A Study of the Effect of Social Influence on the College Student’s Attitude and Behavior for Playing Online Games

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ABSTRACT

The purpose of this study is to investigate the effect of social influence on college students’ attitude and behavior to play online game by examining the moderating effect of gender. First, a two-stage sampling was proceeded to send out 300 questionnaires, including 211 valid questionnaires and 89 invalid questionnaires. According to the result analysis, social influence significantly influenced female college students’ attitude but not significantly influenced male college students’ attitude toward playing online game. Informational social influence had a significant influence on college students’ behavior intensity but not on their behavioral frequency, and normative social influence significantly influenced behavioral intensity and frequency both. For the purpose of exploring the reasons, this study picked 7 male college students to join an online focus group discussion for further interview. The subject of discussion focused on the effect of social influence on attitude and behavior of playing online game. The participants were asked questions about their feelings and real behavior. Then their answers were gathered to undertake a descriptive analysis. The analysis results showed that the inconsistency between male college students’ social influence acceptance and attitude might be caused because of three major causes: 1) their level of involvement and flow in playing online games; 2) they see online game playing as a positive behavior (e.g. to ease their pressure; to while away their extra-time); 3) they could earn psychological benefit from playing online game (e.g. the sense of achievement).

Key words: social influence, online game, attitude, behavior

INTRODUCTION

The rise and popularity of the Internet as a communication medium has become an ever-increasing part of many people’s day-to-day lives. One of the most popular online contents is the game, in which a person can play not only with the computer, but also with other people connected via the Internet (Gorriz & Medina, 2000). For example, a recent study on the use of the Internet showed that PC owners spent an average of 20 hours per week on the Internet for personal use, 48% of which was to play online games (Pastore, 1999). Despite the rise of online games as a leisure phenomenon, there has been relatively little research into this area. Most of the research to date has tended to concentrate on the more negative aspects such as excessive play and addiction (Phillips et al., 1995), the effects of playing aggressive games (Griffiths, 2000), and the medical and psychosocial consequences (Griffiths, 1993). Thus, the image of a typical gamer (and the pastime of computer gaming) is seen as socially negative and remains firmly within a youth subculture.

A significant percentage of teenage online game enthusiasts spend so much time in virtual environments that they suffer from a number of serious social problems. Some spend more time in cyber cafeteria than they do in school or on school-related activities. Others imitate the violent or destructive behaviors that they observe in online games; extreme examples include murder and suicide. In Taiwan, a recent study showed that heavy users of online games have less fulfilling interpersonal relationships and higher levels of social anxiety than individuals who spend very little or no time playing online games (Shao-Kang et al., 2005). Tsai and Lin (2003) found that being addicted to the web and online game will cause a series of problems toward teenagers on their school grade, health, family, financial affairs and time management. Therefore, being addicted to play online games has become a serious social problem to most teenagers. The purpose of this research is to examine the effect of social influence, including informative social influence and normative social influence, on college students’ attitude and behavior of playing online game. Moreover, the effect of
gender was also tested. The main objectives of this research are as follows:
(1) Whether social influence acceptance can influence college students’ attitude toward playing online games or not.
(2) Whether social influence acceptance can influence college students’ behavior of playing online games or not.
(3) Whether gender can moderate the effect of social influence acceptance on college students’ attitude and behavior of playing online games.

Online Game Playing

Online games, a form of interactive electronic games rooted in the Internet, were initially created in the USA in 1969 and became popular in universities in the 1980’s with the emergence of the TCP/IC network communication agreement at that time. The enhancement of computer multi-media functions and the emergence of the World-Wide-Web (WWW) brought online games a newborn stage in the early 1990’s. Several years later, in the late 1990’s, online games entered a new era, a growth stage, with the number of players swelling sharply (Institute for Information Industry, 1999).

Although the online game market continues to grow, a number of problems it brings to the teenagers deserve our notice. For instance, in as early as 1995, Newsweek reported that 2% to 3% of the online community in America have serious “Internet Addictions” and spend most of their waking time surfing and chatting in this medium (Hamilton and Kalb, 1995). According to case study results, Young (1996) posited that high-volume users of online chat rooms tend to suffer from increasingly weak real-world interactions with their friends, families, and social activities (e.g., clubs and social organizations) that they used to enjoy. Kraut et al. (1998) used statistical methods to show a negative correlation between Internet usage and communication with relatives and friends. Morahan-Martin and Schumacher (2000) found that, in the USA, pathological Internet undergraduate users were more likely to play online games. In order to realize why students want to spend lots of time for playing online games and then to moderate their sticky intentions, this research first discusses their pressures from external others – “social influence”.

