Inducing attitude change toward online gaming among adolescent players based on dissonance theory: The role of threats and justification of effort

Chin-Sheng Wan a, Wen-Bin Chiou b, *

a Southern Taiwan University, Department of Hospitality Management, 1, Nantai St, Yung-Kang City, Tainan 71005, Taiwan, ROC
b National Sun Yat-Sen University, Institute of Education, 70 Lien-Hai Rd., Kaohsiung 80424, Taiwan, ROC

A R T I C L E   I N F O
Article history:
Received 25 March 2009
Received in revised form 27 July 2009
Accepted 31 July 2009

Keywords:
Applications in subject areas
Interdisciplinary projects

A B S T R A C T
The negative impact of online gaming on adolescents has received much attention. The question of how to reduce their pathological use of online gaming is a critical issue. Based on the concept of external justification in dissonance theory, this experimental study aimed to examine whether severity of threat and justification of effort would impact adolescent players’ attitude change toward online gaming and their subjective estimations of online gaming addiction. The results echoed predictions from classic studies in dissonance theory. When participants engaged in attitude–discrepant behavior, i.e., persuading other adolescents that an apparently interesting online game is not fun at all, their attitudes toward online gaming shifted more dramatically to the negative side in the context of a low level of threat rather than a high level of threat. Additionally, the magnitude of attitude change was more prominent when participants exerted more rather than less effort to engage in attitude–discrepant behavior. Moreover, a similar pattern of participants’ evaluations of the likelihood of online gaming addiction was also observed. The findings show that dissonance theory has the potential to be useful for inducing adolescent players to disengage in online gaming.

© 2009 Elsevier Ltd. All rights reserved.

1. Introduction

The Internet has profoundly affected the lives of many human beings, and certain negative effects in this respect have emerged, most noticeably the effect of Internet addiction (Chen, 1998; Chou, Chou, & Tyan, 1999; Chou & Hsiao, 2000; Greenfield, 1999; Griffiths, 2000; Kandell, 1998; Tsai & Lin, 2001; Young, 1996, 1998). Given that online gaming has become one of the most addictive activities on the Internet, addiction to online gaming among adolescent players has received much attention (Chen et al., 2005; Griffiths, Davies, & Chappell, 2004; Ko, Yen, Chen, Chen, & Yen, 2005; Shiue & Cheng, 2007). Extant research has shown that excessive online gaming can lead to various social problems. In separate surveys of Taiwanese online gamers, Chen et al. (2005) discussed online gaming-related crimes such as theft and fraud, while Lo, Wang, and Fang (2005) highlighted how increased online gaming has led to deteriorating interpersonal relationships and increased levels of social anxiety in college-age online gamers. Ng and Wiemer-Hastings (2005) showed that young online gaming addicts displayed symptoms similar to substance addiction, including dropping out of school as well as family and relationship problems.

Previous studies on online gaming have mainly addressed the psychological motives of such addicts (Choi & Kim, 2004; Hsu & Lu, 2004; Kim, Park, Kim, Moon, & Chun, 2002; Wan & Chiou, 2006a, 2006b; Wan & Chiou, 2007), the profiles of gamers (Chen et al., 2005; Chou & Tasi, 2007; Griffiths et al., 2004; Ko et al., 2005; Lin & Tsai, 2002; Whang & Chang, 2004; Yang & Tung, 2007), and the negative impact of violent video games (Ballard, Hamby, Panee, & Nivens, 2006; Kirsh, Olczak, & Mounts, 2005; Persky & Blascovich, 2007; Weber, Ritterfeld, & Mathiak, 2006). In contrast, research focused on changing adolescent players’ attitudes toward online gaming has been relatively rare. Online game players’ attitudes may play a critical role in shaping motives and determining the nature of their involvement and addictive behavior. Attitudes that are more readily accessible in the memory influence behavior more strongly (Chiou, 2008; Kraus, 1995); thus, attitude change may be an appropriate approach by which to shed light on possible treatments for adolescent online gaming addiction. Therefore, when considering interventions for the pathological use of online games by adolescents it is crucial to determine how adolescent players with addictive inclinations can be motivated to change their attitudes toward online gaming.
2. Attitude change and dissonance theory

Cognitive dissonance theory (Cooper & Fazio, 1984; Festinger, 1957) hypothesizes the existence of a need state, cognitive dissonance, as a source of motivation. The state of cognitive dissonance refers to a contradictory relationship between cognitions or perceptions that exist simultaneously for a person. Cognitive dissonance also occurs when we notice discrepancies between our attitudes and behavior (Aronson, 1968; Johnson, Kelly, & LeBlanc, 1995). If an individual has two cognitions that are dissonant with each other, the individual will either change one of the cognitions or ignore the conflict because dissonance reduction is rewarding (Festinger & Carlsmith, 1959). This inclination to minimize cognitive dissonance can thus serve to motivate the necessary attitude changes in online gaming addicts.

