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Like the Good or Bad Guy — Empathy in Antisocial and Prosocial Games

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Abstract

Evidence suggests that violent media influence users' cognitions, affect and behavior in a negative way, whereas prosocial media have been shown to increase the probability of prosocial behavior. In the present study it was tested whether empathy moderates these media effects. In two experiments (N=80 each), inducing empathy by means of a text (Study 1) or a video clip (Study 2) prior to playing a video game caused differential effects on cognitions and behavior depending on the nature of the subsequent video game: The induction had positive effects on participants' behavior (i.e., decreasing antisocial and increasing prosocial behavior) after a prosocial game (Study 1), or when participants played a positive hero character in an antisocial game (Study 2). In contrast, empathy increased antisocial behavior and reduced prosocial behavior after playing a mean character in an antisocial game (Study 1 & 2). These findings call attention to the differential effect of empathy depending on game type and game character, thereby questioning the unconditional positive reputation of empathy in the context of video game research.

Keywords: video game; empathy; aggression; prosocial behavior

Introduction

"Empathy is the glue of the social world."
(Baron-Cohen & Wheelwright, 2004, p. 163)

In face-to-face interactions empathic people understand and emotionally respond to their partner's feelings. However, such empathic responses are not confined to social interactions in the real world. Media users often respond emotionally to what they perceive on their screen. For example, people may even adopt emotions that are portrayed on TV, show empathy for the characters, get immersed in the narrative, or go through other affective processes (Konijn, Walma van der Molen, & Van Nes, 2009). Empathic responses to main characters also play an important role with regard to the effects of violent video games (Happ, Melzer, & Steffgen, *in press*). As empathy has been demonstrated to have positive effects on cognitions and behavior (e.g., Condon & DeSteno, 2011), the interplay of antisocial versus prosocial game content and the implementation of an empathy induction before playing a game was the main focus of this study.

Media use, video games, and violence

In Western society the prevalence of media use has grown strongly, and especially video games play an increasingly prominent role in young people's lives (Gentile, Coyne, & Walsh, 2011). At the same time, and with regard to violent content, media are potentially harmful for the recipients on cognitive, emotional, physiological, and behavioral levels (e.g., Anderson et al., 2010), increasing aggression and reducing prosocial (e.g., helping) behavior. Unfortunately, the two distinct concepts of violent and prosocial games are conflated in some studies (e.g., Greitemeyer & Osswald, 2010). As violent games is only one possible variation

of antisocial games, we conceptualize the spectrum in our study along the prosocial/antisocial dimension, thereby avoiding this confound. Today, at least six out of ten TV programs feature forms of physical aggression in the plot (Wilson, 2008). A lot of studies have been published on the effects of media violence on recipients (e.g., Bartholow, Sestir, & Davis, 2005; for an overview see Anderson et al., 2010). The majority of studies propose negative effects of playing violent video games. However, violent gaming has been identified as only one amongst other factors when predicting antisocial behavior (Gentile & Bushman, 2012). Other researchers even failed to find significant effects for violent video games (Ferguson & Dyck, 2012).

The effects of violent video games include standardized measures reflecting indicators of aggression on physiological, emotional, cognitive, and behavioral levels, but also indicators of empathy and prosocial behavior (e.g., Krahé & Möller, 2010). Repeated exposure to models showing antisocial behavior like, for example, when playing violent video games repeatedly or over a longer time, has been reported to increase antisocial behavior and decrease prosocial behavior (Buckley & Anderson, 2006). Furthermore, violent video game exposure is related to lower levels of prosocial behavior, a decrease in empathy and an increase in desensitization, that is, a decreased sensitivity to violence and a greater willingness to tolerate higher levels of violence. Compared to their nonviolent counterparts, for example, playing violent games leads to less empathetic responses (Carnagey, Anderson, & Bushman, 2007; Krahé & Möller, 2010), and less helping behavior (Sheese & Graziano, 2005).

In sharp contrast, nonviolent video games decrease aggression and strengthen prosocial thoughts (Sestir & Bartholow, 2010). This is especially true for prosocial games, although only few of these games are commercially available (e.g., Greitemeyer, Osswald, & Brauer, 2010). In fact, there are many studies supporting the positive effect of prosocial

media content (Mares & Woodard, 2005). The General Learning Model (GLM; Buckley & Anderson, 2006) serves to explain both the negative and positive effects of media use. The model claims that games have the potential to teach something to media users depending on the content of the game that determines which attitudes, beliefs, and behavioral patterns will be learned. While antisocial content has been linked with antisocial and aggressive behavior, prosocial content is associated with prosocial behavior (Barlett & Anderson, 2011). In line with this reasoning, playing prosocial games has been suggested to increase the activation of prosocial cognitive concepts (Whitaker & Bushman, 2012). Taken together, video games may therefore provide the perfect ground both for prosocial or antisocial learning. Likewise, video games may either become a positive learning tool or a potential risk factor.

Empathy

Empathy is defined as "the ability to understand and share in another's emotional state or context" (Cohen & Strayer, 1996, p. 988). While the affective component of empathy involves an emotional response to another's affective state, the cognitive component involves understanding another's feelings. Either component on its own does not fully describe empathy as affect and cognition are typically linked in empathy (Cohen & Strayer, 1996). Empathy may be reliably measured with the Interpersonal Reactivity Index (IRI; Davis, 1983), which assesses both components separately, but also provides a one-dimensional sum score. In addition to Cohen and Strayer's two major components of cognitive and affective empathy, the IRI broadens the concept by including a dimension for empathy in fictional contexts. This component is supposed to measure both affective and cognitive reactions to emotional content in various media channels, which differ in quality compared to empathetic reactions to real-life situations (Leibetseder, Laireiter, & Köller, 2007).

Among other outcomes, empathy increases the willingness to help others and to feel

with them (Hoffman, 2000), even if this includes members of stigmatized groups (Batson et al., 1997). In violent situations, feeling oneself into the victim leads to experiencing the negative impact of violence, which keeps the perpetrator from using it (Heckhausen, 1989). This means that empathy does not only affect people's behavior substantially (e.g., Calvert, Strouse, & Murray, 2006; Steffgen, Pfetsch, König, & Melzer, 2011). Rather, empathy may also serve as a major moderator of the responses to violent behavior (Miller & Eisenberg, 1988).

Under certain circumstances, however, empathy can also increase aggression (e.g., Kuppens & Tuerlinckx, 2007). Here, empathy was related to anger if someone else was held responsible for situations perceived as unpleasant. This seemingly counterintuitive finding demonstrates the importance of taking into account contextual and situational aspects when investigating empathy.

Empathy in video games

Against the backdrop of the behavioral effects of video games and empathy, it is surprising that only recently empathy was introduced into the field of video game research (e.g., Bartholow et al., 2005; Hartmann, Toz, & Brandon, 2010; Konijn, Nije Bijvank, van der Heijden, Walma van der Molen, & Hoorn, 2008). The level of trait empathy in gamers, for example, has been added to the variables moderating the negative effects of violent video games (e.g., Calvert et al., 2006). Games have also been used successfully to foster empathy in players (e.g., Belman & Flanagan, 2009).

