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PERSONALITY FACETS AND CUSTOMER LOYALTY IN ONLINE GAMES

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Abstract

Online games have attracted numerous customers and brought stable revenues to game providers. However, some customers frequently switch to other games, and thus, it is important to identify which customers are likely loyal customers. The literature has identified openness, conscientiousness, and extraversion as predictors for loyalty in online games (Teng, Huang, Jeng, Chou, & Hu, 2008). However, the three broad traits contain multiple facets. Thus research addressing the three broad traits may mix the influences of multiple facets. Thus this study investigates the influences of personality facets on online game customer skill, challenge, flow experience, and loyalty.

The sample comprised 994 online gamers. This study employed structural equation modeling for analysis, and found that (1) ideas and achievement striving are positively related to skill, (2) achievement striving, competence, and excitement-seeking are positively related to challenge, (3) gregariousness is positively related to interdependence, (4) fantasy, skill, challenge, and interdependence are positively related to customer likelihood of experiencing flow, and (5) experienced flow is positively related to customer loyalty.

The study findings suggest managers improve gamer skill and challenge when gamers are in their early stages in online games, boosting their likelihood of experiencing flow and thus building their loyalty. Managers are also suggested to target individuals who are high in personality facets such as ideas, achievement striving, competence, excitement- seeking, to effectively build a loyal customer base. Educators are also suggested to notice students who are high in those personality facets, because these students may continuously play online games when they begin to play.

Keywords: Online games, personality trait, personality facet, flow experience, skill, challenge, customer loyalty

Introduction

DFC Intelligence (2006) forecasted that the global revenues of online gaming industry would reach 13 billion dollars in 2011, indicating that online gaming is an important industry. Online gamers frequently switch between games (International Data Corporation, 2008), resulting in losses of game provider revenues. Gamer loyalty may bring substantial and stable revenues.

Recently, Teng (2008) adopted the Big Five personality typology of Costa & McCrae (1992) and found that openness, conscientiousness, and extraversion significantly differ between online gamers and individuals who do not play online games. Each personality trait comprises several facets. For example, conscientiousness contains facets of order, achievement striving, and ability. Thus employment of personality facets can describe personality more preciously, revealing the opportunities to precisely identify the personality of loyal gamers. Identification of loyal gamer personality enables effective allocation of marketing resources. Thus this study investigates the relations between personality facets and gamer loyalty.

Literature

Loyalty indicates the willingness to make repetitive purchases (Dick & Basu, 1994), and thus is one key indicator of marketing effectiveness. Applying loyalty to the e-commerce contexts, e-loyalty indicates the positive attitudes that motivate customers to repetitively purchase from certain e-businesses (Anderson & Srinivasan, 2003). The literature seldom addressed the relations between loyalty and personality, indicating the needs for research.

The literature demonstrated the personality influences on individual behaviors in multiple business contexts (Teng, Hsu, Chien, & Chang, 2007; Teng, Huang, & Tsai, 2007). Recent studies have identified that openness, conscientiousness, and extraversion are three key personality traits in online gaming (Teng, 2008). Thus this study aims to further investigate the facets associated with these three traits. Utilization of facets is more precious then that of broad traits (Soto & John, 2009).

Costa & McCrae (1992) delineated 18 facets regarding these three traits. Inclusion of all 18 facets makes a study overly complex, supporting the necessity to include part of them. Basing on the relevance with gamer loyalty, the present study chose to investigate 7 of them, that is, fantasy, ideas (as included in openness), order, achievement striving, competence (as included in conscientiousness), excitement-seeking and

Hgregariousness (as included in extraversion).

Costa & McCrae (1992) defined all the facets. Fantasy indicates the individual tendency to position oneself in a virtual environment imagined by ones' self. Ideas indicate the individual willingness to understand and learn new knowledge. Order indicates the employment of organization and regularity. Achievement striving is aggression and strong needs for a sense of achievement. Competence indicates belief in self's abilities. Excitement-seeking is the tendency to be bold and adventurous. Gregariousness refers to the preference to being in groups.

