the hypothesized items capture more variance in the underlying construct than that attributable to measurement error.

The chi-square difference test is used to assess the discriminant validity of every two constructs by calculating the difference of the chi-square statistics for the constrained and unconstrained measurement models. The important advantage of the chi-square difference test is that it allows for simultaneous pair-wise comparisons for the constructs based on the Bonferroni method. Since we have to test the discriminant validity for every pair of five constructs, we should control the experiment-wise error rate (the overall significance level). By using the Bonferroni method under the overall 0.01 levels, the critical value of the chi-square test

Table 1: Standardized Loadings and Reliabilities

<i>Construct</i>	<i>Indicators</i>	<i>Standardized Loading</i>	<i>AVE</i>	<i>Cronbach's α</i>
Satisfaction	1	0.66 ($t = 11.98$)	0.57	0.79
	2	0.81 ($t = 15.50$)		
	3	0.79 ($t = 14.89$)		
Perceived imaginative personality (IM)	4	0.65 ($t = 11.26$)	0.54	0.77
	5	0.70 ($t = 12.19$)		
	6	0.82 ($t = 14.36$)		
Perceived cheerful personality (CH)	8	0.77 ($t = 15.36$)	0.67	0.89
	9	0.84 ($t = 17.38$)		
	10	0.84 ($t = 17.31$)		
	11	0.82 ($t = 16.74$)		
Perceived successful personality (SU)	12	0.83 ($t = 15.80$)	0.57	0.79
	13	0.62 ($t = 11.04$)		
	15	0.79 ($t = 14.82$)		
Perceived interactive personality (IN)	16	0.71 ($t = 11.93$)	0.51	0.75
	17	0.81 ($t = 13.63$)		
	19	0.61 ($t = 10.17$)		

Note: Indicators remaining after purification.

Goodness-of-fit indices ($N = 301$): $\chi^2_{94} = 281.97$ (p value < 0.001). NFI = 0.87, NNFI = 0.89, CFI = 0.91, GFI = 0.90, RMR = 0.04, RMSEA = 0.08.

Table 2: Chi-Square Difference Tests for Examining Discriminant Validity

Construct pair	Unconstrained χ^2 (d.f.=94) = 281.97	
	Constrained χ^2 (d.f. = 95)	χ^2 Difference
(SA, IM)	467.74	185.77*
(SA, CH)	450.88	168.91*
(SA, SU)	396.06	114.09*
(SA, IN)	490.03	208.06*
(IM, CH)	478.95	196.98*
(IM, SU)	502.47	220.50*
(IM, IN)	471.40	189.43*
(CH, SU)	505.07	223.10*
(CH, IN)	467.36	185.39*
(SU, IN)	497.36	215.39*

Note: SA = Satisfaction; IM = Perceived imaginative personality; CH = Perceived cheerful personality; SU = Perceived success personality; IN = Perceived interactive personality.

*Significant at the 0.01 overall significance level by using the Bonferroni method.

is $\chi^2(1, 0.01/10) = 10.83$. Since the chi-square difference statistics for every two constructs in Table 2 all exceed 10.83 for the model, discriminant validity is successfully achieved. Collectively, the above results suggest that instruments used for measuring the constructs of interest in this study are indeed statistically adequate.

4.2. Hierarchical Regression

Following CFA, a hierarchical regression is used to test our hypotheses. Hierarchical regression herein attempts to improve standard regression estimates by containing various control and independent variables to an ordinary model. Compared with the results obtained with a simple regression, the hierarchical regression model gives more stable and plausible estimates by simultaneously examining interaction effects (Bryk & Raudenbush, 1992). Table 3 lists the test results. Given the potential influence of age and education on Internet behavioral dependence (Hall & Parsons, 2001), control variables including age, education, and gender were entered at Step 1, followed by engagement at Step 2, four perceived personalities at Step 3, and interactions at Step 4. Note that gender entered at Step 1 as a control variable assures us that the uneven gender distribution in our subject sample is well restrained and does not mislead the empirical results (e.g., Mayer, Nishii, Schneider, & Goldstein, 2007). The moderator of engagement is included in the model by submitting the application of a dummy variable with two levels (low vs. high), as suggested by previously mentioned industry surveys in Taiwan.

