Will the experience of playing a violent role in a video game influence people's judgments of violent crimes?

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\textbf{A B S T R A C T}

The present study investigates the impact of the experience of role playing a violent character in a video game on attitudes towards violent crimes and criminals. People who played the violent game were found to be more acceptable of crimes and criminals compared to people who did not play the violent game. More importantly, interaction effects were found such that people were more acceptable of crimes and criminals outside the game if the criminals were matched with the role they played in the game and the criminal actions were similar to the activities they perpetrated during the game. The results indicate that people's virtual experience through role-playing games can influence their attitudes and judgments of similar real-life crimes, especially if the crimes are similar to what they conducted while playing games. Theoretical and practical implications are discussed.

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1. Introduction

In the movie, \textit{Runaway Jury}, a lawyer for a defendant accused of committing a violent shooting tried to have a hardcore video game player selected as a member of the jury. The lawyer believed that an obsessive player of violent video games would judge a gunner less negatively than most people because the player had a similar, though virtual \citep{Lee2004}, for an explication of virtuality, experience of committing endless shooting rampages in video games. That is an assumption in a Hollywood blockbuster. But is it possible that people's particular roles and behaviors in video games do influence their judgments on similar roles and behaviors in real life? More specifically, can people's punitive judgments on criminals and crimes be influenced by their virtual experience of being a criminal and committing crimes?

These questions have tremendous social implications, given that 68\% of American households play computer or video games as of 2008 \citep{EntertainmentSoftwareAssociation2009}, and that role-playing games with movie-like narratives are becoming the dominant genre of the video game industry \citep{Lee2006}. The present study provides an empirical test to the above questions. More specifically, it tests the general effects of playing violent video games on people's judgments of violent crimes and criminals. In addition, it focuses on the effects of matching between (a) the role and behaviors people adopt while they are playing violent video games, and (b) the role and behaviors to which they cast punitive judgments after the games.

2. Literature review

2.1. Media violence, desensitization, and acceptance of crime

Mass media play an important role in shaping people's attitudes towards and judgments of crimes and criminals. Public opinion of crimes and criminals is to some extent determined by how they are portrayed in mass media \citep{Dowler2003}. Research also indicates that the majority of public knowledge about crimes, especially in metropolitan areas, is largely derived from mass media \citep{Roberts1986, Surette1990}. Frequent viewing of criminal violence on TV can result in desensitization and tolerance towards crimes. For example, \textit{Oliver and Armstrong} (1995) found that frequent viewing and greater enjoyment of reality-based crime shows are related to less negative attitudes towards crimes and criminals. \textit{Mullin and Linz} (1995) also found that repeated exposure to sexually violent films results in desensitization and callousness towards domestic abuse victims.

Little empirical evidence is available to link exposure to violent video games and desensitization, impairment of moral evaluation...
of violence, and acceptance of crimes and criminals. However, compared with violent movies or television programs, which are non-interactive in nature, violent video games might lead to more intense desensitization and tolerance towards violent crimes and criminals, because players of violent video games actively (though virtually) participate in violent crimes (Huesmann, 2007). In order to succeed in a violent video game, players must perform violent behaviors again and again until they finish the game. Repeated violent behaviors in games, which are presented as justifiable and without negative consequences, will result in a continuous cycle of desensitization (Funk, Buchman, Jenkins, & Bechtoldt, 2003). When desensitization occurs, the process of moral evaluation is disrupted because the individual stops to perceive or respond to cues that are necessary to initiate the moral evaluation process (Funk, Bechtoldt, Pasold, & Baumgardner, 2004). As a result, people who frequently play violent games might show blunted empathy towards victims of crimes and more tolerance towards real-life violence. For example, in a survey of 150 elementary school students, Funk et al. (2004) found that exposure to video game violence is associated with lower empathy towards victims of violence. It has been shown that players of violent video games tend to show less physiological arousal to violence in the real world after exposure to video game violence in the virtual world than players of non-violent games do (Carnagey, Anderson, & Bushman, 2007).