When discussing the relations between personality and gamer loyalty, flow is one critical mediator (Teng *et al.*, 2008), motivating the present study to include flow as a key moderator. Flow is an experience in which individuals totally concentrate on activities and obtain implicit pleasures (Hsu & Lu, 2004). In flow, customers lose the senses of themselves and perceive distorted time duration (Csikszentmihalyi, 1997). Flow fosters extreme or optimal pleasure in Internet activities (Chen, Wigand, & Nilan, 1999; Csikszentmihalyi, 1997). The reinforcement theory (Skinner, 1969) posits that positive experiences or feedbacks motivate individuals to conduct behaviors associated with repetitive experiences or continuous feedbacks. Applying the reinforcement theory to flow, online gamers who experience flow are likely to play online games repetitively for experiencing flow again. Restated, flow urges gamers to repetitively play online games, indicating the potential relation between flow and gamer loyalty.

The literature indicates that flow comprises high levels of skills and challenges (Chen *et al.*, 1999). Skill indicates the capability for engaging in activities (Novak, Hoffman, & Yung, 2000). Applying the definition of skill to online gaming, the present study defined skill as the capabilities for gamers to engage in gaming. Challenge indicates the opportunities with which users can demonstrate their capabilities (Hoffman & Novak, 1996). The present study, in online gaming contexts, defined challenge as difficulties with which gamers accept and implement tasks in online gaming. Since skill and challenge are two keys to flow, the present study took them into our theoretical model.

The literature on flow has not covered the social aspect in online gaming. When gamers regard their friends as very important, they are likely to devote much of their energy to online gaming, creating a high level of concentration. Concentration also drives flow (Hsu & Lu, 2004). Thus consideration of the social aspect is adequate when discussing antecedents of flow. In the literature of Internet interpersonal relationships, interdependence is one important construct, which increases the intimacy and relevance of online friends to individuals (Parks & Floyd, 1996). Interdependence is thus likely another antecedent of flow. The following develops the hypotheses that linking personality, flow and its antecedents, and gamer loyalty.

Hypotheses

Fantasy indicates the individual tendency to position oneself in a virtual environment imagined by ones' self (Costa & McCrae, 1992). That is, individuals characterized by a high level of fantasy may likely posit themselves into gaming worlds and loss their sense of selves. Since the loss of sense of one's self features flow (Csikszentmihalyi, 1997), a positive relation can be hypothesized between fantasy and flow.

H1: Fantasy is positively related to flow.

Ideas indicate the individual willingness to understand and learn new knowledge (Costa & McCrae, 1992). Individuals with a high level of ideas are likely to understand and learn new knowledge regarding the game world when playing online games. They are likely to increase their capabilities (or skills) in gaming faster than other gamers, creating a hypothetical relation between ideas and skills.

H2: Ideas is positively related to skills.

Order indicates the employment of organization and regularity (Costa & McCrae, 1992). Applying this trait to online gamers, online gamers with a high level of order are likely to search official or forum websites to look for tips, maps, stories, quests, scenarios, or secrets for successful gaming, in order to make their gaming organized. Organized gaming behavior increases their capability for successful gaming (or gaming skills). Thus this study hypothesized a positive relation between order and skills.

H3: Order is positively related to skills.

Achievement striving is aggression and strong needs for a sense of achievement (Costa & McCrae, 1992). Individuals with strong achievement striving are likely to be diligent, purposive, and achievement- oriented (Costa & McCrae, 1992). In online gaming, gamers with strong achievement striving are likely to be diligent in improving their gaming capabilities (or skills) for reaching their goals and achievements in online gaming, thus yielding a positive link between achievement striving and skills.

H4: Achievement striving is positively related to skills.

Individuals with strong achievement striving are likely to be diligent, purposive, and achievement- oriented (Costa & McCrae, 1992). Applying to

online gaming, gamers with strong achievement striving are likely to accept tough challenges that enhance their sense of achievement when overcoming those challenges. Restated, achievement striving may be positively associated with the difficulties of which challenges accepted.

H5: Achievement striving is positively related to challenges.

Competence indicates individual belief in one's capabilities (Costa & McCrae, 1992). Such construct is similar to self-efficacy. The self efficacy theory (Bandura, 1997) posits that self-efficacy (the belief in that oneself can accomplish certain tasks) improves individual tendency to engage in associated activities. In online gaming, contexts, gamers who have strong competence (or self-efficacy) are likely to engage in difficult gaming tasks in which they feel they are capable to deal with. Restated, competence may have a hypothetical relation with challenges.