According to these test results in Step 3 (see Table 3), IM, CH, and SU are positively related to satisfaction (H1, H2, and H3 are supported), whereas there is an insignificant relationship between IN and satisfaction (H4 is not supported). Moreover, IM–engagement interaction is significant with a positive coefficient

Table 3: Hierarchical Regression

	<i>Satisfaction</i>							
	β	<i>t</i>	β	<i>t</i>	β	<i>t</i>	β	<i>T</i>
Step 1								
Control:								
Gender	0.11	1.16	0.10	1.15	0.03	0.38	0.01	0.07
Education	-0.08	-0.61	-0.05	-0.42	-0.08	-0.80	-0.06	-0.66
Age	-0.18	-1.34	-0.26	-1.64	0.00	-0.04	-0.06	-0.49
Step 2								
Engagement(EN)			-0.11	-0.94	0.07	0.74	1.03	1.92
Step 3								
IM					0.14**	3.06	0.05	0.85
CH					0.29**	5.53	0.39**	5.98
SU					0.37**	7.92	0.46**	7.89
IN					0.02	0.37	0.07	1.37
Step 4								
IM × EN							0.25*	2.39
CH × EN							-0.23*	-2.09
SU × EN							-0.19*	-2.06
IN × EN							-0.08	-0.67
Adj R ²	0.00		0.00		0.39		0.41	

Note: IM = Perceived imaginative personality; CH = Perceived cheerful personality; SU = Perceived success personality; IN = Perceived interactive personality, EN = Engagement.

* $p < 0.05$; ** $p < 0.01$.

(see Table 3), suggesting that the relationship between IM and satisfaction is moderated by engagement and such a relationship is stronger among gamers with high engagement than those with low engagement (H1a is supported). At the same time, SU–engagement interaction and CH–engagement interaction with negative coefficients are significant (see Table 3), indicating that the moderating effects of engagement exist; that is, the relationships between SU and satisfaction and between CH and satisfaction are stronger among gamers with low engagement than those with high engagement (H2a and H3a are supported). Finally, IN–engagement interaction is insignificant, revealing that the relationship between IN and satisfaction is not moderated by engagement (H4a is not supported). The example plots for three supported hypotheses, H1a, H2a, and H3a, are shown in Appendix A.

The failure for the unsupported hypothesis about the relationship between IN and satisfaction is interesting and may arise because of the interactive functions that gamers have taken for granted in a modern society. In other words, given that interactive technology is ripe in online game industries, the interactive personality of a game becomes less distinguishable from that of other games. As a result, satisfaction is insignificantly related to the interactive personality perceived by a gamer. The unexpected results for the unsupported hypotheses may warrant further study.

5. DISCUSSION AND MANAGERIAL IMPLICATIONS

This study provides a research model of how online brand personalities influence gamer satisfaction. The test results of this study reveal that the linkages from IM,

CH, and SU to satisfaction are significant and they are also moderated by gaming engagement. These findings indicate that learning online brand personalities help improve gamer satisfaction. Specifically, an investment in establishing brand personalities that strongly reflect imaginative, cheerful, and successful features benefits game providers in the form of increased gamer satisfaction.

This study also suggests several issues of potential relevance to online vendors and management interested in enhancing the level of gamer satisfaction. First, given that this study observed different online brand personalities to be significant predictors of satisfaction, management should routinely survey gamer perceptions about online game personalities as a means of understanding their likelihood of future satisfaction on the game. Online vendors, particularly those for interactive online games, should also recognize that gamer perceptions about success, cheerfulness, and imagination are valuable leading indicators of the future satisfaction of their online games, because unfavorable satisfaction implies that the target game may be resented and resisted by the target population. In such circumstances, active intervention strategies should be employed to improve gamer satisfaction toward the online game and avoid any potential marketing failure.

Because it was found in this study that perceived imaginative personality is important in motivating gamer satisfaction, most online game vendors must keep their games "fresh" and enhance gamer satisfaction by continuously renewing fanciful storylines or scripts in vogue such as Superman or Spiderman or by simulating adventure and imaginations not possible in real life, such as war games or space exploration. Meanwhile, no matter what trouble online game providers take to increase satisfaction, the effects of their efforts remain subject to the influence of gaming engagement. For instance, the stronger relationship between IM and satisfaction for gamers with high engagement versus those with low engagement suggests that gamers with high engagement are more sensitive than others to the factor that strengthens their sense of imagination. Given that gamers with high engagement are likely to have high game familiarity and show a great eagerness toward game playing, they are more likely than others to get fatigued as soon as games become not as "new" to meet their needs of imagination.

The stronger relationship between CH and satisfaction and between SU and satisfaction for gamers with low engagement versus those with high engagement suggests that gamers with low engagement are more sensitive than others to the factors that strengthen their sense of joy and achievement. This phenomenon may be explained because gamers with low engagement are likely to reveal relatively high game alienation and low gaming experience, leading to their sensitivity to successful and cheerful personalities. As a result, they are easily motivated and attracted to play games that emphasize cheerful and successful features. This finding suggests that an instrumental function highly related to cheerful features is more important for low-engagement gamers. Hence, it is important to have a continuous feature enhancement so that cheerful personalities can be well exhibited to gamers. Management should prevent the promotion of tough and complex games in the beginning for gamers with low engagement to avoid any discouragement or a sense of failure perceived by the low-engagement gamers. Accordingly, management may strengthen SU by transforming online successful outcomes

(e.g., online treasures and virtual currency) into real-world achievement (e.g., real-world jackpot and premium). In this way, low-engagement gamers will be ultimately attracted by the games with strong SU, spending more time on games in the long run.