The General Aggression Model (GAM, Anderson & Bushman, 2002) is extended to provide the theoretical reasons for expecting violent media, including violent video games to desensitize individuals to violence in short-term and long-term context (Carnagey et al., 2007). According to the GAM, people's initial response to violent media is fear and anxiety. However, when violent stimuli are repeatedly presented in a positive emotional context (e.g., exciting background music and sound effect, rewards for violent actions in the game), the initial distressing reactions are reduced. The psychological indicators of such extinction of distressing reactions include decreased heart rate and galvanic skin response (Bartholow, Bushman, & Sestir, 2006). Once desensitization has occurred, people may have decreased attention to violent events, decreased sympathy for violence victims, decreased negative attitudes towards violence, and increased belief that violence is normative. Therefore, based on the previous empirical findings and the GAM, we predict that playing violent games will result in desensitization and more tolerance towards violent crimes and criminals.

**H1.** In general, people who have played a violent video game will (a) judge a real-life violent criminal less negatively, (b) judge a real-life violent crime to be less unjustified, and (c) mete out a less severe sentence to a real-life violent criminal than people who have not played the video game.

### 2.2. The effects of role-playing and role-taking in video games

All video games, whether old or new, have some element of role-taking and role-playing (Smith, 2006). Even a prototypical video game such as Space Invaders (1978) can be regarded as a role-playing game, because its players implicitly take on the role of a pilot protecting the earth. Contemporary video games, however, are qualitatively different from the earlier ones in that the players explicitly take on game roles that are carefully established by movie-like internal narratives (e.g., Max Payne, Myst), well-designed game characters (e.g., Super Mario, Tomb Raider), and/or characters from external narratives such as popular movies or dramas (e.g., Star Wars, Matrix, Spider-Man, Harry Potter).

Role-taking refers to a cognitive process by which an individual temporarily imagines or pretends that he or she is another person so as to gain insight into the other person's thoughts, attitudes, intentions, and behaviors in a given situation (Kelley, Osborne, & Hendrick, 1975). The conventional conceptualization of role-playing emphasizes it from a sociological point of view: people fulfill a social function of a particular role and perform behaviors that are associated with and expected from being in such a role (Goffman, 1959).

Role-playing in a video game requires people to pretend that they are someone else and try to “take actions” to fulfill the social expectations of this other person in a make-believe situation. They try to think from the perspective of this other person and behave in accordance with the role expectations for the particular position or status of this other person. This kind of role-playing in a mediated environment heavily involves role-taking, since people need to pretend that they are someone else and need to think and feel from the perspective of others. While playing a video game, people are pretending and imagining as if they were someone else (i.e., avatar) and act accordingly to fit with the social and cultural expectations within the game.

Due to role-taking and role-playing, people develop identification with characters that they perceive to be similar to themselves, or characters that they like or want to empathize with. Such identification can cause cognitive rehearsals of beliefs and values that are embodied by the characters (e.g., “Violence is an easy way to resolve conflicts”, “Men are superior to women”) and lead to reinforcement of or inclination towards the characters’ beliefs and values (Slater, 2002). In addition, a number of empirical studies have demonstrated that, by identifying with the characters, viewers will value the characters’ behaviors and even adopt their behaviors (Singhal, Cody, Rogers, & Sabido, 2004). Therefore, when people play a violent video game, they will not only be influenced by the violent content in the game, they will also be influenced by the particular role that they play in the game. We expect that:

**H2.** There will be interaction effects, such that the differences of the judgments of the two types of violent criminals (police officer criminals vs. generic criminals) would be greater among people who have played a video game with a violent police officer as the main character than among people who have not played the video game. That is, people who have played a video game with a violent police officer as the main character will (a) judge a police officer who committed a real-life violent crime less negatively, (b) judge a real-life violent crime by a police officer to be less unjustified, and (c) mete out a less severe sentence to a police officer criminal than a generic criminal, whereas people who have not played the video game will not show similar significant differences.

