Rapid Communication

Modeling Relationship Quality and Consumer Loyalty in Virtual Communities

Wen-Kung Lin, M.S.,1 Chou-Kang Chiu, Ph.D.,2 and Yuan-Hui Tsai, Ph.D.3

Abstract

This study examines the formation of consumer loyalty in the context of online games. The test results indicate that both satisfaction and commitment positively influence loyalty. Virtual power status, relational interacting behavior, incentive utility, and feature enhancement positively influence satisfaction, while power status, relational interacting behavior, and incentive utility also positively influence commitment. Last, the moderating effects of gender and the implications of the findings are discussed.

Introduction

Interactive online games have been a major portion of the global entertainment sector due to breakthroughs in technology and broadband infrastructure development. Because gamers usually pay fees to play online games according to game playing time, online game providers should try to improve gamers' retention. Previous studies demonstrate the importance of relationship quality and loyalty and their impact on firm profitability and customer retention. This study identifies the critical loyalty determinants from the perspective of users and also clarifies their importance in loyalty formation across different genders.

Research Framework and Hypotheses

The conceptual model includes seven constructs: virtual power status, relational interacting behavior, incentive utility, and feature enhancement indirectly influence consumer loyalty via the mediation of satisfaction and commitment. Gender moderates each model path.

Satisfaction is considered as a feeling reaction to the perceived difference between performance appraisal and expectations toward the game. Commitment can be defined as a long-term orientation toward an online game that is grounded on emotional bonds and a conviction that sticking to the game will yield more benefits than terminating the preference toward the game. Empirical evidence has been found for significant influences from satisfaction and commitment to loyalty. Gamers who are satisfied with the games will respond with a more positive emotional mood or affect, leading to increased loyalty. Strong support for commitment as an important direct antecedent of consumer loyalty has been found in previous research. Given that satisfaction and commitment are related but distinct constructs, the following hypotheses are thus derived:

H1: Satisfaction positively influences loyalty.
H2: Commitment positively influences loyalty.

Virtual power status is defined as a form of power that consists of respect, consideration, and admiration from others and represents the goals of an online culture; it also presents a command and status over material, strengths, and experiences necessary to advance the self-interest of a gamer in the cyberworld. Persons scoring high on virtual power status use their online achievements (e.g., experience index, a higher gamer level) as tools to impress others and as a symbol of success, consequently leading to higher satisfaction and commitment toward the game. Consequently, the hypotheses are briefly described as follows:

H3: Virtual power status positively influences satisfaction.
H4: Virtual power status positively influences commitment.

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Relational interacting behavior is a behavioral tendency displayed by a gamer to cultivate and maintain online relationships with others via mutual communications. The greater the degree of interactivity, the more likely it is for the Web site to be considered a top one, suggesting that the relational interacting behavior may substantially influence gamers’ pleasant experiences toward the online game. Higher satisfaction and commitment are achieved through such an optimal experience of pleasant social interactions with other online gamers. Thus, hypotheses are restated as follows:

**H5:** Relational interacting behavior positively influences satisfaction.

**H6:** Relational interacting behavior positively influences commitment.

Incentive utility is influential to gamers in two ways. First, satisfaction increases with incentive utility, because online incentives not only can help game providers keep a long-term relationship with gamers but also can successfully implement a business philosophy of rewarding the right gamers. Second, an incentive utility augmenting emotional and cognitive switching barriers consequently leads to increased commitment toward the game. From the above findings, the following hypotheses can be derived:

**H7:** Incentive utility positively influences satisfaction.

**H8:** Incentive utility positively influences commitment.

The feature enhancement of online games can substantially influence consumer evaluations and future attitudes, as the entertainment feature is a key ingredient that attracts consumers in general. A good quality feature can bring on pleasurable bonds and emotional conviction and consequently yield strong gamers’ preference for the game, leading to a strong commitment toward the game. Hence, the hypotheses can be stated as follows:

**H9:** Feature enhancement positively influences satisfaction.

**H10:** Feature enhancement positively influences commitment.

Females respond to nonverbal stimuli by evoking more associative, imagery-laced interpretations and more elaborate descriptions than males do. This phenomenon suggests that fundamental gender differences may contribute to the moderating role on the linkages between attitudes (e.g., satisfaction and commitment) and loyalty, because online games bring about stimuli and imagery-laced interpretations different from those of products demonstrated in a physical store. Thus, the hypotheses are summarized as the following:

**H1a:** The linkage between satisfaction and loyalty is stronger for males than for females.

**H2a:** The linkage between commitment and loyalty is stronger for females than for males.

In comparison with females, a strong pattern is found for men who rate status (prestige) and earning power (authority) quite highly, suggesting ways in which the influences of virtual power status on satisfaction and on commitment differ across gender. Thus, the hypotheses can be developed as follows:

**H3a:** The linkage between virtual power status and satisfaction is stronger for males than for females.

**H4a:** The linkage between virtual power status and commitment is stronger for males than for females.

Females focus more on creating intimate interactions with others, while males emphasize asserting independence and seeking the status of respect. Feminine traits sensitively reflect care for others, the importance of interacting relationships (or relational exchanges), and compromise and negotiation in conflict resolution during interactions with others. Hence, the hypotheses are stated as follows:

**H5a:** The linkage between relational interacting behavior and satisfaction is stronger for females than for males.

**H6a:** The linkage between relational interacting behavior and commitment is stronger for females than for males.

Male traits reflect more aggressiveness and higher ambitions for achieving goals and rewards, and this may be attributable to gender socialization processes: males are taught to be independent thinkers and to assert themselves. Research on gender stereotypes has discussed that being too utilitarian violates feminine gender-role norms, and therefore the weaker satisfaction and commitment of females versus that for males are formed despite the same virtual incentives provided across gender. Consequently, the hypotheses are stated as follows:

**H7a:** The linkage between incentive utility and satisfaction is stronger for males than for females.

**H8a:** The linkage between incentive utility and commitment is stronger for males than for females.

Lower computer aptitude among females may make the influences of online game features on satisfaction and commitment less salient. Moreover, males are more sensitive to relevant task-oriented and instrumental functions (e.g., game video features) than females when making product judgments. Consequently, the hypotheses are given as follows:

**H9a:** The linkage between feature enhancement and satisfaction is stronger for males than for females.

**H10a:** The linkage between feature enhancement and commitment is stronger for males than for females.

**Research Methods**

The participants surveyed by questionnaires were undergraduates from a university in Taiwan. Of the 1,000 ques-
tionnaires distributed, 501 usable questionnaires were returned to the researchers (response rate of 50.1%), comprising 340 males (68%) and 161 females (32%).

The constructs in this study are measured using 5-point Likert scales. Loyalty with six items, satisfaction with five items, and commitment with four items are drawn and modified from several sources.4,15–17 Virtual power status with five items is modified from Yamauchi et al.16,17 Incentive utility with four items and relational interactive behavior with four items are modified from Choi and Kim.8 Finally, feature enhancement with four items is modified from Lii et al.19 The scale is designed and modified to fit role-playing game (RPG) category of online games. This is important because constructs related to loyalty cannot be precisely measured and revealed if the specific category of the online game is not well announced in the questionnaire.

Model testing

This study applies a two-step procedure of SEM (structural equation modeling). A root mean residual (RMR) smaller than 0.05 and comparative fit index (CFI), non-normed fit index (NNFI), goodness of fit index (GFI), and adjusted goodness of fit index (AGFI) greater than 0.9 indicate that the fits of the model are all satisfactory. The reliability of Cronbach’s alpha for all constructs exceed 0.7, satisfying the general requirement of reliability for instruments. By using the Bonferroni method under the overall 0.05 and 0.01 levels, the critical values of the chi-square test are respectively \( \chi^2(1, 0.05/21) = 9.23 \) and \( \chi^2(1, 0.01/21) = 12.21 \). The chi-square difference statistics for every two constructs all exceed 12.21, so discriminant validity is successfully achieved.

To avoid making any improper inferences, game addiction (continuous playing time online) is included as a control variable, using the application of dummy variables to reduce experimental errors. Table 1 lists the test results for structural models, indicating that all paths except one (H10) are significant.

Using SEM again, a further test for subgroup analysis is performed by the sample divided into two subgroups (males and females). This study uses the analytical strategy of Singh to examine the existence of the moderating effect on the structural model.21 The chi-squared statistics for the unconstrained and constrained models are 1121.3 (df = 548) and 1166.6 (df = 558) respectively. Their difference is 45.3, with 10 degrees of freedom. The significant difference (at the 1% level) indicates that moderating effects indeed do exist. The test results are summarized in Table 2.