6. LIMITATIONS AND FUTURE RESEARCH

This study suffers from four limitations that relate to the measurement and interpretation of results. The first limitation is the possibility of common method bias in this study. This study used a single questionnaire to measure constructs, which may inflate the strength of the relationships among the constructs. The second limitation is related to the application of confirmatory factor analysis (CFA) in this study. Although CFA has causal assumptions, it is still based on correlations among constructs, suggesting that the findings of this study should be applied with a great caution. That is, longitudinal surveys in a certain period of time and/or longitudinal data collected by experiments can be important complements to this study. The third limitation of our study is the use of online subjects. Using online users is not uncommon in IT usage research, though such a sampling might restrict the generalizability of our results to potentially offline gamers at large. Nonetheless, online gamers comprise a large segment of the game user population; hence, any feedback from the online gamer population may help online game industries improve their product design and our use of online subjects may not be a critical flaw in this study. The fourth limitation is that the results may not be construed to be representative of all gamers from all the countries around the world due to the highly delimited nature of the sample. For example, national cultural differences may influence the tastes, preferences, and evaluations of online gamers. It might be premature to make a generalization applying to all circumstances around the globe without further research from a cultural perspective. Future studies can try to improve such shortcomings by directly observing the subjects over time and making comparisons across different national cultures.

7. CONCLUSIONS

Interactive online games provide a major portion of the global entertainment sector in a competitive online market, and gamers' satisfaction is important for the survival of game providers given that the gamers are likely to continue paying for particular games that are perceived as fitting them. This study examines the relationship between the perceived brand personality of online games and gamers' satisfaction considering gaming engagement as a critical moderator. The findings of this study indicate that learning online brand personalities helps improve gamer satisfaction. Specifically, an investment in establishing brand personalities that strongly reflect imaginative, cheerful, and successful features benefits game providers in the form of increased gamer satisfaction.

In conclusion, this article presents the importance of hedonic brand personalities applied in a virtual world. The proposed model has been empirically supported

using a survey study of online game usage among gamers. The proposed model may stimulate future IT usage researchers to creatively consider how to tailor generic IT satisfaction models to extend them in order to generate improved explanations for IT satisfaction in specific contexts. Game providers may find it useful to examine how effective engagement-based market segmentation strategies can associate the proposed antecedents with satisfaction. Segmenting the market in such a manner and modifying the appeals and strategies to fit these segments may assist game providers in competing within this increasingly crowded market.

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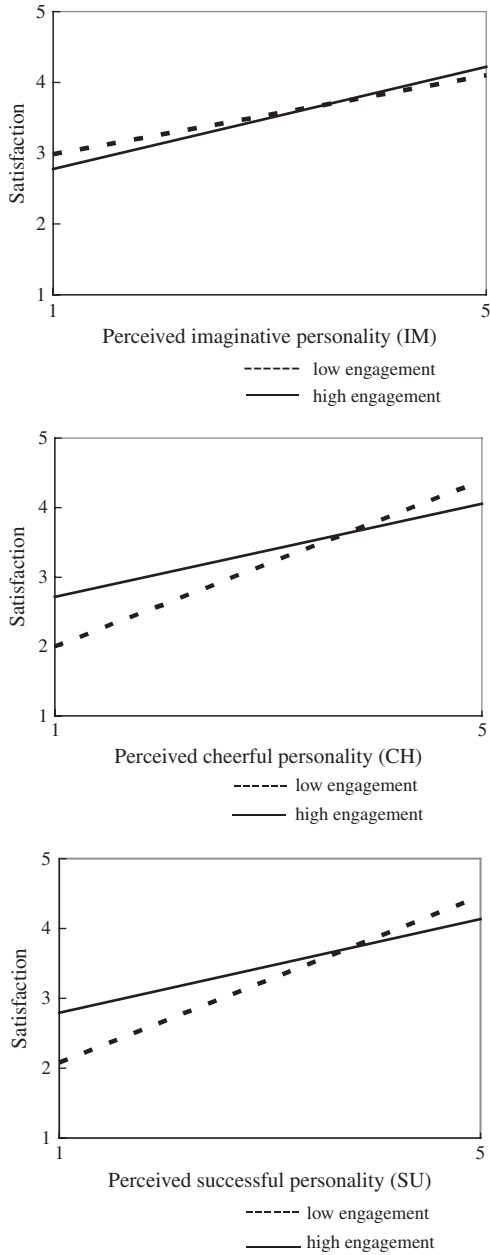
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APPENDIX A

Satisfaction Scores Regressed on Scores of Personalities



Note. The relationship between satisfaction and perceived interactive personality is not provided given its insignificance.