### 3. Methods

#### 3.1. Overview

In the present study, participants in the experiment group were asked to play a video game, True Crime, in which the main character—a police officer—used excessive violence to catch law-breakers and, sometimes, even did harm to the innocent for fun. After playing the game, the participants were asked to read four comparable real-life crime cases, which were committed by either police officers or generic criminals. After reading each case, the participants were asked to judge how unjustified each of the crimes was, how bad each of the criminals was, and how severe a sentence each of the perpetrators deserved. Participants in the control group, however, were asked to read and judge all four cases without playing the video game. To sum up, the present study employs a 2 × 2 mixed experimental design with game playing as a between-subjects factor (playing vs. no playing) and the role of the perpetrator...
in a real-life crime case as a within-subjects factor (police officer vs. generic criminal). This unique experimental setting enables us to effectively test both (a) the general effects of playing violent video games on people’s judgments of violent crimes and criminals; and (b) the effects of matching between the role people take during game playing and the role in a case to which they cast punitive judgments after game playing.

3.2. Participants

Ninety-six undergraduate students in introductory communication classes at a major private university volunteered to participate in the study in return for an extra class credit and a $10 gift certificate from the university bookstore. Among them we have selected 52 participants (33 females and 19 males) who had never played the game used in the current experiment. The participants were randomly assigned to the game-playing group (17 females, 9 males) and the control group (16 females, 10 males). The average age was 20 and the range of age was from 18 to 27. At the end of the experiment, all participants were debriefed and thanked for their participation.

3.3. Stimulus material

In the game-playing condition, the game, True Crime, was played on the PlayStation 2 console (PS2). In this game, the participants played the role of an unconventional police officer who would take whatever methods necessary to apprehend criminals in the city of Los Angeles. Whenever a red alert was given, the players had to drive, walk, or run to catch the criminals. The police could use whatever actions to catch the criminals at any cost and it was possible that they might hurt a civilian during the course of action. The participants were instructed to catch as many criminals as possible. After playing the game for 2 h, the participants read two real-life crime cases committed by police officers and two by generic criminals. After reading each case, they answered questions on their judgments of the crime and the criminal. In the control group, participants read the same cases and filled out the same questionnaire without playing the video game.

The four cases were found using LexisNexis legal search. Cases selected based on the following two criteria. First, for each criminal category, we selected one severe and one mild crime case to increase the generalizability of the study. Second, we carefully chose cases in such a way that the police officer and the generic criminal cases were compatible in terms of the severity of the crime. We used the actual sentence meted out in each case as a reference for comparability. The actual sentence in terms of jail time meted out in the severe police crime case and in the severe generic crime case was 12 years. The actual sentence in terms of jail time meted out in the mild police crime case and the mild generic crime case was 12 months. Participants were not told of the actual sentence meted out in each case.

The mild police case was about a police officer convicted of beating up a gang member and conspiring to cover it up. The severe police case was a police brutality case that ended in the death of a law-breaker mistakenly arrested as a cop killer. The mild generic case was about a man who stole a car, struck the car’s owner when she tried to stop him, and led the police on a car chase through four towns. The severe generic case was about a car thief who hijacked a car with the owner on board, injuring a police officer in the process, and ended up stabbing the car owner. The order of the police officer and the generic criminal cases was counterbalanced to minimize any order effect. Half of the participants read the police cases first, whereas the other half read the generic criminal cases first. In each criminal category, the mild case was presented first.

3.4. Procedure

Because more than half of the participants in the game-playing group have not used PS2 before, we required them to come to the lab twice—once to get familiar with the PS2 interfaces and once for the experiment.