As empathy includes perspective taking, the function of identification with a certain game character is clearly relevant. Identification with aggressive TV heroes during adolescence, for example, is linked to later aggressive behavior as an adult (Huesmann, Moise-Titus, Podolski, & Eron, 2003). Even though the first-person perspective in violent

games requires players to take the perspective of the violent protagonist, only few studies (e.g., Schneider, Lang, Shin, & Bradley, 2004) have investigated the effects of identifying with violent video game characters. Putting oneself into the shoes of an aggressive character is known to stimulate violent behavior (Konijn, Nije Bijvank, & Bushman, 2007) and to prime aggressive cognition (Peña, Hancock, & Merola, 2009).

Nonetheless, as empathy reduces negative effects in violent real world settings (e.g., Miller & Eisenberg, 1988), similar effects are to be expected in virtual environments (see Hodson, Choma, & Costello, 2009). Consequently, players scoring high in trait empathy feel guilty if they engage in unjustified acts of violence in video games (Hartmann et al., 2010). Shifting the focus towards the victim character in violent media reduces general violence acceptance (Nathanson & Cantor, 2000) and aggressive behavior, and even has prosocial effects (e.g., Konijn et al., 2008). However, empathy with main game characters may also have negative effects. When players empathized with a violent game character an increase in hostile perception was observed (Happ et al., *in press*).

As video games are both real and fictional at the same time (Juul, 2005) and hold elements of both storytelling and game, they are fundamentally distinct from other means of narrative (e.g., film, books, and television; Dillon, 2005). While players control both avatars and event outcomes, theater audiences and readers of novels are only able to witness characters' experiences in situations and events. Here it is necessary to distinguish the constructs of role-playing (as a character), role taking (e.g., Coutu, 1951), and identification (Klimmt, Hefner, & Vorderer, 2009). While role taking is clearly related to empathy, role-playing, even though it requires one to take a role (Puri & Pugliese, 2012) bears no necessary relation to empathy (Coutu, 1951). Video game identification on the other hand means both adapting to fixed attributes of a character but also changing some attributes through individual decisions (Klimmt et al., 2009). Feeling empathy while playing a video game

character, however, has often been questioned (D'Aloia, 2009) but rarely been tested (e.g., Jin, 2011). Gamers prefer those games that provide opportunities for immersion and that allow them to become the main character or empathize with other characters in the narrative (Annetta, 2010). Identification with a character may both foster and reduce aggressive tendencies depending on the particular role of the player in the video game. For example, identification with the aggressor may have opposite effects than empathy for the victim (Happ et al., *in press;* Konijn et al., 2007). Therefore, we suggest that empathy and identification with a game character moderate the effects of antisocial and prosocial media on subsequent user behavior.

The present research

As prosocial and antisocial video games have opposite effects on aggression and prosocial behavior, it is most efficient to directly compare both game types. Furthermore, including empathy helps to further clarify its role as a potentially moderating factor. Empathy may either serve as a general buffer against the negative consequences of antisocial games on following behavior and cognitions, or it may have differential effects depending on whether the game provided positive or negative learning content.

Study 1: Prosocial vs. antisocial game with direct empathy induction

Based on the findings mentioned above, playing a prosocial video game should lead to less antisocial and more prosocial behavior compared to playing an antisocial video game. Additionally, reading a newspaper article before playing, which proposes that focusing on empathy in games has beneficial effects, should lead to stronger empathetic reactions, less antisocial behavior, and more prosocial behavior compared to reading a neutral text. This means shifting participants' attention towards emotions in the game without encouraging

identification with the violent avatar should have positive behavioral effects. Thus, it was tested (1) whether empathy can boost the positive effects of a prosocial video game, and (2) whether empathy may compensate for the negative effects of playing an antisocial video game.

Hypotheses

1. Playing a prosocial video game leads to more prosocial and less antisocial behavior compared to playing an antisocial video game.
2. An empathy induction before game play reduces antisocial and enhances prosocial behavior after both a prosocial and an antisocial video game

Method

Eighty university students participated in this study (55% females, M_{Age}=23.4, *SD*=4.37). The mostly Caucasian participants were recruited in classes and on campus and were paid 5 Euros for their participation. The reported general video game use was low (*M*=0.9, *SD*=1.05, with 0=*never* to 4=*often*). When entering the lab, participants were unaware of the video games used in this experiment. According to the 2 (type of text: empathy vs. neutral) by 2 (type of game: prosocial vs. antisocial) study design, participants were randomly assigned into one of the four groups. All participants read a bogus newspaper article on the beneficial effect of video games on memory. Presenting pregame narratives has been successfully shown to ameliorate the deleterious effects of violent games on behavior (Jin, 2011). In the neutral condition, no further information was given. In the empathy condition, however, the newspaper article explicitly attributed the memory effect to emotional involvement and empathy of players in video games. This information was meant to enhance the awareness of participants for emotions, thereby inducing empathy in the following game phase. As a

manipulation check, participants' awareness of their empathy-related text was tested through a memory task at the end of the experiment. Among other words, participants were asked if the word "empathy" was included in the bogus newspaper text (yes/no decision). After the empathy manipulation and a training phase of five minutes, participants used the Nintendo Wii® game console for 15 minutes to play either the prosocial video game *Trauma Center 2: New blood* (Atlus U.S.A., Inc.) or the antisocial video game *Manhunt 2* (Rockstar Games) in which the player has to kill other in-game characters to escape from an asylum. As in *Trauma Center 2* players take the role of a surgeon trying to save other game characters' lives by performing surgery, it can be considered prosocial. Both games involve explicit portrayals of blood and wounds, but differ substantially regarding their respective goals.

Control Variables

Before empathy and game manipulation, a number of demographic measures (e.g., age, gender) and personality traits were measured to make provision for individual differences that may potentially have an impact on aggression-related outcomes (e.g., Krahé & Möller, 2010). Participants' current mood was assessed with the Positive and Negative Affect Scale (PANAS; Watson, Clark, & Tellegen, 1988) that was administered both before and immediately after game play. Participants rated their positive and negative affect with ten items each (e.g., "enthusiastic", "inspired", "upset", "distressed"). Also in the first questionnaire, participants' level of trait empathy as time-invariant individual disposition was measured with the shortened version of the Interpersonal Reactivity Index (12 items; IRI, Davis, 1983; German translation by Paulus, 2009). Items were used from three subscales (perspective taking, empathic concern, and fantasy empathy; e.g., "I often have tender, concerned feelings for people less fortunate than me."). Analysis revealed a good overall reliability, so a sum score was used. Participants' level of trait aggression was tested using

the two subscales anger and physical aggression from the Aggression Questionnaire (14 items; AQ; Buss & Perry, 1992; e.g., "I have threatened people I know."). Based on a good overall reliability a sum score was used. Table 1 illustrates the measures of the relevant scales (means, number of items, and internal consistencies). Finally, participants indicated their media use, general game expertise, and familiarity with the game and the game console.