H6: Competence is positively related to challenges.

Excitement-seeking is the tendency to be bold and adventurous (Costa & McCrae, 1992). Uncertainty and risks are generally associated with adventures. Thus individuals with strong excitement- seeking tendency are likely to accept uncertainty and risks. In online gaming, touch challenges are generally associated with uncertainty, risks, and novel virtual-world adventures that fascinate gamers with strong excitement-seeking.

H7: Excitement-seeking is positively related to challenges.

Gregariousness refers to the preference to being in groups (Costa & McCrae, 1992). The preference to being in groups prevents individuals to do anything deviating from the opinions of other group members. Individuals with strong gregariousness are thus likely to rely on other group member for making decisions. Reliance on others for making decisions was defined as interpersonal interdependence (Parks & Floyd, 1996). Thus gregariousness may have a positive link to interdependence.

H8: Gregariousness is positively related to interdependence.

The literature agrees that skill is one key antecedent to comprise flow (Novak *et al*., 2000; Teng *et al*., 2008). The theory of four channels of flow (Csikszentmihalyi, 1997) also indicates that a high level of skill is necessary for creating flow. This study agrees with the literature and thus hypothesized a positive relation between flow and skills. Although this hypothesis is not new to the literature, this hypothesis is necessary in linking personality and gamer loyalty, indicating its adequacy to be developed.

H9: Skill is positively related to flow.

The literature and the theory of four channels of flow (Csikszentmihalyi, 1997; Novak *et al*., 2000) also agree that challenge is a key to flow experiences. The present study agrees with the literature and thus hypothesized the positive link between challenge and gamer likelihood of experiencing flow.

H10: Challenge is positively related to flow.

Reliance on others for making decisions was defined as interpersonal interdependence (Parks & Floyd, 1996). In online games, gamers often form task groups that are aimed to collectively accomplish difficult tasks and exciting adventures. In such tasks and adventures, gamers need successful teamwork and total concentration of all members since they are critical for the group success. Total concentration to gaming is thus expected or required by all group members. Gamers with strong interdependence with other gamers are thus likely strongly motivated to comply with such expectation or requirement, by totally concentrating on gaming. Total concentration is key to flow (Hsu & Lu, 2004), consequently yielding a positive link between interdependence and flow.

H11: Interdependence is positively related to flow.

Flow is an implicitly happy and enjoyable experience (Csikszentmihalyi, 1997), which brings positive value to users. The reinforcement theory (Skinner, 1969) posits that positive feedbacks reinforce or encourage individuals to engage in activities that may repetitively bring positive feedbacks. Applying to online gaming contexts, gamers who experienced flow are likely to play online games repetitively, since they are reinforced by positive feelings associated with flow. Thus flow and gamer loyalty may have a positive relation.

H12: Flow is positively related to gamer loyalty.

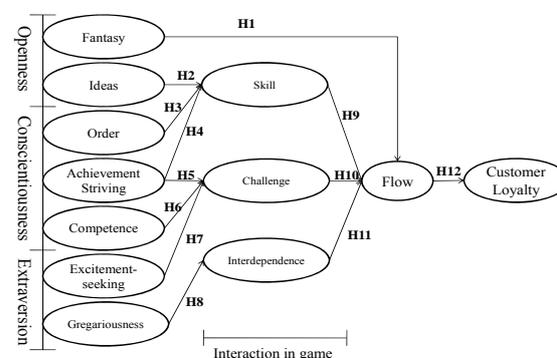Figure 1 illustrates the study hypotheses.

Figure 1: Conceptual Framework

Methods

This study utilized a web form for collecting data.

Online gamers were solicited from forums and electronic bulletins associated with online games. The sample comprised 1013 online gamers, leading to 994 effective responses and an effective response ratio of 98.1%. Among the sample, 63.9% were male, 46.2% were aged <22 years old, and 62.0% had a monthly income >$100 US.

Items measuring personality facets came from the NEO-PI-R developed by Costa and McCrae (1992). Items measuring skill, challenge, and flow came from the scales of Novak *et al.* (2000). Items measuring gamer loyalty were modified from the scale of Zeithaml, Berry, and Parasuraman (1996). Items measuring interdependence came from the scale of Parks and Floyd (1996). Items were slightly modified to fit the research contexts.