The first time the participants came to the lab, they basically familiarized themselves with the PS2 controller and the game environment. Upon entering the experimental laboratory, the participants signed the consent forms. The experimenter seated each participant at a PS2 console with a 17-in. LCD–TV monitor. An instruction sheet was given to the participant to explain how to operate the game controller to accomplish desired actions (e.g., driving, firing, jumping, running) during the game. Participants were also told that they would play the role of an unconventional police officer and that their goal was to catch as many criminals as possible. When they did not have any more questions, the experimenter started the game. Similar to other modern games, True Crime started with a short introductory narrative video clip (90 s) about the main character (a police officer) that the participants were going to role-play during the game. After watching the video clip, the participants played the game for an hour. Since it was the first time the participants were using PS2, they mostly explored the game environment, familiarized themselves with the game interfaces, and learned how to play the game.

The second time the participants came to the lab, they were told that this time they should try their best to catch as many criminals as possible. They were told that the top three players would win a video game. This incentive was given to ensure the participants’ full attention to the game. After playing the game for an hour, the participants logged onto a survey web site with the four crime cases and related questions. The questions asked the participants about their judgments on each case (see Section 3.5 for the list of each question) and their current and previous gaming experience. After answering all questions, the participants were thanked with gift certificates. All participants were fully debriefed via email after the experiment.

Participants in the control group came to the lab only once to complete the same online survey. Similar to the participants in the game-playing group, they were given gift certificates and debriefed via email after the experiment.

3.5. Dependent measures

3.5.1. Negative evaluation of the perpetrator

The participants were asked how well the following adjectives—harmful, horrible, and intolerable—described their feelings towards the perpetrator in each case, on a 10-point scale from describes very poorly (1) to describes very well (10). Cronbach’s $z$ for the mild police officer case, the severe police officer case, the mild generic criminal case, and the severe generic criminal case were .85, .85, .88, and .79, respectively.

3.5.2. Unjustifiability of the crime

For each case, the participants were asked to rate how well the following adjectives—in moral, unjustifiable, and unwarranted—described their impression of the crime, on a 10-point scale from describes very poorly (1) to describes very well (10). Cronbach’s $z$ for the mild police officer case, the severe police officer case, the mild generic criminal case, and the severe generic criminal case were .87, .87, .85, and .85, respectively.

3.5.3. Sentence meted out

For the mild cases, the participants were asked how long a jail sentence in terms of months they would give to the perpetrator, on a 9-point scale from 0 (1) to 24 (9) months with a 3-month
interval. For the severe cases, they were asked how long a jail sentence in terms of years would they give to the perpetrator, on a 9-point scale from 0 (1) to 24 (9) years with a 3-year interval. The middle point (5) of each scale were 12 months for the mild cases and 12 years for the severe cases. These were the actual sentences meted out in the respective cases.

4. Results

We conducted repeated ANCOVAs with game playing as the between-subjects factor, the role of the perpetrators in the cases as the within-subjects factor, and gender as the covariate. No main effect of severity of cases was found on all the dependent measures. Thus, we combined the mild and severe cases to make two categories of cases: the police officer case and the generic criminal case.

Significant main effects of game playing were found, which supported H1. Specifically, people who played the violent game had more favorable judgment of the crimes and perpetrators than people who did not play the violent game in terms of their negative judgment of the perpetrators, $F(1, 49) = 7.66, p < .01, \eta^2 = .14$; their judgment of the unjustifiedness of crimes, $F(1, 49) = 8.48, p < .05, \eta^2 = .15$; and the amount of sentence they meted out, $F(1, 49) = 10.90, p < .01, \eta^2 = .18$.

Significant main effects of the role of the perpetrator were also found. Even though we deliberately chose the cases to be comparable, the participants still evaluated the police crimes to be more favorable to crimes committed by generic perpetrators. More specifically, participants judged the police to be less negatively, $F(1, 49) = 4.34, p < .05, \eta^2 = .08$; the police crime to be less unjustified, $F(1, 49) = 4.21, p < .05, \eta^2 = .08$; and meted less sentence to the police perpetrators than generic perpetrators: $F(1, 49) = 5.43, p < .05, \eta^2 = .10$. This was understandable. After all, police officers may benefit from a “means justifies the ends” mentality, as they are acting to protect the public and put themselves at risk to do so.