Dependent variables

After game play, participants indicated their ratings of the game (e.g., handling, enjoyment, content) on a 4-point-likert scale (from 0=*totally disagree* to 3=*totally agree*). Next, participants were told that the experiment was now over but they were allowed to take one item as reward for their participation from a bowl outside the lab (either a pen or a piece of chocolate). Participants were explicitly told not to take more than one item per person, and if they took more there would not be enough for the other participants. For every participant the bowl was filled with 25 pens and 25 pieces of chocolate, that is, 50 items. After participants had left, pens and chocolate were counted. If more than one piece was missing (irrespective of whether it was a pen or a piece of chocolate) this was considered antisocial behavior. On average, participants took about one item more than allowed (M=1.04, SD=1.24; see Table 1).

Finally, before participants left the lab, they were handed an envelope and told that it contained an additional questionnaire for a different study, but its completion would be optional and not controlled. Returning the additional bogus questionnaire within one week served as a dichotomous measure of prosocial behavior (yes/no).

Insert Table 1 here

Results

The level of significance was set at α=0.05 and one-sided testing was applied for all directional hypotheses.

Manipulation Check

As expected, the antisocial video game *Manhunt 2* was rated significantly more aggressive than *Trauma Center 2* (t[65]=16.0, p<.001, d=3.55; see Table 2). *Manhunt 2* was also rated significantly less prosocial than *Trauma Center 2* (t[58]=-9.92, p<.001, d=2.22). As 39% of the participants in the empathy group claimed to remember the word "empathy" (even though not explicitly stated in the text), it appears that the text forms differed with regard to their empathetic message (neutral text group: M=5%; χ [1]=13.17, p<.001, d=0.89).

The two games were expected to be similar regarding handling and perceived enjoyment. Handling was rated similar in both conditions (t[78]=0.03, p>.05) but the prosocial game was found significantly more enjoyable than the antisocial game (t[78]=-3.96, p<.001, d=0.87). No other variable (e.g., age, media use, trait empathy, trait aggression) differed significantly between groups (all p>.05). Additionally, to make sure potential behavioral effects were not due to frustration (see Adachi & Willoughby, 2011; Williams, 2009), participants had to indicate their level of frustration after the game. Here, no difference was observed between the prosocial and the antisocial game (t[78]=1.92, p>.05). As neither the two empathy nor the two content conditions differed regarding positive (F[3,76]=0.26, p>.05) or negative affect before the game (F[3,73]=1.84, p>.05), differences in the PANAS between groups after game play can be compared. Here, participants playing *Trauma Center 2* showed more positive affect and less negative affect than participants playing *Manhunt 2* (t_{Pos} [78]=-2.14, p<.05, d=0.48; t_{Neg} [54]=3.20, p<.01, d=0.71). To ensure that other results were not affected by these post game differences, additional analyses used

enjoyment and positive and negative affect as covariates (i.e., ANCOVA), as both variables did not mediate the effects for any dependent variable (all $p>.05$). However, including these covariates did not change the results in all ANOVAs that followed. No gender effects were observed with regard to dependent variables (all $p>.05$).

Insert Table 2 here

Video game effects

As expected (Hypothesis 1), playing the prosocial game led to less antisocial behavior than the antisocial game, as indicated by the number of items taken without permission, $F[1,76]=3.47$, $p<.05$, $d=.43$ (see Figure 1). Additionally, playing the prosocial game also led to more prosocial behavior than the antisocial game, as indicated by the number of returned bogus questionnaires, χ [1]=5.52, $p<.05$, $d=0.70$ (see Figure 2). Odds ratio (OR) indicated that participants were 4.11 times more likely to act prosocially if they had played the prosocial video game than if they had played the antisocial game. Simply put, people playing the prosocial *Trauma Center 2* were more likely to take just the amount of reward they were allowed and showed a higher return rate for the bogus additional questionnaire.

Insert Figure 1 here

Additional effect of the empathy induction

The empathy text had no additional effects with regard to antisocial behavior (Hypothesis 2). This was true both for the prosocial game conditions ($p>.05$) and the antisocial video game condition ($F[1,76]=0.56$, $p>.05$), even though empathy seemed to somewhat encourage antisocial behavior in this condition. In contrast to expectations, the empathy text had similar

differential effects with regard to prosocial behavior, depending on game conditions (Hypothesis 2). For prosocial behavior a three-way loglinear analysis was calculated with the final model retaining all effects. The likelihood of this model was χ (0)=0, p=1. To break down this effect separate χ -tests were performed separately for participants in the neutral and the empathy condition. While game type had no influence on prosocial behavior after reading the neutral text (χ^2[1]=0.51, p>.05), the empathy text affected the decision to return the questionnaire significantly (χ [1]=6.77, p<.05, d=0.61, see Figure 2). Participants were 12.25 times more likely to act prosocially if they had played the prosocial video game. Planned contrasts revealed a significant difference between the relevant group ($M_{\text{Empathy/Antisocial}}$=4.5%) and all other groups ($M_{\text{all other groups}}$=25.9%; χ [1]=4.53, p<.05, d=0.49). OR indicated that prosocial behavior was 7.32 times more likely if participants did not play the antisocial video game after reading the empathy text.

Insert Figure 2 here

Discussion

The goal of the study was to test for ecologically valid behavioral effects of empathy induction in different video game contexts. In line with Hypothesis 1, the results show that playing a game with prosocial content has different behavioral effects compared to playing a game with antisocial content. Helping in video games seems to encourage helping in real life (i.e., filling in an additional questionnaire that was not part of the study) and to reduce antisocial behavior (i.e., stealing). On the other hand, a short sequence of antisocial violent game play was once again shown to be sufficient to influence behavior and affect in a negative way. However, it is necessary to include a neutral game condition in future research to interpret the direction of effects. Without this condition, the found differences could be due

to the prosocial effects of the prosocial condition, the antisocial effects of the antisocial condition, or a combination of both.

Hypothesis 2 looked at whether encountering empathy-related information before playing a video game play affects participants' later behavior. Only after reading the empathy text the game condition mattered. However, the results were not straightforward: When empathy was induced in the antisocial video game condition, participants were 7.32 times less likely to help than in all other conditions. A similar pattern was observed for antisocial behavior, although this effect failed to reach the level of significance.

We may speculate that this counterintuitive finding may be explained by the fact that raising participants' awareness for empathy in the text especially supported (or primed) empathy for the leading character (i.e., the protagonist) in the subsequent antisocial game. Even if they were not explicitly encouraged to do so, participants may have identified more with the mean character after being reminded to attend to their own feelings. It has already been shown that identification with a violent game hero increases aggression after playing a violent video game (Konijn et al., 2007).