Items measuring each construct had Cronbach's α >.7, except for items measuring order. Such exception may come from some strong sentences made in the items measuring order, encouraging future examination of the order scale. Items measuring each construct had a composite reliability >.6 and an average variance extracted (AVE) >.5, satisfying the criterion of Bagozzi and Yi (1988) for reliability.

All indicator loadings exceeded .5 and had t values >2, suggesting the convergent validity. The maximum squared correlation between constructs (.31) was below the minimum AVE (.55), indicating the discrminant validity for the study measures.

This study conducted a confirmatory factor analysis and yielded fit indices that are acceptable ($\chi2$=5392.59, NFI=.90, CFI=.91, IFI=.91, RMSEA=.081). Correlations between constructs were <.56, further suggesting the measurement discriminant validity and the absence of common method biases.

Analysis

This study utilized structural equation modeling technique to test the hypotheses. Table 1 lists the testing results. All hypotheses were supported, except for the path from order to skill, which had a path coefficient of .04. One potential explanation may be that order is related to both organization and regularity (Costa & McCrae, 1992). Organization, though, helps learning in online games, whereas organization and regularity formulate gamer rigidity in their gaming behavior. The rigidity of gaming behavior may take a period of time to be changed even when they learn something new from other gamers. Thus this study did not observe the hypothetical positive relation between order and gamer skills.

Table 1: Hypotheses Testing Results

Hypothesis	Path
H1: Fantasy → Flow	.34*
H2: Ideas → Skill	.24*
H3: Order → Skill	.04
H4: Achievement Striving → Skill	.16*
H5: Achievement Striving → Challenge	.15*
H6: Competence → Challenge	.19*
H7: Excitement-seeking → Challenge	.09*
H8: Gregariousness → Interdependence	.08*
H9: Skill → Flow	.11*
H10: Challenge → Flow	.08*
H11: Interdependence → Flow	.11*
H12 Flow → Loyalty	.28*

Note. Path denotes the standardized path coefficient. * denotes a *p* value <.05.

The fit indices of the structural model were also acceptable ($\chi2$ = 6256, NFI = .88, CFI = .89, IFI= .89, RMSEA = .089), indicating the fit of our theoretical model to the empirical data.

General Discussion

This study identified six personality facets that may indirectly lead to gamer loyalty, contributing to the Internet marketing and the e-business literature. This study also supported the moderator role of skill, challenge, interdependence, and flow in the relations between personality facets and gamer loyalty, explaining the processes by which personality facets formulate the gamer loyalty.

Specifically, this study found that: (1) ideas and achievement striving are positively related to skill, (2) achievement striving, competence, and excitement- seeking are positively related to challenge, (3) gregariousness is positively related to interdependence, (4) fantasy, skill, challenge, and interdependence are positively related to customer likelihood of experiencing flow, and (5) experienced flow is positively related to customer loyalty.

This study extended the study of Teng *et al.* (2008) which found that openness, conscientiousness, and extraversion are critical personality traits to online gaming. The present study in-depth investigated the relations between personality and gamer loyalty by utilizing personality facets that explain and describe personality than broad traits. The present study demonstrated that six facets among the three traits (as discussed in Teng *et al.*, 2008) were critical to gamer loyalty, enabling subtle targeting and customer management practices of online game providers.

This study recommends online game providers to target the prospect gamers who are high in fantasy, ideas, achievement-striving, competence,

excitement- seeking, and gregariousness. According to the analytical results of the present study, gamers who are high in these facets are likely to experience flow, and thus likely to become loyal customers. The social psychology literature has indicated numerous demographics highly associated with personality, providing further guidance in game provider targeting decisions.

Game providers are also suggested to ask their new registered gamers to fill several items regarding the six facets, for the purpose to identify who are less likely to experience flow. According to the present study findings, new gamers who are low in these six facets are less likely to become loyal customers, due to the difficulties to experience flow. Thus game providers may ask their game managers or customer support staff to monitor and help such customers to increase their skill, encourage them to encounter challenges, and help build interpersonal relationships with other gamers, for facilitating them to access flow experiences.

This study did not measure all facets provided by Costa and McCrae (1992), which comprises one limitation. This study thus cannot help understand whether other facets are influential. However, this study laid an initial foundation for subsequent investigations into the relations between all other facets and gamer loyalty.

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