Social Influence: Informational vs. Normative

Social influence has long been an object of popular fascination and scientific research in such fields as social psychology structural and network analysis, sociology administrative science, organization theory, and distributed artificial intelligence. As Deutsch & Gerard (1955) noted, the social influence is based on the pressures or sanctions applied by group members to produce conformity in terms of attitude and behavior. Kiesler and Kiesler (1969) states that conformity is a change in behavior or belief toward a group as a result of real or imagined group pressure, where group pressure is defined as a psychological force operating on a person to fulfill other’s expectations of him or her. Studies have demonstrated that different types of conformity operate depending on the extremity of the norm which differentiates between normative and informational manifestations of conformity. If the norm is extreme and the subjects conform, the respective subjects are more likely to yield to normative, rather than informational, influences. If, however, the norm is moderate and the subjects conform, then the respective are more likely to yield to informational influences (Lascu et al., 1995).

Numerous studies have documented the impact of social influence on attitudes and behavior (e.g. Festinger et al., 1950; Asch, 1965). Silverstein et al. (1986) found that information from the media and other sources has the power to influence attitudes about body shape and weight as well as the nature of appropriate eating behavior. Salancik and Pfeffer (1978) argued that informational social influence influences attitudes and behaviors. Helen and Bibb (1997) found that social influence will affect adolescents’ lifestyle attitudes such as holding after-school jobs, smoking and dating. Therefore, hypothesis 1 and 2 test the effect of social influence from external others on college students’ attitude and behavior of playing online game.

H1: Social influence acceptance will significantly influence college students’ attitude to play online game.
H1-1: Informational social influence acceptance will significantly influence college students’ attitude to play online game.
H1-2: Normative social influence acceptance will significantly influence college students’ attitude to play online game.

H2: Social influence acceptance will significantly influence college students’ behavior to play online game.
H2-1: Informational social influence acceptance will significantly influence college students’ behavior to play online game.
H2-2: Normative social influence acceptance will significantly influence college students’ behavior to play online game.

Gender Effect

People have many opportunities to join the world of the Internet, regardless of their goals of usage, such as researching information, communicating, or playing online games. Since most people have considerable experience in using the Internet and playing online game, it would be interesting to explore their attitudes and actual behavior toward it, especially with regard to gender differences. Previous research suggests males and females exhibit different attitudes toward computer and Internet use. However, little is known about gender differences in attitude and behavior of playing online games. Because online games are developed for individuals to interact with others in a network, the value of the game increases with each additional individual. An American survey research by Lohr (1995) found that 67% of the Internet users are male. Another survey showed that 65% of the Internet users are wealthy males (McLeod, 1995). Tsai and Lin (2004) suggested that males tended to highlight the value of using the Internet as well as to display their ability to use it. In Taiwan, online game users are dominated by men at a ratio of 8:2. In other words, male has a higher percent in the percentage of gender to use the Internet than female. Thus, this research further examined the percentage of gender in playing online game. Accordingly, I hypothesize the following:

H3: Distinction in gender of college students will significantly influence their attitude to play online game.
H4: Distinction in gender of college students will significantly influence their behavior to play online game.
H5: Gender will moderate the effect of social influence acceptance on college students’ attitude toward playing online game.
H6: Gender will moderate the effect of social influence acceptance on college students’ behavior of playing online game.

RESEARCH METHOD

This study adopted survey research and focus group discussion to be the research methods. The first task asked participants to complete a self-attitude and self-behavior questionnaire about online game playing. Data collection was proceeded on I-Shou campus during March in 2006. Participants were undergraduates of I-Shou University. They were randomly picked to complete the questionnaire. The SPSS statistics program was employed as the data analysis tool. This questionnaire developed a scale that measured social influence acceptance. The social influence acceptance scale consisted of 12 five-point agree/disagree items (e.g., “The opinions of my departmental faculty colleagues are important to me.”), half is about informational social influence acceptance, and another half is about normative social influence acceptance. Students’ social influence acceptances were counted to get an average. When participant scored higher than the average, he/she got high social influence acceptance.