In contrast to other studies (e.g., Krahé & Möller, 2010), the inclusion of various covariates did not significantly change the patterns of effects in the present study. However, the fact that the prosocial game was found significantly more enjoyable than the antisocial game is a major threat to validity (see Adachi & Willoughby, 2011), as the effects might be attributed to other factors than the content of the game (i.e., perceived enjoyment). Therefore, the same video game was used for all participants in Study 2. Using the same game also helps to avoid the problem that the two games differed regarding its influence on participant's affect in Study 1.

Study 2: Perpetrator vs. victim in an antisocial game with indirect empathy induction

With regard to playing violent video games, results from Study 1 indicated that inducing empathy by means of a fictitious newspaper article led to unexpected results in the antisocial game condition. This was further scrutinized in Study 2, in which we tested the effects of empathy using only an antisocial violent video game.

Due to the low impact of the empathy manipulation in Study 1, we used a more vivid form of empathy induction, namely a short movie clip that showed a violent perpetrator and his victim who were also the main protagonists in the antisocial video game played afterwards. Movies are known for the exceptional emotional effects they have on their recipients (e.g., Gross & Levenson, 1995). Due to the fact that the video clip also transports a moral conflict and that video games are capable of inducing moral responses in the players (e.g., Gollwitzer & Melzer, 2012; Hartmann et al., 2010), the effect of inducing empathy for the virtual opponent was tested in Study 2. Empathy was expected to be higher in participants who had watched the empathy clip than for those who had watched the neutral clip. However, empathy for an opponent should be highest when violence is not morally justified (see Hartmann et al., 2010), which is the case in Study 2 for participants who played the perpetrator. The character played should also have behavioral consequences: the positive effect empathy has in general (i.e., fostering prosocial behavior and decreasing aggressive behavior) should be highest when playing the sympathetic victim.

Hypotheses

1. Compared to the a neutral clip, an empathy-stimulating video clip before playing a video game leads to more affective concern during and less antisocial and more prosocial behavior

and after the game.

2. Regarding interactions, the following outcomes are expected:

a) Compared to all other groups, pity on the opponent and affective concern are highest for those participants who had watched the empathy clip and then played the perpetrator.

b) Compared to the neutral condition, inducing empathy reduces antisocial behavior and fosters prosocial behavior when playing the sympathetic victim character from the previous movie clip. However, when playing the character of the perpetrator from the previous clip, empathy increases antisocial behavior and reduces prosocial behavior, compared to the neutral condition.

Method

Eighty university students participated in the study (M_{Age} =21.8, *SD*=3.2). 69% of the participants were female; this ratio was equal in all groups. The mostly Caucasian participants were recruited in classes and on campus and were paid 5 Euros for their participation. The general video game use again was low (*M*=2.1, *SD*=0.89, with 1=*never* to 4=*often*) and like in Study 1, participants were unaware of the video games used in this experiment when entering the lab. According to the 2 (movie clip: empathy vs. neutral) by 2 (character: victim vs. perpetrator) study design, participants were randomly assigned to one of four groups. Following questions on demographics, participants either watched the empathy clip (a 2-minutes excerpt from "Street Fighter–The Legend of Chun-Li", 20th Century Fox Film Corporation) or a 2-minute neutral clip (excerpt from "The Last Emperor", Columbia Pictures). The latter has been identified as being emotionally neutral (Hewig, Hagemann, Seifert, Gollwitzer, Naumann, & Bartussek, 2005). The empathy clip showed a dramatic sequence in which the female protagonist witnesses her father being hit and kidnapped by a male villain. After the five-minute training phase, participants played either

the victim or the perpetrator from the movie clip in the corresponding antisocial and violent beat-'em-up video game *Streetfighter IV* (Capcom) using the Sony PlayStation©3 console for 15 minutes. In contrast to the imbalance of power in the movie clip, both characters are portrayed as equally strong in the game.

Control Variables

The same demographic measures were controlled for as in Study 1 (PANAS, IRI, AQ, media use; see Table 3).

Dependent variables

After game play participants indicated in two items (a) how much pity they felt on their (computer-controlled) opponent in the game (i.e., "I felt pity on the character I was fighting against."), and (b) their level of affective concern (i.e., "I felt bad when fighting the other character."). The latter is one of the components of empathy. Antisocial behavioral intentions were measured with two scenarios (e.g., "Someone is spilling his drink on you. How do you react?"). In these scenarios participants rated how likely it was for them to respond with anger in given provoking situations. Higher ratings on 4-point scales indicated stronger affirmation in all items. Afterwards, participants were thanked for their assistance and given 5 Euros in coins as remuneration. Before they left the lab, they were told that there was a donation box outside the lab and that they were free to anonymously donate some money for a child cancer aid organization. The average of donated money in this study was M=1.76 Euros. The Kolmogorov-Smirnov test indicated that the distribution of prosocial behavior was non-normal ($D(80)=1.71$, $p<.01$). Therefore, this measure was discarded. Whether or not participants donated was used as an indicator of prosocial behavior.

Insert Table 3 here

Results

As in Study 1, the level of significance was set at α=0.05 and one-sided testing was applied for all directional hypotheses.

Manipulation Check

As expected, there was no difference in handling the game character of the perpetrator and the victim (t[78]=0.31, p>.05; see Table 4). There was also no difference with regard to overall game enjoyment (t[78]=1.26, p>.05). In addition, groups did not differ significantly with regard to all other variables (e.g., PANAS, media use, age, trait empathy, trait aggression, success in the game).

To control for the effect of a male character (i.e., the perpetrator) fighting a female character (i.e., the previous victim), only the two neutral clip conditions were compared with regard to pity on the opponent (t[38]=0.38, p>.05) and affective concern (t[29]=1.55, p>.05). Apparently, the gender of game characters did not play a role. With regard to gender, there were no main or interaction effects on any of the dependent variables (all p>.05).

Insert Table 4 here

Empathy-clip and interaction effects

Regarding Hypothesis 1, findings were in line with our expectations. The empathy clip had an effect on prosocial behavior, which approached significance (χ [1]=3.38, p=.06, d=0.42, see Figure 3). OR indicated that participants were 1.25 times more likely to act prosocially after watching the empathy clip.

The results for affective concern were also in line with our hypothesis: Participants in the empathy clip condition reported more empathy than in the neutral condition (t[70]=2.64, p<.05, d=0.59). Hypothesis 2a stated that affective concern as well as pity on the opponent should be highest for participants who played the perpetrator after having watched the empathy clip. A main effect of the empathy clip for pity on the opponent was observed (F[1,76]= 3.93, p<.05, η =.04). Planned contrasts revealed that participants who played the former perpetrator reported more affective concern (t[23]=3.14, p<.05, d=0.81) and more pity than participants in all other groups (t[24]=32.38, p<.05, d=0.61).

Insert Figure 3 here

With regard to aggression (Hypothesis 2b), the expected significant interaction was observed (F[1,76]=4.66, p<.05, η =.06; see Figure 4): In the empathy condition, less antisocial behavioral intentions were shown when playing the victim. In contrast, watching the empathy clip increased antisocial behavioral intentions when playing the perpetrator.