Cognitive dissonance theory further suggests that external justification is a key factor influencing the cognitive dissonance experienced (Festinger, 1957; Simon, Greenberg, & Brehm, 1995). Attitude–behavior inconsistencies cause cognitive dissonance and subsequent attitude changes only in the absence of external justifications (Aronson, 1968; Elliot & Devine, 1994; Festinger & Carlsmith, 1959). Previous studies have demonstrated that threats (Aronson & Carlsmith, 1963) and justification of effort (Wicklund, Cooper, & Linder, 1967) may affect individuals’ external justification for their dissonance while engaging in attitude–discrepant behavior. When considering how to induce adolescent players to engage in attitude–discrepant behavior for the purpose of reducing their involvement in online gaming, the two factors mentioned above affect external justification and influence subsequent attitude change. In the present study, adolescent game players were induced to persuade other adolescents that an interesting online game was actually boring (i.e., performing attitude–discrepant behavior). We examined whether punishment and justification of effort affect game players’ attitude changes toward online gaming, as well as self-evaluated online gaming addiction after exhibiting attitude–discrepant behavior.

2.1. Severity of threat and attitude change

Negative incentives ought to work exactly the same way as positive incentives. One way to try to get people to perform disliked tasks is to threaten them with punishment. For example, if you overplay online games, you will be penalized. Threats are also used to prevent people from doing things they may want to do. The severity of the threat can vary enormously. According to the perspective of external justification in dissonance theory, greater threats should produce less dissonance, resulting in a lesser attitude change. In a classic experiment designed to test this idea, children were shown a group of toys and then forbidden to play with a particularly desirable toy (Aronson & Carlsmith, 1963). They were threatened with either mild or severe threats if they played with the forbidden toy. The children were then left alone in the room with the toys, and the amount of time they spent playing with the forbidden toy was assessed. After playing with the toys, they were asked how much they liked them, including the forbidden toy. Dissonance theory predicts that the children who were severely threatened would probably not play with the toy but would not devalue the toy either. Results indicated that the children reduced their evaluation of the forbidden toy more under the mild threat than under the severe threat condition.

Given that threats may serve as reasons for external justification after engaging in attitude–discrepant behavior, adolescent game players who are induced to exhibit behaviors inconsistent with their initial attitude would not be likely to change their attitude toward online gaming under a severe threat condition. In such circumstances, they might have sufficient reason to justify attitude–discrepant behavior. On the contrary, game players who are induced to perform attitude–discrepant behavior under mild threats might have insufficient reason to justify what they have done. Hence, it was predicted that they would be more likely to change their attitudes. Specifically, their attitudes toward online gaming will shift to the negative side.

2.2. Justification of effort and attitude change

When people put more effort or cost into engaging in attitude–discrepant behavior, an effective way to reduce the experienced dissonance is to reconfirm the value of such behavior (Wicklund et al., 1967). This is called justification of cost or effort. In a classic study (Gerard & Mathewson, 1966), participants were recruited to join a discussion group. Half of the participants were required to exert more effort to be allowed to participate, whereas the other half did not require any effort to be able to participate. In fact, the group discussion was not at all interesting. However, those participants who put more effort into joining the discussion gave higher appraisals of the discussion, whereas those who easily received permission to join the discussion gave worse appraisals.

According to justification of effort or cost, when individuals put more effort into certain behaviors, they are likely to hold attitudes consistent with those behaviors; otherwise, they are more likely to experience dissonance. Wicklund et al. (1967) reached a similar conclusion. Therefore, it was predicted that adolescent players who exerted more effort to exhibit attitude–discrepant behavior toward online gaming would be more likely to hold attitudes consistent with that behavior. In other words, they would shift their attitude toward online gaming to be on the negative side, in order not to experience dissonance. On the other hand, those players who exerted less effort to exhibit attitude–discrepant behavior would be less likely to change their attitudes toward online gaming.