The attitude scale consisted of 3 five-point agree/disagree items based on the research of Hsu and Lu (2003). The average score of attitude scale is showed on Table 1. A higher-than-average score means positive attitude of playing online game; a lower-than-average score means negative attitude of playing online game. The behavior scale includes two nominal items: 1) the behavioral frequency - the average frequency of playing online game every week, and 2) the behavioral intensity - the average hour of playing online game every time. According to the reliability test, we assessed the internal consistency reliability by computing Cronbach’s alpha as following and found out that alpha values were .881, .886, .874 and .739 for informational social influence acceptance, normative social influence acceptance, attitude and behavior, respectively.
### Table 1  The average of each variable

<table>
<thead>
<tr>
<th>Variable</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Influence Acceptance</td>
<td>3.4897</td>
</tr>
<tr>
<td>Informational Social Influence Acceptance</td>
<td>3.5608</td>
</tr>
<tr>
<td>Normative Social Influence Acceptance</td>
<td>3.4186</td>
</tr>
<tr>
<td>Attitude</td>
<td>3.1074</td>
</tr>
</tbody>
</table>

Note: Social Influence Acceptance = Informational Social Influence Acceptance + Normative Social Influence Acceptance

In the second task, participants engaged in an online focus group discussion. Participants first completed a prescreening questionnaire that requested basic information of gender and then were inquired whether to join the online focus group discussion. The group discussion involved an automated moderator and 7 participants. Discussion appeared in windows on-screen with the participant assigned to the last speaker order. Microsoft MSN messenger was adopted to be the discussion medium. Each focus group discussion was intended not to last longer than 1 to 2 hours. This research found that six topics are enough to discuss during a period of 2 hours (see Table 2). The author of this research was the moderator of the group discussion, and each participant was given an instruction leaflet before the discussion starts. Instructions and rules were listed in the leaflet for the group discussion (see Appendix 1). Each participant was given a code name ranked from A to G.

### Table 2  The purpose and the topics discussed in the focus group discussion

| Purpose                                                                 | 1. To find reasons for the inconsistency between male college students’ social influence acceptance and attitude.  
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2. To find reasons why normative social influence is more effective than informational social influence acceptance.</td>
</tr>
</tbody>
</table>
| Topic                                                                  | 1. Do you like to play online game?  
|                                                                        | 2. Would you keep playing online game?  
|                                                                        | 3. Are you still interested in playing online game if you obtain certain negative information about playing online game from mass media?  
|                                                                        | 4. Would you reduce your frequency and time of playing online game if you obtain certain information about playing online game from mass media?  
|                                                                        | 5. Are you still interested in playing online game if you are restrained by people who surround you?  
|                                                                        | 6. Would you reduce your frequency and time of playing online game if you are restrained by people who surround you? |

### RESULT AND DISCUSSION

This research sent out 300 questionnaires, the participants included 150 as male and 150 as female. A total of 211 valid questionnaires are obtained according to college students’ experiences of playing online game. There are 89 participants who have never played online game, 14 of them are male and 75 of them are female. Near 70 % of the participants are online game players, 64.5 % of them are male. The gender proportion of female to male with experience of playing online game is about 1:2 and of which without experience of playing online game is 1:5. This research used Chi-square test to test gender differences in social influence acceptance. The result found that gender has a significant influence on social influence acceptance. Female has a higher social influence acceptance than male (see Table 3). This result expounds that female college students are much easier to be influenced by informational and normative social influence.
Table 3  Crosstable of gender differences in social influence acceptance

<table>
<thead>
<tr>
<th>Acceptance</th>
<th>Gender</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social influence</td>
<td>H</td>
<td>59</td>
<td>43.4</td>
</tr>
<tr>
<td>Acceptance</td>
<td>L</td>
<td>77</td>
<td>56.6</td>
</tr>
<tr>
<td></td>
<td>H</td>
<td>50</td>
<td>66.7</td>
</tr>
<tr>
<td></td>
<td>L</td>
<td>25</td>
<td>33.3</td>
</tr>
<tr>
<td>Informational Social</td>
<td>H</td>
<td>55</td>
<td>40.4</td>
</tr>
<tr>
<td>Influence Acceptance</td>
<td>L</td>
<td>81</td>
<td>59.6</td>
</tr>
<tr>
<td></td>
<td>H</td>
<td>42</td>
<td>56.0</td>
</tr>
<tr>
<td></td>
<td>L</td>
<td>33</td>
<td>44.0</td>
</tr>
<tr>
<td>Normative Social</td>
<td>H</td>
<td>47</td>
<td>34.6</td>
</tr>
<tr>
<td>Influence Acceptance</td>
<td>L</td>
<td>89</td>
<td>65.4</td>
</tr>
<tr>
<td></td>
<td>H</td>
<td>50</td>
<td>66.7</td>
</tr>
<tr>
<td></td>
<td>L</td>
<td>25</td>
<td>33.3</td>
</tr>
</tbody>
</table>