Most importantly, we found significant interaction effects supporting H2. Specifically, participants who played the role of a violent police officer in the video game judged real life police officers who committed crimes ($M = 6.98, SD = 1.87$) to be less negative than generic criminals who committed crimes of similar severity ($M = 7.92, SD = 1.47$), whereas participants who did not play the game had similar judgment of the police officer ($M = 8.33, SD = 1.19$) and generic criminals ($M = 8.36, SD = 1.91$), $F(1, 49) = 4.30, p < .05, \eta^2 = .08$. Participants who played the role of a violent police officer in the video game judged crimes that were committed by police officers in real life ($M = 6.56, SD = 2.01$) to be less unjustified than comparable crimes by generic criminals ($M = 7.81, SD = 1.18$), whereas participants who did not play the game had similar judgment of the unjustifiedness of the crimes committed by police officers ($M = 8.04, SD = 1.45$) and by generic criminals ($M = 8.22, SD = 1.26$), $F(1, 49) = 4.31, p < .05, \eta^2 = .08$. Participants who played the role of a violent police officer in the video game also meted out less jail sentence to real life police officers who committed crimes ($M = 4.14, SD = 2.04$) than generic criminals who committed crimes of similar severity ($M = 6.06, SD = 2.16$), whereas participants who did not play the game meted out similar jail sentence to the police officers ($M = 6.37, SD = 1.99$) and the generic criminals ($M = 6.87, SD = 1.68$), $F(1, 49) = 5.76, p < .05, \eta^2 = .11$.

We also conducted simple effect analysis following the findings of the significant interaction effects. It was found that within the control group, there was no difference in terms of the judgment of the two types of criminal cases in terms of the negative evaluation of the perpetrator, $F(1, 50) = .01, n.s.$, the unjustifiedness of crime, $F(1, 50) = .25, n.s.$, and the sentence meted out, $F(1, 50) = 1.33, n.s.$ However, within the game-playing group, there were significant differences of the judgment of crimes committed by police officers and generic criminals in terms of the negative evaluation of the perpetrator, $F(1, 50) = 9.39, p < .005$, the unjustifiedness of crime, $F(1, 50) = 11.90, p < .001$, and the sentence meted out, $F(1, 50) = 19.72, p < .001$. Similarly, for the police case, there were significant differences between the game-playing group and the control group in terms of the negative evaluation of the perpetrator, $F(1, 50) = 9.60, p < .005$, the unjustifiedness of crime, $F(1, 50) = 9.27, p < .005$, and the sentence meted out, $F(1, 50) = 15.93, p < .001$. However, for the generic case, there was no significant difference between the game-playing group and the control group in terms of the negative evaluation of the perpetrator, $F(1, 50) = 1.69, n.s.$, the unjustifiedness of crime, $F(1, 50) = 1.45, n.s.$, and the sentence meted out, $F(1, 50) = 2.27, n.s.$

5. Discussion

The present study demonstrates that even a few hours of game playing as a particular game character can significantly influence one’s attitude towards real-life criminal behaviors conducted by an individual similar to the game character. More specifically, game players who have role-played a violent police officer and committed violent virtual crimes showed less punitive attitudes and judgments towards real-life police-officer-turned criminals who committed violent crimes, than towards generic criminals who committed comparable violent crimes. In contrast, participants who have not played the video game and have no virtual experience of being a police-officer-turned criminal made no difference in their judgments of real-life perpetrators, regardless of the perpetrators’ profession and social role. The simple effect analyses demonstrate that the main effects of playing violent video games are only significant when the role of judgment matches with the role played in the game. This might explain some of the inconsistent findings of the impact of playing violent video games on attitude towards violence afterwards. As the present study shows, if dependent variables were measured in a context related to the roles and behaviors in the games, significant effects can be easily found with a small sample size, due to the strong interaction effects of matching.