3. Methods

3.1. Participants and design

The initial sample included 218 college students (approximately 18–23 years old; 157 men and 61 women) with online gaming experience, as determined by purposive sampling. The Online Games Addiction Scale for Adolescents in Taiwan (OAST), developed by Wan and Chiou (2006a), was used to screen those adolescents with an inclination towards online gaming addiction. The OAST employed a 4-point scale with 29 items (possible scores ranged from 29 to 116) and four subscales: compulsive use and withdrawal (10 items, α = 0.96), tolerance (7 items, α = 0.92), related problems with family members, school, and health (8 items, α = 0.91), and related problems of peer interaction and finance (4 items, α = 0.93). The reliability of the whole scale is 0.92. As for scale validation, the OAST shows satisfactory internal consistency in item-total correlations (ranging from 0.69 to 0.84). The Confirmatory Factor Analysis (CFA) was performed to test the construct validity of the 29 items for online games addiction. The goodness of fit summary for the CFA indicates that the measurement model is
attitudes toward online gaming. The semantic differential scale has been widely utilized for attitude measurement since its development.

### 3.5.1 Attitude toward online gaming

In the situation of low involved effort, the researcher’s associate appeared easily convinced. In the next participant, pretended to be stubbornly resistant. This would require participants to spend more time and effort in convincing the next participant to perform the persuasion task. Before the act of persuasion, participants were required to wear earphones to listen to the researcher’s instructions. Participants were then assigned to one of two conditions: high-threat or low-threat. As the involved effort manipulation, the severity of threat was manipulated between subjects. In the condition of high-threat, the researcher told the participants that they would be able to tell if they had really made an effort to persuade the next participants by using a monitor. This was in order to ensure that all of the participants tried their best to perform the persuasion task. Before the act of persuasion, participants were required to wear earphones to listen to the researcher’s instructions. Participants were then assigned to one of two conditions: high-threat or low-threat. As the involved effort manipulation, the “next participant” was actually played by a researcher’s confederate. In the condition of high involved effort, the associate displayed a rigid standpoint and then required the participants to expend more effort in convincing them to believe that the online game is not interesting. On the other hand, the associate in the condition of low involved effort displayed a less rigid standpoint and thus required the participants to expend less effort in the persuasion task.

After participants completed the persuasion task, participants were asked to report their attitudes toward the online game employed in this study, which represented their attitude scores for the post-test. Furthermore, participants were asked to rate their likelihood of online gaming addiction. This was used as a supplementary dependent measure of the present study. Participants were also required to rate the severity of threat during the persuasion task on a 9-point scale, from very low to very high, as well as to rate their perception of involved effort in the persuasion task on a 9-point scale, from very low to very high. These measures were used for the manipulation check. Finally, participants were provided with background information about the study.

### 3.3. Severity of threat

The severity of threat was manipulated between subjects. In the condition of high-threat, the researcher told the participants that they must fulfill the persuasion task using a “strict manner of speaking” through a headset. The participants were also told that if they gave up in the persuasive process, their parents would be informed of their addiction inclination based on the pre-test of the OAST. In the condition of low-threat, the researcher instructed participants to use only a “slightly serious manner of speaking” in their persuasion task. They were also informed that their academic advisors would be notified should they give up in their persuasion task.

### 3.4. Involved effort

The involved effort was manipulated between subjects. In the situation of high involved effort, the researcher’s associate, disguised as the next participant, pretended to be stubbornly resistant. This would require participants to spend more time and effort in convincing them. In the situation of low involved effort, the researcher’s associate appeared easily convinced.

### 3.5. Dependent measures

#### 3.5.1. Attitude toward online gaming

The Semantic Differential Scale for Online Gaming (SDSO) developed by Chiou and Wan (2007) was employed to measure participants’ attitudes toward online gaming. The semantic differential scale has been widely utilized for attitude measurement since its development.

The formal sample consisted of 96 adolescent students (approximately 18–22 years old; 60 men and 36 women) whose scores on the OAST (M = 81.25, SD = 11.31) were higher than the midpoint of its range (i.e., 73), t(95) = 7.14, p < .001. Participants were randomly assigned to a 2 (severity of threat: high vs. low) × 2 (involved effort: high vs. low) between-subjects design.