Note: H = High; L = Low

This study used t-test to measure the impact of social influence on college students’ attitude and behavior of playing online game. This analysis showed a significant result. Social influence has a significant impact on college students’ attitude ($t = 2.591, p < 0.01$) and behavior ($t = 4.523, p < 0.001$). Another analysis of t-test also showed a significant result. Gender difference in college students’ attitude ($t = 3.602, p < 0.001$) and behavior ($t = 5.606, p < 0.001$) was significant. Thus, hypothesis 1, 2, 3 and 4 were supported by the results. Univariate analysis of variance was used to deal with the interactive impact of social influence and gender on college students’ attitude and behavior of playing online game. The results indicate that social influence and gender have a significant interactive influence on college students’ attitude and behavior of playing online game ($F = 22.331, p < 0.001$). Thus, hypothesis 5 and 6 were supported by this result.

According to the results of analysis, female college students’ scores of attitude toward playing online game are lower than male college students’. In order to realize the reasons for this result, this research distinguished the sample into male and female college students and then used t-test to measure the effect of social influence on each group’s attitude and behavior. The result of analysis found that social influence didn’t have a significant impact on male college students’ attitude but on female college students’ attitude. Informational social influence had a significant influence on male and female college students’ behavioral intensity, but it didn’t significantly influence their behavioral frequency. Normative social influence had a significant impact on their behavioral frequency and intensity both. For the purpose of exploring the reasons for this result, this research used focus group discussion as the research tool. In the focus group discussion, students’ responses to each topic are encoded in this research (see Table 4).

Table 4  The encoding of participants’ responses to the topics

<table>
<thead>
<tr>
<th>Topic</th>
<th>Student A</th>
<th>Student B</th>
<th>Student C</th>
<th>Student D</th>
<th>Student E</th>
<th>Student F</th>
<th>Student G</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A-1</td>
<td>B-1</td>
<td>C-1</td>
<td>D-1</td>
<td>E-1</td>
<td>F-1</td>
<td>G-1</td>
</tr>
<tr>
<td>3</td>
<td>A-3</td>
<td>B-3</td>
<td>C-3</td>
<td>D-3</td>
<td>E-3</td>
<td>F-3</td>
<td>G-3</td>
</tr>
<tr>
<td>4</td>
<td>A-4</td>
<td>B-4</td>
<td>C-4</td>
<td>D-4</td>
<td>E-4</td>
<td>F-4</td>
<td>G-4</td>
</tr>
<tr>
<td>5</td>
<td>A-5</td>
<td>B-5</td>
<td>C-5</td>
<td>D-5</td>
<td>E-5</td>
<td>F-5</td>
<td>G-5</td>
</tr>
<tr>
<td>6</td>
<td>A-6</td>
<td>B-6</td>
<td>C-6</td>
<td>D-6</td>
<td>E-6</td>
<td>F-6</td>
<td>G-6</td>
</tr>
</tbody>
</table>

This discussion considered two issues: positive vs. negative attitude; and high vs. low social influence acceptance. Thus, agree/disagree were the main units of analysis.
1. Analysis of positive/negative attitude

Topic 1 and 2 are designed to test participants’ attitude which would be concluded to be positive or negative according to their responses to each topic. Participants’ agreement for topic 1 (A-1, B-1, C-1, E-1) and topic 2 (A-2, B-2, C-2, D-2, E-2) was supposed to be positive attitude. Participants’ disagreement for topic 1 (D-1, F-1, G-1) and topic 2 (F-2, G-2) was supposed to be negative attitude. Thus, this research inferred that student A, B, C and E have positive attitude; student F and G have negative attitude. Student D has negative attitude because he played online games only in his leisure time (D-2).

Participants with positive attitude considered that playing online game is not certainly improper behavior (B-1, C-1). Besides, they could obtain the sense of achievement from playing online games and commit their soul to it (C-4, E-6). They also mentioned that they invested a lot of time and energy into playing online games, including obtaining of weapons and development of user levels (B-2, B-4). Participants with negative attitude saw playing online games as a waste of time (F-1) and engaged in other affairs such as attending school activities or going to cram school (F-1), preparing for the exams and doing part-time job (F-2). Thus, this research inferred that the determinative between positive/negative attitude and high/low social influence acceptance is college students’ levels of involvement and flow in playing online game.

