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ABSTRACT

This study investigates whether individual difference influences idiosyncratic experience of game playing. In particular, we examine the relationship between the game player’s physical-aggressive personality and the aggressiveness of the player's game playing in violence-oriented video games. Screen video stream of 40 individual participants’ game playing was captured and content analyzed. Participants’ physical aggression was measured before the game play. The results suggest that people with more physical-aggressive personality engage in a more aggressive style of playing, after controlling the differences of gender and previous gaming experience. Implications of these findings and direction for future studies are discussed.

INTRODUCTION

NEGATIVE EFFECTS OF VIOLENT GAMES have been the prime focus of most empirical studies on video and computer games. The General Aggression Model (GAM) proposed by Anderson et al. provides a theoretical framework to explain the relationships among aggressive personality, aggressive behavior, and playing violent games. 1,2 One significant element of the GAM is the personality variable included to explain the effect of violent media use. In the short term, violent media increase aggression by increasing arousal and aggressive affective states and by priming aggressive cognitions. In the long term, repeated playing of violent games reinforces aggression-related cognitive structures, aggressive perceptual schemata, and aggressive behavioral scripts. Most importantly, such repeated playing increases the aggressiveness in personality. The newly intensified aggressive personality leads to the use of more violent media or more exposure to violent media, which then increases another short-term aggression and enhances the aggressive personality. Long-term and chronic aggressive behaviors and personality are thus formulated and reinforced during the process.

Various survey studies consistently found significantly positive correlations between aggressive personality/behavior and excessive violent media consumption, including violent game playing. 3–6 However, the causal link remains elusive. To establish such causal relationship, numerous experiments were conducted. 7,8 However, few experimental studies included dispositional variables to control the effect of individual difference. Those studies that investigated the moderating role of personality and gender on the effects of playing violent games showed mixed results. 9–12

Another noticeable element is the feature of interactivity distinguishing the violence in computer and videogames from violence in traditional media. Unlike the exposure to violent content in television media, which then increases another short-term aggression and enhances the aggressive personality. Long-term and chronic aggressive behaviors and personality are thus formulated and reinforced during the process.
programs and films, the same game can present different content to different players on the basis of how the players choose to play. Thus the game-playing experience can vary to a great extent among players, and players can experience different levels of violence depending on how they play the game. For instance, more skillful players can “kill” more; high-sensation-seeking players can turn on some game features to show more blood and use more gruesome weapons. Therefore, it is essential to examine the idiosyncratic playing experience of players when investigating the effect of playing games.

Based on the prior discussion, the purpose of this study is to examine how personality might influence the way people play and experience a game. Studies on TV violence and viewers’ personality reveal that people with more aggressive personality choose to view more violent TV programs and enjoy the violent TV programs more. In the game-playing context, we hypothesize that players with more aggressive personality play the game more aggressively.

METHODS

Participants

Forty-five undergraduates from a Midwestern university participated in this study. Due to technical difficulty, screen capture of only 40 students’ (34 male) game playing was available.

Stimuli

Two popular computer games—The Godfather (Game 1) and True Crime: Streets of LA (Game 2)—were used. Both are third-person action games rated as Mature with violent physical force. Participants played either as a gangster in Game 1 or as a violent police officer in Game 2. Both games involved driving, shooting, fighting, and interactions with nonplayer characters (NPCs). In both games, players could use natural means (e.g., punch, kick) or weapons during violent interactions. Using two games rather than one was aimed to reduce the influence of a specific game. Eighteen of the 40 participants played Game 1, and 22 played Game 2.

Procedure

Two weeks before the students came to the lab, they completed a short questionnaire about physical aggressiveness. None of the participants had played these two games before. During the experiment, the game was introduced and an information sheet including all the basic controls was provided. Participants independently played the game for 70 minutes, sitting separately from each other and wearing earphones. The video stream of the last 10-minute portion of their game playing was recorded using the software Snagit for content analysis.