### 3.2. Procedure

The experimental phase was conducted in small sessions of four participants per session, determined by the block-random method. In each session, participants were seated in isolated cubicles to reduce distraction and communication. The study was couched as an investigation into the effects of word-of-mouth on game players’ preferences. They were invited to try out a popular and interesting game with a prominent reputation, as based on a popularity survey of online gaming in Taiwan. The researcher asked the participants to “experience the charm” of this specific online game. After their test play, participants were asked to rate their initial attitude toward this game. This was used to compute their attitude changes after receiving the assigned manipulation.

The researcher presented a paper of agreement and informed participants of the importance of this experiment. They were guided to sign a contract and were asked to read the general instruction as follows:

Please follow the instructions and perform the persuasive task. Your role is to convince an adolescent player of the opinions of the online game you had just played. If word-of-mouth could be proved to convince people to change their attitudes toward online gaming, this experiment could be used to benefit the younger generation. Try your best to make the persuasion successful as could as possible.

Regarding the persuasive position, there were “positive” (fun) and “negative” (no fun) cards in the container of position cards. The participants were asked to pick up one of them and, according to the position picked, “attempt to persuade the next participant until his or her position is consistent with the position picked”. In order to allow everyone to choose a position inconsistent with their initial attitudes (i.e., an interesting game is not fun at all), the researcher prepared two “negative position” options in the container of position cards in advance. Thus, the participants in the experiment all picked up negative position cards. Their persuasion task was actually inconsistent with their attitude toward the online game they had played. By so doing, all of the participants actually performed attitude–discrepent behavior.

Following the idea of severity of threat manipulation, the researcher told participants that he would be able to tell if they had really made an effort to persuade the next participants by using a monitor. This was in order to ensure that all of the participants tried their best to perform the persuasion task. Before the act of persuasion, participants were required to wear earphones to listen to the researcher’s instructions. Participants were then assigned to one of two conditions: high-threat or low-threat. As the involved effort manipulation, the “next participant” was actually played by a researcher’s confederate. In the condition of high involved effort, the associate displayed a rigid standpoint and then required the participants to expend more effort to convince them to believe that the online game is not interesting. On the other hand, the associate in the condition of low involved effort displayed a less rigid standpoint and thus required the participants to expend less effort in the persuasion task.

After participants completed the persuasion task, participants were asked to report their attitudes toward the online game employed in this study, which represented their attitude scores for the post-test. Furthermore, participants were asked to rate their likelihood of online gaming addiction. This was used as a supplementary dependent measure of the present study. Participants were also required to rate the severity of threat during the persuasion task on a 9-point scale, from very low to very high, as well as to rate their perception of involved effort in the persuasion task on a 9-point scale, from very low to very high. These measures were used for the manipulation check. Finally, participants were provided with background information about the study.

### 3.6. Findings

The formal sample consisted of 96 adolescent students (approximately 18–22 years old; 60 men and 36 women) whose scores on the OAST (M = 81.25, SD = 11.31) were higher than the midpoint of its range (i.e., 73), t(95) = 7.14, p < .001. Participants were randomly assigned to a 2 (severity of threat: high vs. low) × 2 (involved effort: high vs. low) between-subjects design.

#### 3.6.1. Attitude toward online gaming

The Semantic Differential Scale for Online Gaming (SDSO) developed by Chiou and Wan (2007) was employed to measure participants’ attitudes toward online gaming. The semantic differential scale has been widely utilized for attitude measurement since its development.
by Osgood, Suci, and Tannenbaum (1957). The SDSO consisted of 11 items with a 7-point scale. For the present data, Cronbach’s α for the entire scale was 0.91. Regarding scale validation, the SDSO demonstrated a satisfactory internal consistency in item-total correlations (ranging from 0.69 to 0.84). In a preliminary study (N = 72) using a contrasted-group method, addicted players (n = 31, M = 101.23, SD = 14.07) scored significantly higher than nonaddicts (n = 41, M = 47.88, SD = 14.98), t(70) = 15.32, p < .001. Additionally, participants’ scores on the SDSO were positively correlated with their past usage and estimations of future involvement at p < .001 across two groups, r = .57 and r = .46, respectively. This indicates that the present data were valid for subsequent analyses.