2. Analysis of high/low social influence acceptance

According to the participants’ responses to topic 3, 4, 5 and 6, this research attempted to understand their social influence acceptance. Their responses to the topics were concluded to be high or low social influence acceptance. Participants’ agreement for topic 3 (A-3, B-3, C-3, E-3), topic 5 (A-5, B-5, C-5, E-5) and disagreement for topic 4 (A-4, B-4, C-4, E-4), topic 6 (C-6, E-6) were supposed to be high social influence acceptance. Participants’ disagreement for topic 3 (D-3, F-3, G-3), topic 5 (D-5, F-5, G-5) and agreement for topic 4 (D-4, F-4), topic 6 (A-6, B-6, D-6, F-6) were supposed to be high social influence acceptance. Thus, this research inferred that student A and B have low informational and high normative social influence acceptance; student C and E have low informational and normative social influence acceptance; student D has indifferently neutral informational and normative social influence acceptance; student F and G have high informational and normative social influence acceptance.

Participants with low informational social influence acceptance thought that information from mass media is trustless (A-3). Participants with low normative social influence acceptance thought that college student should have independent ideas (C-5), and considered that online game is very attractive (E-5, E-6). Participants with inconsistency between attitude and social influence acceptance such as student A and B would reduce their frequency and time of playing online game because they were afraid of being scolded or losing solicitude from their parent or mate (A-5, A-6, B-5, B-6).

CONCLUSION

Based on the above results of data analysis and focus group discussion, this research found four conclusions as follows:

1) The effect of social influence acceptance (informational and normative social influence acceptance) could significantly influenced college students attitude and behavior of playing online game. Female college students are much easier to be influenced than male college students.

2) Gender differences could significantly influenced college students’ attitude and behavior of playing online game. Male college students tend to be more interested in playing online game than female college students.

3) Male college students’ behavior was significantly influenced by normative social influence acceptance. The effect of normative social influence acceptance towards male and female college students’ behavior is better than of informational social influence acceptance because they were afraid of suffering punishments or losing cares.

4) Gender is not a moderating variable toward the effect of social influence acceptance on college students’ behavior but toward attitude of playing online game. Male college students’ attitude was not significantly influenced by social influence acceptance. This result might be caused because of the following reasons:

a) their level of involvement and flow in playing online game;
Involvement has been defined as the degree to which the person is engaged with a task or an object (Mishra et al., 1993). Involvement is believed to come from two broad sources: (1) intrinsic or stable sources due to individual differences and (2) situational sources, those that may be manipulated within the environment (Celsi and Olson, 1988). A flow state is related to a person’s motivation to do something. A person must see that there is something worthwhile to do and that he/she has the ability to do it (Csikszentmihalyi, 1990).

b) they see online game playing as a positive behavior (e.g. to ease their pressure; to while away their extra-time);

c) they could earn psychological benefit from playing online game (e.g. the sense of achievement);

SUGGESTION

1. The effect of social influence acceptance on college students’ attitude toward playing online games.

The significant result supports the fact that the nature of gender differences exists. Female college students’ attitude is much easier to be influenced than male college students’. Parents or teachers could use moderate informational social influence to guide and correct female college students’ attitude, and use extreme normative social influence to correct male college students’ attitude.

2. The effect of social influence acceptance on college students’ behavior of playing online games.

The effect of normative social influence acceptance towards male and female college students’ behavior is better than of informational social influence acceptance, so direct pressure or restrain from parents would be more effective to influence students’ attitude and behavior of playing online game than external information from mass media. Parents or teachers need to restrain children’s real hours of playing online game every day to prevent them from higher involving or flowing in online game. Parents or teachers also need to guide their children to do more outdoor activities, making friends in real world but not in virtual online world.

LIMITATIONS

(1) Limited to the lack of time, this research took a two-stage sampling from I-Shou University. However, it has better internal validity but less external validity. The research samples couldn’t represent the opinions of all college students in Taiwan, so sampling bias is unavoidable.

(2) This research distinguished valid or invalid questionnaires according to participants’ answers to question 2. However, invalid questionnaires could be useful data which is worth analyzing.

REFERENCES