Insert Figure 4 here

For prosocial behavior, a three-way loglinear analysis was calculated, which produced a final model that retained all effects. The likelihood of this model was χ (0)=0, p=1. To break down this effect separate χ -tests were performed for those participants who played the victim and those who played the perpetrator. While the empathy clip had no influence on prosocial behavior in the perpetrator condition, participants were more likely to donate after playing the victim character of the movie clip, although this was only marginally significant (χ [1]=3.58, p=.06, d=0.43, see Figure 3). OR indicated that participants were 1.38 times

more likely to act prosocially if they had watched the empathy clip before playing the victim. Planned post-hoc contrasts revealed that the difference between the relevant group ($M_{\text{Empathy/Victim}}$=90%) and all other groups ($M_{\text{all other groups}}$=71.7%) approached significance (χ [1]=2.78, p=.08, d=0.38). Being in the empathy/victim character group enhanced the probability of donating 1.26 times (OR).

Discussion

In Study 2, hypotheses were largely confirmed indicating that inducing empathy by means of a short clip of only two minutes changed people's later perception of a violent game and affected their subsequent behavior. It was also found that if forced to play a mean character, a prior empathy induction leads to more antisocial behavior and less prosocial behavior, thus replicating the findings from Study 1 for the antisocial game condition.

Generally, the empathy-stimulating clip led to more prosocial behavior and more affective concern after game-playing. However, affective concern and pity on the opponent were highest when playing the perpetrator, indicating that particularly players in this group critically reflected their own behavior in the game (e.g., Hartmann et al., 2010). The empathy clip unequivocally presented the two characters as victim and perpetrator, thus making it unlikely that participants later showed empathy or pity on the perpetrator from the clip. Consequently, empathy had the expected positive effect on prosocial behavior when playing the victim but not when playing the perpetrator. A similar pattern was observed for antisocial behavioral intentions: Compared to a neutral control condition the empathy clip decreased antisocial cognitions (i.e., antisocial behavioral intentions) when playing the victim, but led to an increase in antisocial cognitions when playing the perpetrator (see Happ et al., *in press*; Konijn et al., 2008). Overall, the internal validity of these results is higher than in Study 1 as the enjoyment did not differ between game conditions and thus cannot be seen as a confound.

However, two findings regarding prosocial (donating) behavior only approached significance and therefore have to be interpreted with caution.

General Discussion

The present research findings raise questions about the differential effects of empathy induction on video game perception and subsequent behavior. It seems that empathy not always fosters prosocial behavior. Rather, it may even *increase* antisocial behavior. In the two studies presented here, three major outcomes were observed:

(1) We replicated well-documented effects of antisocial video games (e.g., Anderson et al., 2010) and prosocial games on behavior (e.g., Greitemeyer, 2011). In Study 1 we found that exposure to antisocial video games have negative emotional effects, increase aggressive behavior and decrease prosocial behavior. In contrast, exposure to media with prosocial content increases helping behavior and decreases aggression. Our findings extend the literature by testing prosocial and antisocial behavior within a single study, using real-life dependent variables of high external validity (i.e., donating, stealing).

(2) Shifting the focus of gamers towards in-game emotions affects their perceptions (Study 2; e.g., empathy in the game), thus replicating previous findings (e.g., Konijn et al., 2008). This suggests that when playing an avatar in a video game, one can still experience empathy for an opponent, and thus act more prosocially or experience a positive change in attitude towards others (e.g., Batson et al., 1997).

(3) The empathy text had a positive effect on behavior and behavioral intentions in the "good" condition (e.g., playing a prosocial game: Study 1; playing the victim: Study 2), whereas empathy had the opposite effect in the "bad" condition (e.g., playing an antisocial game: Study 1; playing a mean character: Study 2). This pattern, which was observed in both studies, it is at odds with the concept of empathy as a generally positively connoted helping

tool that reduces aggression and fosters prosocial behavior. Instead, it seems that focusing on feelings when playing the "bad guy" primes antisocial behavior (Study 1 & 2) and reduces prosocial behavior (Study 1). This result is in line with earlier findings of higher identification with mean characters, which leads to more violence (e.g., Happ et al., *in press*; Peña et al., 2009). In this high identification situation, the player is motivated to imitate a particular (i.e., antisocial) behavior (Konijn et al., 2007).

The observed pattern of results, which was most pronounced in Study 2, appears to be complex and also including aspects of morality. In video games, moral decisions and behavior are perceived like in real interpersonal interactions (Weaver & Lewis, 2012). When playing the victim in Study 2, participants could transfer the empathy felt for the victim in the movie clip to the same subject in the subsequent video game. The behavior of the victim (i.e., violent revenge) is therefore morally within the boundaries of what is morally acceptable (Raney, 2011). Here the induced empathy is supported by the actions (i.e., fighting) of the player, namely taking revenge and restoring justice. Revenge, which is found to be similar in real and fictional settings (Gollwitzer, Meder, & Schmitt, 2011), is more important to people than to compensate victims (Miller, 2001). After justice is restored people feel satisfaction, gratification, and relief (Gollwitzer et al., 2011). Accordingly, participants who had played the victim in Study 2 were less aggressive and showed more prosocial behavior. We may speculate that in this group empathy serves as a temporary protective factor from violent video game effects (see also Happ et al, *in press*). When feeling empathy, however, the lack of justification for behaving aggressively may lead to cognitive dissonance (e.g., Abelson, 1968; Festinger, 1957) and moral conflict. In Study 2, this was true for participants who had to play the perpetrator and fight the victim, not being able to take revenge or experience satisfaction. Not surprisingly, this group showed more antisocial behavior after the game (see Study 1).

It is important to note that these seemingly surprising results cannot be sufficiently explained by cognitive dissonance alone. While participants´ pro- and antisocial behavior in Study 1 might be interpreted as a modification of behavior resulting from cognitive dissonance (e.g., Baumeister & Heatherton, 1996), this explanation does not hold for Study 2. Here aggressive behavior is justified for players of both game characters: In the game phase the perpetrator simply continues to act violently and the victim takes revenge on the perpetrator. So, even if this explanation is not sufficient for our data, clarifying the role of mental states like cognitive dissonance in video game research is an important endeavor for future research.

It is also unlikely that priming alone (e.g., Huesmann, 1998) caused the effects reported here. Priming occurs when people think, act, or feel in a manner consistent with situational cues without the intention to do so. In Study 1, effects may reflect general priming of aggression (by means of the game) and empathy (by means of the text). In Study 2, however, the preceding clip clearly identified the villain as a mean character; this primed negative thinking and increased the probability that a participant acted accordingly without conscious thought (Peña et al., 2009). Therefore, priming may only explain the perpetrator's greater antisocial behavior but not the victim's greater prosocial behavior in Study 2.

It is important to note that only short-term effects were examined in the present study. According to the GLM, however, repeated encounters that affect internal variables (i.e., emotions, cognitions, and arousal) lead to the development and construction of knowledge structures and, thus, to permanent changes in personality depending on the content of the media (Buckley & Anderson, 2006). A similar mechanism is proposed both for negative and positive effects of media exposure on social behavior, which matches our observations in the present study. Although longitudinal studies are needed to test for long-term effects, it is remarkable that the present effects were observed following only 15 minutes of game time.