Participants were asked to rate their attitude toward the online game employed in this study on both the pre-test and the post-test. Higher mean scores (ranging from 1 to 7) across the items of the SDSO represent more positive attitudes. Participants’ scores of attitude change (M = 1.88, SD = 0.89) were calculated with the attitude scores on the post-test (M = 3.52, SD = 0.96) and compared with scores on the pre-test (M = 5.40, SD = 0.91). Negative scores of attitude change indicate that the participants’ later attitudes had shifted to become more negative.

3.5.2. Online games addiction

After receiving the manipulation, all participants were asked to rate their likelihood of online gaming addiction on a 9-point scale from least likely to very likely (i.e., the OAST). The subjective estimations of addiction inclination were employed for supplementary analysis regarding participants’ attitudes toward online gaming after exhibiting attitude–discrepant behavior. Participants’ responses would be in accordance with their attitude change data if the effects of severity of threat and involved effort on attitude change were prominent, as predicted.

4. Results

4.1. Manipulation check

Participants’ responses to the measures are shown in Table 1. First, participants’ responses to the OAST were submitted to a one-way ANOVA. Their online gaming addiction measured by the OAST was not significant across the experimental conditions, F(3, 92) = 1.66, p > .05. Second, participants’ initial attitudes toward online gaming were submitted to a one-way ANOVA. The initial attitudes toward the online game employed in this study across these experimental conditions were not significant, F(3, 92) = 0.21, p > .05. This finding indicated that the random assignment of this experiment was satisfactory to produce four equivalent groups. Finally, the initial attitudes (M = 5.40, SD = 0.91) were significantly higher that the midpoint of the scaling (i.e., 4.00), t(94) = 15.10, p < .001. Hence, participants held positive attitudes toward the online game employed in this study, which also indicates that the persuasion task (i.e., convincing other players that an interesting game is not fun at all) was inconsistent with their initial attitudes toward this specific game.

Regarding the severity of threat manipulation, the participants in the high-threat condition (M = 6.27, SD = 1.14) reported higher levels of threat in the persuasion task than those in the low-threat condition (M = 3.46, SD = 1.03), t(94) = 12.66, p < .001. For the involved effort manipulation, the participants in the high-effort condition (M = 7.67, SD = 1.42) felt they expended more effort in the persuasion task than did those in the low-effort condition (M = 3.27, SD = 0.90), t(94) = 18.16, p < .001. Therefore, the manipulation of independent variables was satisfactory.

To examine whether statistical regression would contribute to participants’ attitude changes under the pre- and post-test design, we used participants’ attitudes toward online gaming at post-test. The post-test attitudes (M = 5.40) were significantly lower than those of the pre-test (M = 3.52), t(95) = 20.71, p < .001. Moreover, attitudes at post-test were significantly lower than the midpoint of the scaling (i.e., 4.00), t(95) = −4.93, p < .001. Because statistical regression is unable to produce the cross-over-the-mean effect, the observed attitude changes could not be attributed to this factor.

4.2. Effects of threat and effort on attitude change and online gaming addiction

Participants’ attitude change scores were submitted to a 2 (severity of threat: high vs. low) × 2 (involved effort: high vs. low) between-subjects ANOVA. As Levene’s test for homogeneity of variances was not significant, equal variance was assumed for subsequent analyses, F(3, 92) = 0.40, p > .05.

The ANOVA revealed that the interaction of threat and effort was not significant, F(1, 92) = 0.65, p > .05. This indicated that severity of threat did not interact with involved effort to affect participants’ attitude change scores. However, severity of threat significantly affected negative attitude change, F(1, 92) = 12.03, p < .001, r² = .12. The participants’ attitude changes in the low-threat condition (M = −2.17, SD = 0.94) were significantly greater than those in the high-threat condition (M = −1.59, SD = 0.60). Therefore, this finding supports the

<table>
<thead>
<tr>
<th>Measures</th>
<th>Low threat</th>
<th>High threat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low effort</td>
<td>High effort</td>
<td>Low effort</td>
</tr>
<tr>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>Attitude at pre-test</td>
<td>3.33</td>
<td>0.84</td>
</tr>
<tr>
<td>Attitude at post-test</td>
<td>3.40</td>
<td>0.73</td>
</tr>
<tr>
<td>Attitude change</td>
<td>−1.84</td>
<td>0.87</td>
</tr>
<tr>
<td>Online gaming addiction</td>
<td>5.51</td>
<td>1.33</td>
</tr>
</tbody>
</table>

* n=24 for each experimental condition.

* Participants’ scores of attitude toward the online game ranged from 1 to 7.