These results have significant implications. First, the main effect of playing the violent game adds empirical support to the limited research on the desensitization effect of playing violent games and the General Aggression Model. In addition, the interaction effects suggest that people’s virtual experience through role-playing violent media can influence people’s attitudes and judgments towards similar roles in real life. Role-playing has not been an explicit part of everyday media-use activities. For example, users of almost all previous media have been called audience, viewers, listeners, or readers, rather than players. However, with the increasing popularity of video games, role-playing is becoming a common, natural and intriguing part of media-use activities. By successfully demonstrating significant cognitive effects of virtual role-playing made possible by interactive media, the present study calls for more theoretical investigations into this new type of media-use activities.

The results that virtual role-playing through video games has significant effects on punitive judgments and attitudes toward criminals have also important practical implications. Obviously, they suggest that the jury selection process should take into accounts of potential jury members’ virtual as well as real-life experiences, because people’s attitudes towards a real-life criminal can be influenced by their virtual experience of playing the criminal’s role while playing a video game. The jury selection could be an extreme case. However, given the fact that video games such as _Grand Theft Auto IV_ (13 million copies sold) and _Fallout 3_ (4.7 million copies sold) in which players could play immoral roles are among the best selling video games on the market, the influence of role-playing such games
on people's attitudes towards crimes and criminals as well as their acceptance of violence deserves more research.

Another interesting implication of these results is that role-playing games might be able to reinforce positive attitudes and behaviors. In fact, some recent studies indicate that video games and interactive media can be an effective medium to deliver health campaign messages such as "no smoking" (Lieberman, 1997), "safe sex" (Read et al., 2006; Thomas, Cahill, & Santilli, 1997), and "healthy eating" (Peng, 2009).

This study has the following limitations. First, our findings have limited generalizability to hard core gamers due to the unique nature of our participants. More than half of the participants were women (63%), in contrast to the real world composition of female game players (40%) (Entertainment Software Association, 2009). The median of the participants' game playing time per week was 30 min, with more than 45% of the participants reporting zero playing time per week. Thus, our findings are clearly based on novice or light game players and should not be applied directly to hard core game players. A replication of the present study based on hard core game players, therefore, should be conducted in the future. A factorial-design experiment with factors from the present study and the new factor of game playing time (light vs. heavy) will be an interesting extension of the present study.

Second, all the participants played the role of a male police officer regardless of their gender, because the game program does not provide a female main character. Even though the present study does not find any significant gender-match effect and gender was used as a covariate in data analysis, it is still possible that game players in general might identify more easily with the main character of the same gender than with the different gender. Future studies on role-playing games, therefore, should be conducted based on a game that provides both a male and a female main character.

The final limitation of the present study is that there was a considerable difference in the experimental time and activities between the game-playing group and the control group. In contrast to the participants in the game-playing group who played the game for 2 h (1 h for training and 1 h for experiment), participants in the control group did not play the game at all but answered the questionnaire only. In order to minimize possible errors caused by uncontrolled differences in time and activities, future studies should consider having participants in the control group play an equally exciting game yet unrelated to the context in which dependent variables are measured for the same amount of time that participants in the treatment group play. For example, having participants in the control group play a non-violent game will be a logical extension of the present study.

In conclusion, the present experiment demonstrates that violent video game exposure can influence people's judgment of crimes and criminals, especially if the criminals are matched with the role in the video games players played and the crimes are matched with the immoral activities players engaged in the video games. This study lends support to the desensitization research of violent video games. The significant finding of the matching impact of role-playing games is one of the first empirical studies of this kind. More research is needed in this line to explore more real life implications for future public policy agenda.

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