We may speculate that if people repeatedly play video games over a longer period of time, prosocial and antisocial effects may be even larger (e.g., Gentile et al., 2011).

Future research needs to examine the underlying processes *why* playing a sympathetic character in prosocial or antisocial video games increases empathy and decreases aggressive or antisocial behavior. It was suggested that the increased accessibility to prosocial or antisocial thoughts accounts for the effects of playing a prosocial video game on prosocial and antisocial behavior (Greitemeyer, 2011). Additionally, the role of personality traits needs to be explored. For example, a high level in personal distress, which is a self-focused emotion and part of human empathy (Davis, 1983), is known to motivate people to engage in prosocial behavior (see Batson, Fultz, & Schoenrade, 1987). This also refers to the role of identification with virtual characters (see Konijn et al., 2007). Whether identification serves as a state or trait variable in players and how it is different from empathy should be targeted in future research.

In Study 1, only 39% of the participants claimed to "remember" the word "empathy". As the text did not mention this word, we cannot rule out that participants felt empathy but correctly answered "no" when asked whether or not the word had appeared in the text. Therefore future studies should apply a different procedure to test the success of the empathy induction. Additionally, it is not without problems that the manipulation check was given *before* the dependent variables were measured. However, this was necessary to guarantee the high external validity of the dependent variables, which is especially true for the prosocial behavior in Study 1, which needed to be tested before participants left the lab. It has to await future experiments whether the manipulation check should best be administered before or after measuring the dependent variables. Concerning empathy induction, future studies should employ tests like the "Katie Banks Task" (Batson, Early, & Salvarini, 1997), as this includes a "real" person, for whom participants may actually feel empathy. Nonetheless, our

results suggest that emotions, at least similar to those involved in empathy, may be induced in the video game context (see also Annetta, 2010). It has to be stated that other authors doubt that the induction of empathy is possible at all (e.g., D'Aloia, 2009). In contrast to emotions in games as well as identification and immersion that are all well-studied (e.g., Klimmt et al., 2009), empathy in video games, including cognitive and affective perspective taking, needs more research in the future.

One of the potential critiques on this study is the low overall media use and the high rate of female participants (69%). This was due to the fact that participants were recruited mostly from our campus that has only study programs of social sciences, which are dominated by female students. Therefore, future studies should control more for gender balance, which also allows for systematic tests for gender-specific effects. Furthermore, some of the empathy induction effects reported here are only marginal which has to be kept in mind when interpreting the results. It is possible that the present results might have reached statistical significance with a larger sample.

A rather novel approach presented here is the use of dependent variables that reflect direct behavior as ecologically valid methods. Measuring donating behavior as indicator for prosocial behavior and stealing as indicator for antisocial behavior are rarely used in the field of media effects research (e.g., Ritter & Eslea, 2005). However, when interpreting media effects, a behavioral baseline is essential. Therefore, future studies should include a neutral game condition. Although participants' ratings concerning the level of prosociality and aggression clearly confirmed the prosocial versus violent nature of the game, we cannot fully rule out the possibility that our findings are confined to the games tested in the present study. Therefore, replicating our results with other games or having at least two games of each type would increase the generalizability of findings.

Finally, future studies should test games matching in game enjoyment. In our research,

this was only true for Study 2, but not for Study 1. In addition, Study 2 compared an emotion inducing and a neutral video clip. The emotion-inducing clip may have also primed emotional responses only by its narrative (e.g., fighting). Therefore, clips should be matching on more characteristics (e.g., excitation, narrative) in prospect studies. In order to increase comparability between the antisocial and prosocial video game condition, future studies should also test games matching in terms of excitement or arousal they provoke in participants (see Bushman, 1998).

In conclusion, the present research tested in two studies the differential effects of empathy after playing a video game. Video games are capable of inducing affective moral responses in users (see Hartmann et al., 2010), which includes open behavior as well. As antisocial thinking and aggression is always detrimental to interpersonal and intergroup relations, research on whether or not media exposure has harmful effects on social relations is of particular importance. With that said, the present results challenge the conventional handling of prosocial and antisocial media content and its overly simplistic division into "good/beneficial" or "bad/harmful". More precisely, our findings indicate that both (a) playing prosocial video games, and (b) increasing empathy for victim characters in antisocial games makes prosocial behavior more likely. In the latter case, empathy apparently compensates for the antisocial content in video games. However, shifting the focus of the players in these types of games towards feelings in general appears to foster empathy for the violent hero. Consequently, empathy may even cause unwanted antisocial effects. With regard to the common belief that empathy is associated with prosocial or helping behavior, our findings suggest a more critical view. Empathy *is* the glue of the social world (Baron-Cohen & Wheelwright, 2004)—but it will lead to a positive outcome only when empathizing with someone behaving in a prosocial manner.

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Figure Captions

Figure 1. Number of stolen items (antisocial behavior) in the violent and the prosocial video game condition (Error bars: +/- 2 SE).

Figure 2. Percentage of returned questionnaires (prosocial behavior) as a function of text and game type.

Figure 3. Percentage of donations (prosocial behavior) as a function of video clip and game character.

Figure 4. Aggressive behavioral intentions (min= 1, max=4) as a function of video clip and game character (Error bars: +/- 2 SE).

Table Captions

Table 1. Measures of the relevant scales in Study 1.

Table 2. Means, Standard Deviations (in parentheses), and Comparisons Across Key Variables in Study 1.

Table 3. Measures of the relevant scales in Study 2.

Table 4. Means, Standard Deviations (in parentheses), and Comparisons Across Key Variables in Study 2.

"I (am) like the Bad Guy!"

Table 1.

Measures of the relevant scales in Study 1.

Measure	No. of items	Scale	α	Item-M	SD
Positive Affect – t1	10	0-4	.84	1.70	0.62
Negative Affect – t1	10	0-4	.81	0.25	0.27
Positive Affect – t2	10	0-4	.89	1.93	0.74
Negative Affect – t2	10	0-4	.91	0.58	0.66
Interpersonal Reactivity Index	12	0-3	.74	2.02	0.33
Aggression Questionnaire	14	0-3	.84	0.91	0.46
Prosocial behavior	1	/	/	0.20	/
Aggressive behavior	1	/	/	1.04	1.24

Table 2.

Means, Standard Deviations (in parentheses), and Comparisons Across Key Variables in Study 1.