* Their subjective estimations of likelihood of online gaming addiction were rated on a 9-point scale.
5.1. Limitations and future directions

Because under such circumstances, participants' attitude changes were the greatest, compared with all of the other conditions. This showed that participants appeared to justify their efforts for their attitude–discrepant behavior. More importantly, follow-up contrasts revealed that the magnitude of attitude change in the low-threat and high-effort condition \(M = -2.50\) was significantly greater than those of the other conditions at \(p < .01\). \(t(92) = 2.82\) compared to the low-threat and low-effort condition \(M = -1.84\), \(t(92) = 3.02\) compared to the high-threat and high-effort condition \(M = -1.80\), and \(t(92) = 4.70\) compared to the high-threat and low-effort condition \(M = -1.40\), respectively. Thus, attitude change was greatest in the low-threat and high-effort condition and smallest in the high-threat and low-effort condition, with the low-threat and low-effort condition and the high-threat and high-effort condition in between.

With respect to participants’ subjective estimations of online gaming addiction after receiving the manipulation, their responses were submitted to a 2 (severity of threat: high vs. low) × 2 (involved effort: high vs. low) between-subjects ANOVA. As Levene's test for homogeneity of variances was not significant \((F(3, 92) = 1.21, p > .05)\), equal variance was assumed for subsequent analyses. A similar pattern with the data of attitude change scores was found. Participants’ online gaming addiction in the low-threat condition \(M = 4.23, SD = 1.71\) was lower than that in the high-threat condition \(M = 6.15, SD = 1.18\), \(F(1, 92) = 96.34, p < .001, \eta^2 = .51\). Their online gaming addiction in the high-effort condition \(M = 4.10, SD = 1.39\) was lower than that in the low-effort condition \(M = 6.29, SD = 1.34\), \(F(1, 92) = 125.82, p < .001, \eta^2 = .58\). Two-way interaction was not obtained, \(F(1, 92) = 3.31, p > .05\).

Further contrasts revealed that the likelihood of online gaming addiction in the low-threat and high-effort condition \(M = 2.97\) was significantly lower than those of the other conditions at \(p < .001\). \(t(92) = 9.22\) compared to the low-threat and low-effort condition \(M = 5.51\), \(t(92) = 8.23\) compared to the high-threat and high-effort condition \(M = 5.24\), and \(t(92) = 14.87\) compared to the high-threat and low-effort condition \(M = 7.07\), respectively. Thus, participants’ estimations of the likelihood of online gaming addiction were highest in the low-threat and high-effort condition and lowest in the high-threat and low-effort condition, with the low-threat and low-effort condition and the high-threat and high-effort condition in between.

5. Discussion

This study examined whether severity of threat and involved effort would induce more adolescent players to change their attitudes toward online gaming through the performance of attitude–discrepant behavior (i.e., convincing other players that an interesting game is not fun at all). The participants exhibited greater attitude changes when receiving a lower level of threat to engage in attitude–discrepant behavior, which was consistent with our predictions and echoed the findings of a classic study in dissonance theory (Aronson & Carlsmith, 1963). According to the perspective of external justification in dissonance theory (Cooper & Fazio, 1984; Elliot & Devine, 1994; Festinger, 1957), a high level of threat provided sufficient reason for participants to engage in attitude–discrepant behavior. The findings about the severity of threat effect indicate that insufficient threats can reduce external justification for attitude–discrepant behavior. Hence, greater attitude change is observed under the condition of lesser threat.

Moreover, the results showed that the participants who expended more effort in exhibiting attitude–discrepant behavior produced greater attitude changes than those who used less effort. This is the so-called justification of effort in dissonance theory, echoing the findings of a classic study (Wicklund et al., 1967), and further indicates that participants appeared to avoid experiencing dissonance between their initial attitudes toward online gaming (i.e., positive) and subsequent attitude–discrepant behavior by changing their attitudes to be more negative, consistent with that behavior.

In general, the results of this study suggest that severity of threat and justification of effort may impact adolescent players’ attitude changes when they are induced to engage in attitude–discrepant behavior. A similar pattern of data concerning participants’ online gaming supported this argument. According to our findings, when considering how to change adolescent players’ attitudes toward online gaming through induced compliance, creating a condition of lower threat level and higher level of involvement is highly recommended. This is because under such circumstances, participants’ attitude changes were the greatest, compared with all of the other conditions.