Content analysis

Following a previous content analysis study of popular video games, the unit of analysis of the 10-minute video of each individual’s game playing is a PAT. A PAT is an aggressive exchange that occurs between a perpetrator (P) engaging in a particular type of act (A) against a target (T). A new PAT takes place whenever the perpetrator, act type, or target changes. Variables measured at the PAT/interaction level include means, means frequency, and consequence of a violent interaction. Means of violent actions were classified into categories including natural (e.g., punch, kick), unconventional weapon (e.g., baseball bat, chair), and firearm (e.g., pistol, shotgun). Our later analysis found that the players in this study only used natural means and firearm. Frequencies of using each means and the number of PATs were counted by two coders. Consequence of a PAT was coded as none, mild, moderate, extreme, and unsuccessful attempt. Besides the PAT, players could also interact with others in a nonviolent way when playing the game. For instance, in Game 1, instead of beating a suspect to death, the player could just arrest the suspect. In The Godfather, the player could just talk to NPCs without engaging in a violent fight. The number of nonviolent interactions was also counted by the two coders. During the driving time, whether the player used any weapon against others was also coded.

Measures

Physical-aggressive personality was measured using the physical aggression subscale in Buss and Perry’s Aggression Questionnaire. Five dependent variables were used to measure the aggressiveness of participants’ game play: (a) frequency of PAT, (b) frequency of nonviolent interaction, (c) frequency of using natural means, (d) frequency of using firearm, and (e) percentage of two types of consequences: severe and mild. All the frequency measures were calculated by dividing the frequency by the actual amount of playing time. Note that players did not spend all the 10 minutes in interaction. They sometimes had to watch a narrative video clip in order to advance in the game. The average of the actual playing time was 6 minutes. For peo-
people who spent more time in watching the video clip, it is natural that they had less time to engage in violent interaction. To make the comparison consistent, all the following measures were calculated by dividing each participant’s actual playing time. Severe consequence was measured by calculating the percentage of moderate and severe consequences resulting from violent interactions (PATs). Mild consequence was measured by calculating the percentage of none and mild consequences following PATs. An intercoder reliability test was conducted on all variables using about 37.5 percent (15) of the sample (randomly selected). Pearson’s r was used for the ratio variables: frequencies of PATs (1.00), nonviolent interactions (1.00), using natural means (0.99), using firearm (0.98), no consequence (0.95), mild consequence (0.78), moderate consequence (0.93), extreme consequence (1.00), and unsuccessful attempt (0.90). Scott’s Pi was used for the nominal variable: weapon use while driving (1.00).

Data analysis

We used two games in the study to increase generalizability. ANOVA indicated that there was no significant difference on any of the dependent variables between players of the two games. In addition, there was no significant difference of physical-aggressive personality between the players of the two games. Therefore, we combined data of these two games in our analysis. We also included gender, years of game-playing experience, and hours of weekly game playing as control variables in our analysis. Median score of the physical aggression measure was used to divide the participants into high and low physical-aggressive personality groups. MANCOVA was thus used to analyze the first four dependent variables, and Chi-square was used to compare the percentages of severe and mild consequences of PATs between people of high and low aggressive personalities.

RESULTS

The mean scores of the physical-aggression measure for participants with high physical-aggressive personality and low physical-aggressive personality were 4.08 (SD = 0.89) and 2.26 (SD = 0.48) respectively. The MANCOVA result showed that the frequency of PAT was significantly greater for high-aggressive players (M = 2.38, SD = 2.95) than for low-aggressive players (M = 0.90, SD = 0.70), F(1, 34) = 5.05, p < 0.05; the frequency of using natural means in PATs was significantly greater for high-aggressive players (M = 7.65, SD = 9.21) than for low-aggressive players (M = 2.82, SD = 3.71), F(1, 34) = 4.62, p < 0.05; the frequency of using firearm in PATs was significantly greater for high-aggressive players (M = 6.42, SD = 10.64) than for low-aggressive players (M = 1.63, SD = 1.58), F(1, 34) = 4.82, p < 0.05. However, high-aggressive players (M = 0.12, SD = 0.34) did not differ from low-aggressive players (M = 0.22, SD = 0.61) in the frequency of nonviolent interaction. None of the control variables (sex, game experience, weekly game-playing time) were significant covariates. Chi-square analysis showed that there was no significant difference between people with high physical-aggressive personality and low physical-aggressive personality both in terms of the severe consequence, χ² (14, N = 40) = 12.62, p = 0.56 and the mild consequence, χ² (12, N = 40) = 11.43, p = 0.49.