	Prosocial Video Game		**Antisocial Video Game**		**Sig.**
	Empathy	**Neutral**	**Empathy**	**Neutral**	
Aggressiveness	0.18 (0.45)		2.44 (0.78)		***
Prosociality	2.13 (0.98)		0.37 (0.54)		***
Handling	1.62 (0.81)		1.61 (0.70)		/
Enjoyment	1.85 (0.70)		1.19 (0.81)		***
Frustration	0.82 (0.94)		1.24 (1.01)		/
Pos. Affect (after)	2.12 (0.79)		1.77 (0.66)		*
Neg. Affect (after)	0.35 (0.34)		0.79 (0.81)		**
Antisocial Behavior	0.77 (0.96)		1.29 (1.42)		*
	0.74 (0.81)	0.80 (1.11)	1.46 (1.68)	1.11 (1.05)	/
Prosocial Behavior	31%		10%		*
	4.5%	25%	36.8%	15.8%	*

Note. * p < .05., ** p < .01., *** p < .001.

"I (am) like the Bad Guy!"

Table 3.

Measures of the relevant scales in Study 2.

Measure	No. of items	Scale	α	Item-M	SD
Interpersonal Reactivity Index	12	1-4	.73	3.00	0.34
Aggression Questionnaire	14	1-4	.77	1.84	0.35
Aggressive behavior (vignettes)	9	1-4	.75	2.88	0.39
Prosocial behavior	1	/	/	0.76	/

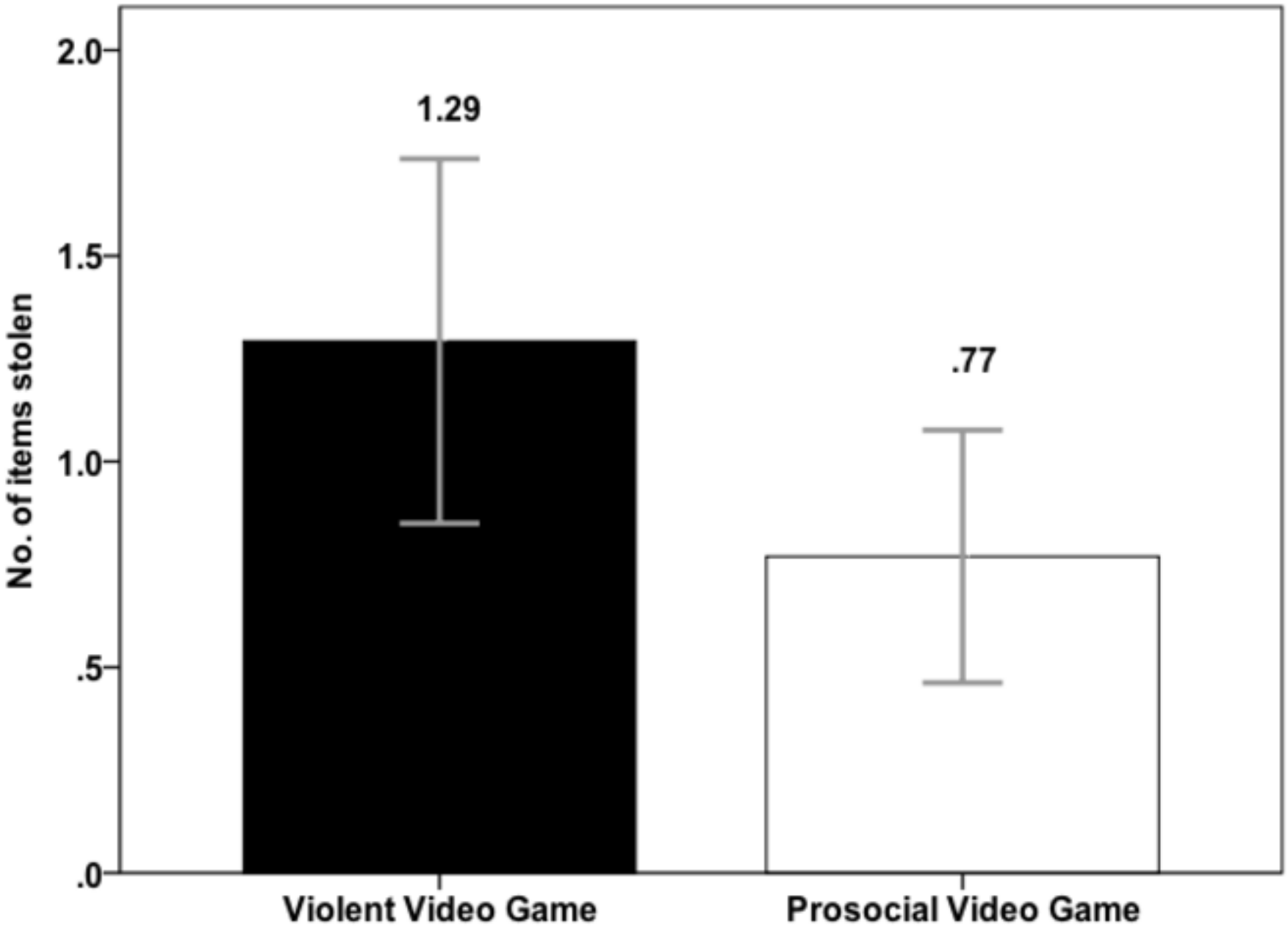
Table 4.

Means, Standard Deviations (in parentheses), and Comparisons Across Key Variables in Study 2.

	Perpetrator		**Victim**		**Sig.**
	Empathy	**Neutral**	**Empathy**	**Neutral**	
Handling	2.85 (0.74)		2.80 (0.72)		/
Enjoyment	2.46 (0.69)		2.25 (0.81)		/
Pity on Opponent	/	1.60 (0.82)	/	1.50 (0.83)	/
Affective Concern	/	1.50 (0.76)	/	1.20 (0.41)	
Antisocial Behav. Intentions	2.20 (0.38)	2.04 (0.37)	2.01 (0.33)	2.23 (0.46)	*
Prosocial Behavior	80%	70%	90%	65%	†
	Empathy		**Neutral**		
Prosocial Behavior	85%		68%		†
Affective Concern	1.80 (0.88)		1.35 (0.62)		*
Pity on Opponent	3.55 (1.80)		2.90 (1.26)		*

Note. † p <.10, * p < .05., ** p < .01., *** p < .001.