5.1. Limitations and future directions

It should be noted that participants in the present study were Taiwanese adolescents. Markus and Kitayama (1991) suggested that individuals from cultures with high regard for individualism tend to be more sensitive to dissonance induced by attitude–discrepant behavior. Further cross-cultural studies may examine whether or not the less-leads-to-more effect in dissonance theory is culture-bounded. Besides, the present study employed an experimental research. Lack of abundant qualitative data should be admitted as a limitation. Qualitative data may provide more insights into the mental process underlying attitude change observed in this research.

In addition, the self-standards model of cognitive dissonance suggests that dissonance is aroused when a discrepancy is detected between behavior and a relevant self-standard (Stone & Cooper, 2001; Thibodeau & Aronson, 1992). A newer model indicates that normative standards may play an important role in individuals’ interpretations and evaluations of their behavior. How self-standards and social norms interact to affect aroused cognitive dissonance is an interesting topic for future studies.

Furthermore, external justification may play a key role in influencing people’s experienced dissonance and their subsequent attitude changes (Leippe & Eisenstadt, 1994; Simon et al., 1995). The present study has examined the effects of threat and effort on adolescent players’ attitude changes toward online gaming through induced compliance. However, previous research also demonstrated that rewards could play a crucial role in determining external justification for engaging in attitude–discrepant behavior and subsequent attitude change (Festinger & Carlsmith, 1959; Leippe & Eisenstadt, 1994; Riess & Schlenker, 1977). Dissonance often occurs in situations involving external incentives, by which we are induced by rewards to do things inconsistent with our true attitudes. Future studies may examine whether the amount of reward affects the attitude changes of adolescent players caused by attitude–discrepant behavior (i.e., disengagement of online gaming), under induced compliance.

Finally, Aronson and Carlsmith (1963) proposed that the effect of mild threat or punishment on attitude change through induced compliance was not different over short-term and long-term intervals. However, adopting severe threats or punishment to induce attitude...
change only produces a short-term effect. The experimental manipulation of threat is temporary in the present study. Future research may conduct a follow-up study to trace how long the effect of threat lasts. Regarding the ethics of deceptive methods, the threat manipulation and use of confederates in the manipulation of involved effort were consistent with the basic framework for regulating the use of deception in social-behavioral research as proposed by the American Psychological Association. (2002). In fact, each participant was thoroughly debriefed and fully probed for suspicion at the end of the experiment. Not a single participant expressed any suspicion that the experimental manipulation and the dependent measure were related. However, greater attention should be paid to possible harms that result from deception. In order to provide an enrichment benefit, practitioners who want to apply the findings outside the laboratory context should justify deceptive methods to others in the profession (as well as ethics review bodies), conduct independent ethical assessment, and give thoughtful debriefing to participants.

5.2. Conclusions

In sum, this study demonstrated that severity of threat and justification of effort can effectively induce change in adolescent players’ attitudes toward online gaming. Though adolescent players might be forced by external threats or punishments to do things inconsistent with their initial attitudes, the present findings suggest that an appropriate level of threat plays a crucial role in determining game players’ attitude changes after exhibiting attitude–discrepant behavior. A high level of threat gives game players sufficient reason for external justification, meaning that a subsequent attitude change would not be obtained. Even though adopting a strict prohibition strategy could make adolescents stop playing online games, their prior attitudes toward online gaming would not necessarily change at all. On the contrary, when involuntary behaviors are induced under high levels of threat or punishment, less or a complete lack of dissonance would be experienced, and a subsequent attitude change would be less likely to occur. Furthermore, the findings about justification of effort indicate that when parents or counselors want to induce adolescent players initially interested in online gaming to engage in attitude–discrepant behavior, a higher level of involved effort may produce greater attitude change. Any substitute activity that involves more effort would tend to bring game players to change their initial attitudes toward online gaming. In general, low levels of threat accompanied by high levels of involvement and effort may be a more effective strategy for inducing adolescents to change their attitudes and disengage in online gaming.

Acknowledgments

The authors thank the reviewers for their comments on the draft version of this paper, which have contributed to the quality of this article. This study was partially supported by the National Science Council, Taiwan, ROC, Project No. NSC 93-2520-S-328-001.

References


Choi, D., & Kim, J. (2004). Why people continue to play online games: In search of critical design factors to increase customers’ loyalty to online contents. CyberPsychology & Behavior, 7(1), 11–24.