DISCUSSION

Content analysis of the recorded videos of each individual’s game playing revealed that people with more physical-aggressive personality manifest more violent behaviors in game playing after controlling gender and computer game experience differences: more frequent violent interactions, more frequent punching and kicking actions, and more frequent shootings.

This finding is consistent with the GAM. The GAM describes that both situational factors and individual factors heighten the probability of interpersonal aggression. Our study provides the empirical evidence that personality is a significant factor: for the same violent game, more aggressive people play the game more violently and expose themselves in a more violent situation. Our finding is also in line with one empirical study focusing on aggressiveness in adolescents and their violent media use. In that study, a downward spiral model was proposed and then supported by the results in which the concurrent effects of aggressiveness on violent media use were identified. In addition, the concurrent and lagged effects of violent media use on aggressiveness were also found in the study, which is a further step to understanding the mutually reinforcing relationship between physical-aggressive personality and violent media consumption.

The current study did not find significant difference between players of different levels of physical-aggressive personality in terms of the frequency of the nonviolent interaction and the consequence of...
their actions in the game. For nonviolent interaction, the explanation could be that players could rarely engage in a nonviolent interaction based on the context of the two games used in this study. In Game 1 most of the time, players (playing as police officers) were not able to resolve the case in a nonviolent way because otherwise they might “die.” In Godfather, players (as gangsters) could coerce NPCs to follow their order, but often it would not help them to achieve the goal. We propose that the setting of the games may explain the nonsignificant finding. Once the fighting starts, especially with firearms, severe harm to an NPC is unavoidable; otherwise the player’s character would not achieve the goal to progress. These results echo the concern about the justification of violence in games.

The most important contribution of this study is that it investigated the individual experience of game playing. Most of the existent studies, especially experimental studies, simply compare a group of people playing a violent game and another group playing a nonviolent game without taking into consideration that the violent content people are exposed to can vary to a great extent even when playing the same game. Although some studies\textsuperscript{18,19} did explore some contextual variables of games (e.g., first-person vs. third-person perspective, using HMD or standard console) that might change the experience of game playing, to our knowledge, this study is the first that goes beyond contextual variables and actually considers the unique experience of each individual player. Unlike television programs or films viewed passively, games allow players to determine what content to be presented and how it is presented. This study provides empirical evidence that individual playing experience of the game varies enormously. The next step is to investigate whether these different playing styles and various experiences actually mediate the effect of playing violent games. For instance, researchers can look into whether people playing the game in a more violent way will later show more aggressive thoughts, affects, and behaviors.

Several caveats to this study must be mentioned. First, the sample size is relatively small and limits the generalizability of this study. In addition, though we included gender as a control variable, with only six female participants, our finding is very much biased to male. The small sample size might also contribute to the large standard deviation scores of our dependent measures. Second, we should have measured participants’ aggressive thoughts, affects, or behaviors after game playing.

With these data, we could then be more confident to argue the significant contribution of personality on the effect of playing violent games.

In conclusion, individual disposition is an important factor that influences how people experience violence in a computer game. However, other factors, such as environmental (e.g., playing against the computer vs. playing against a human being) and technological (e.g., playing on a 42-inch screen vs. playing on a mobile phone), could also influence how people play the game and eventually influence their experience.

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