Results

Based on Table 1, one path (H10) is not supported, while the remaining paths are all significant (H1–H9 are supported). Table 2 lists the test results for the moderating effect. The unsupported H3a, H5a, and H8a represent that the relationships on the three paths are non-gender specific. This phenomenon might be because some exogenous factors reflect a part of human nature, which under some circumstances may be equally important across gender to influence satisfaction and commitment.

Discussion and Managerial Implications

The stronger influence of satisfaction on loyalty among males than among females and the stronger influence of com-

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Standardized coefficient</th>
<th>t value</th>
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<tbody>
<tr>
<td>H1</td>
<td>0.50***</td>
<td>10.21</td>
</tr>
<tr>
<td>H2</td>
<td>0.29***</td>
<td>6.12</td>
</tr>
<tr>
<td>H3</td>
<td>0.37***</td>
<td>6.25</td>
</tr>
<tr>
<td>H4</td>
<td>0.39***</td>
<td>6.21</td>
</tr>
<tr>
<td>H5</td>
<td>0.10*</td>
<td>1.89</td>
</tr>
<tr>
<td>H6</td>
<td>0.12**</td>
<td>2.22</td>
</tr>
<tr>
<td>H7</td>
<td>0.08*</td>
<td>1.67</td>
</tr>
<tr>
<td>H8</td>
<td>0.22***</td>
<td>4.29</td>
</tr>
<tr>
<td>H9</td>
<td>0.36***</td>
<td>7.50</td>
</tr>
<tr>
<td>H10</td>
<td>0.05</td>
<td>0.98</td>
</tr>
</tbody>
</table>

*p < 0.10; **p < 0.05; ***p < 0.01.

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<thead>
<tr>
<th>Hypothesis</th>
<th>Unconstrained ( \chi^2(548) = 1121.3 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1a</td>
<td>1128.4 7.1*** 0.68*** 0.32*** M &gt; F Supported</td>
</tr>
<tr>
<td>H2a</td>
<td>1136.0 14.7*** 0.13** 0.50*** M &lt; F Supported</td>
</tr>
<tr>
<td>H3a</td>
<td>1121.7 0.4 0.37*** 0.38*** M = F Not supported</td>
</tr>
<tr>
<td>H4a</td>
<td>1124.1 2.8* 0.49*** 0.25*** M &gt; F Supported</td>
</tr>
<tr>
<td>H5a</td>
<td>1123.7 2.4 0.00 0.16* M = F Not supported</td>
</tr>
<tr>
<td>H6a</td>
<td>1125.4 4.1** 0.03 0.25*** M &lt; F Supported</td>
</tr>
<tr>
<td>H7a</td>
<td>1125.7 4.4** 0.14 0.04 M &gt; F Supported</td>
</tr>
<tr>
<td>H8a</td>
<td>1122.6 1.3 0.13** 0.36*** M = F Not supported</td>
</tr>
<tr>
<td>H9a</td>
<td>1128.8 7.5*** 0.46*** 0.20** M &gt; F Supported</td>
</tr>
<tr>
<td>H10a</td>
<td>1126.7 5.4** 0.15*** 0.07 M &gt; F Supported</td>
</tr>
</tbody>
</table>

*p < 0.10; **p < 0.05; ***p < 0.01.
mitment on loyalty among females than among males suggest that once males perceive low satisfaction and females perceive low commitment, they are both likely to switch to different online games and game suppliers. The stronger influence of virtual power status on commitment among males compared to females alternatively indicates that males are more psychologically sensitive than females in favoring status and power to affect their commitment. Game designers should create attractive stories and interesting scripts as the subject or background of online games so as to successfully provide males with a chance at being prominent and important via virtual imaginations that cannot be realized in real life, such as being an emperor ruling a country, or a hero killing a dragon.

The stronger influence of relational interacting behavior on commitment for females than for males indicates that female gamers are willing to commit more toward online games in response to relational interacting efforts. An approach for strengthening the influence of relational interacting behavior on commitment among females can be done via the creation of further contact possibilities within the gamers’ virtual communities. A game that allows online gamers to have a long-term affiliation with others through a variety of virtual activities, such as having online romances, virtual marriages, and online divorce, may attract females who like to taste different, vivid interpersonal relationships without taking risks in real life.

The influence of incentive utility on satisfaction is stronger for males than for females, and that on commitment is stronger for females than males, indicating that game designers must put increased emphasis on the incentive utility designed particularly to increase satisfaction and commitment of gamers. Males will be satisfied with and females will be committed to the games if the incentive utility can be activated by linking the buying power of virtual currency to real-world materials.

Disclosure Statement

The authors have no conflict of interest.

References


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