Figure1


2.0
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1.0
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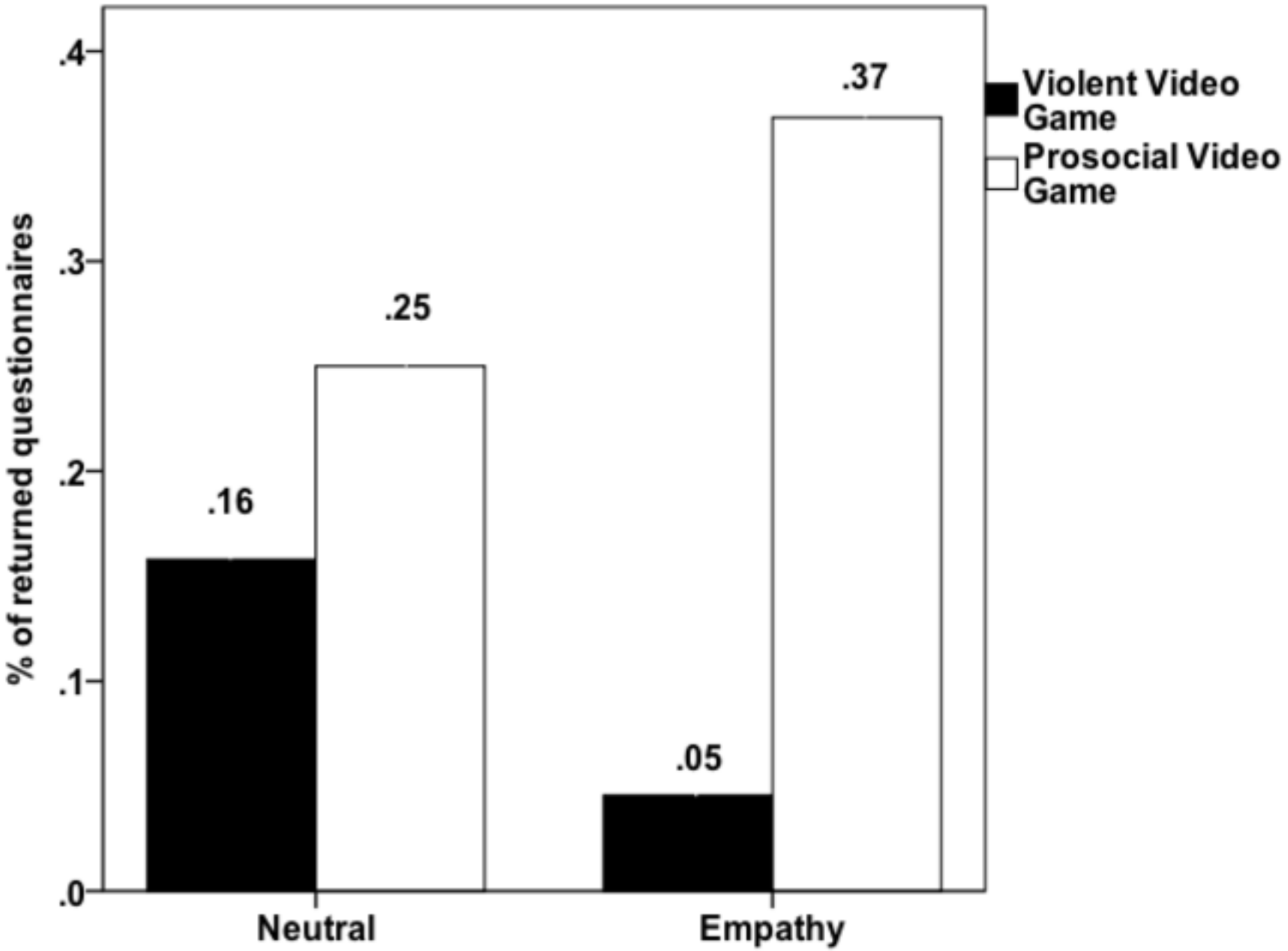
.0
No. of items stolen
1.29
.77
Violent Video Game
Prosocial Video Game

Figure2


% of returned questionnaires
.4
.3
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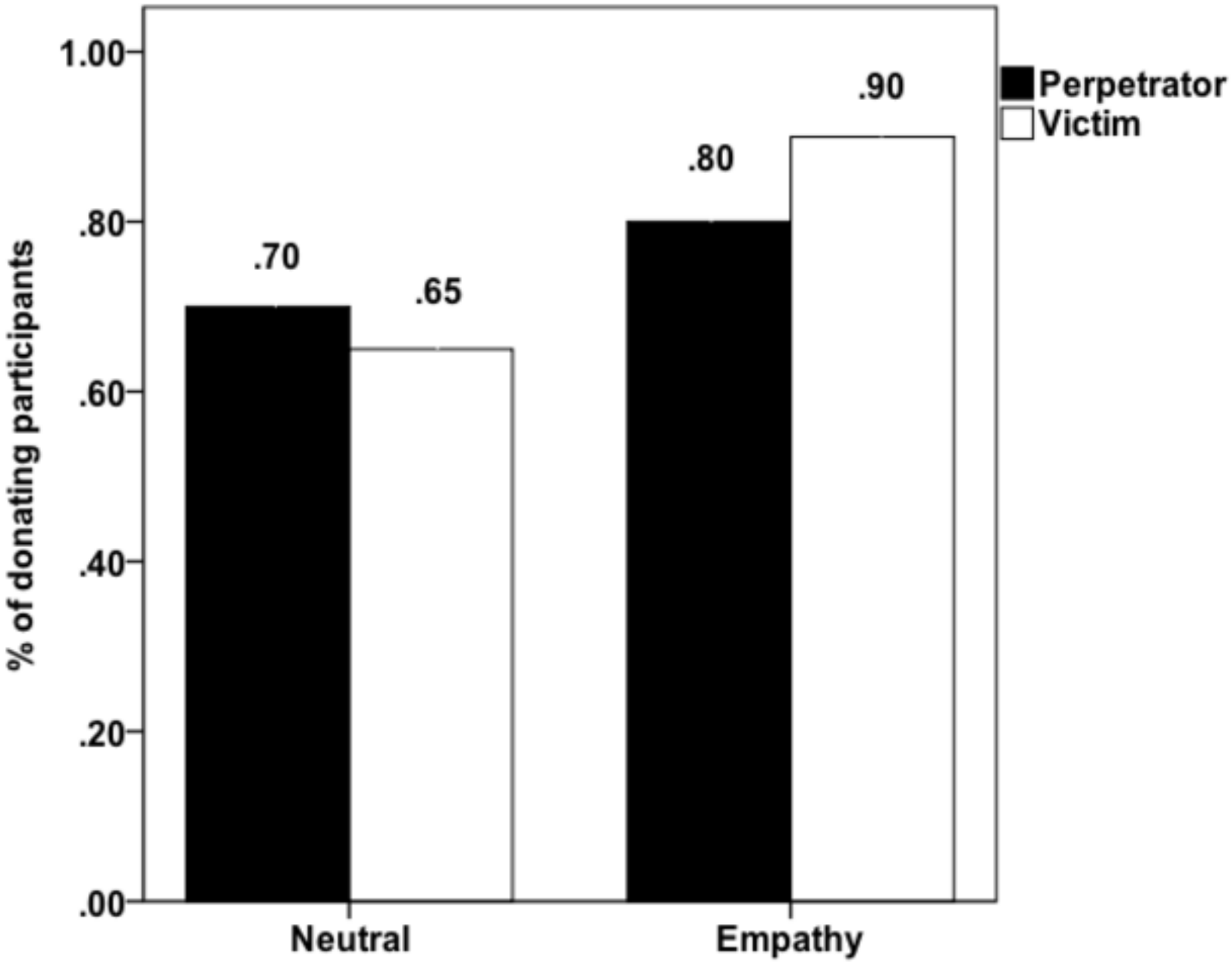
.37
Neutral
Empathy
Violent Video Game
Prosocial Video Game

Figure3


1.00
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% of donating participants
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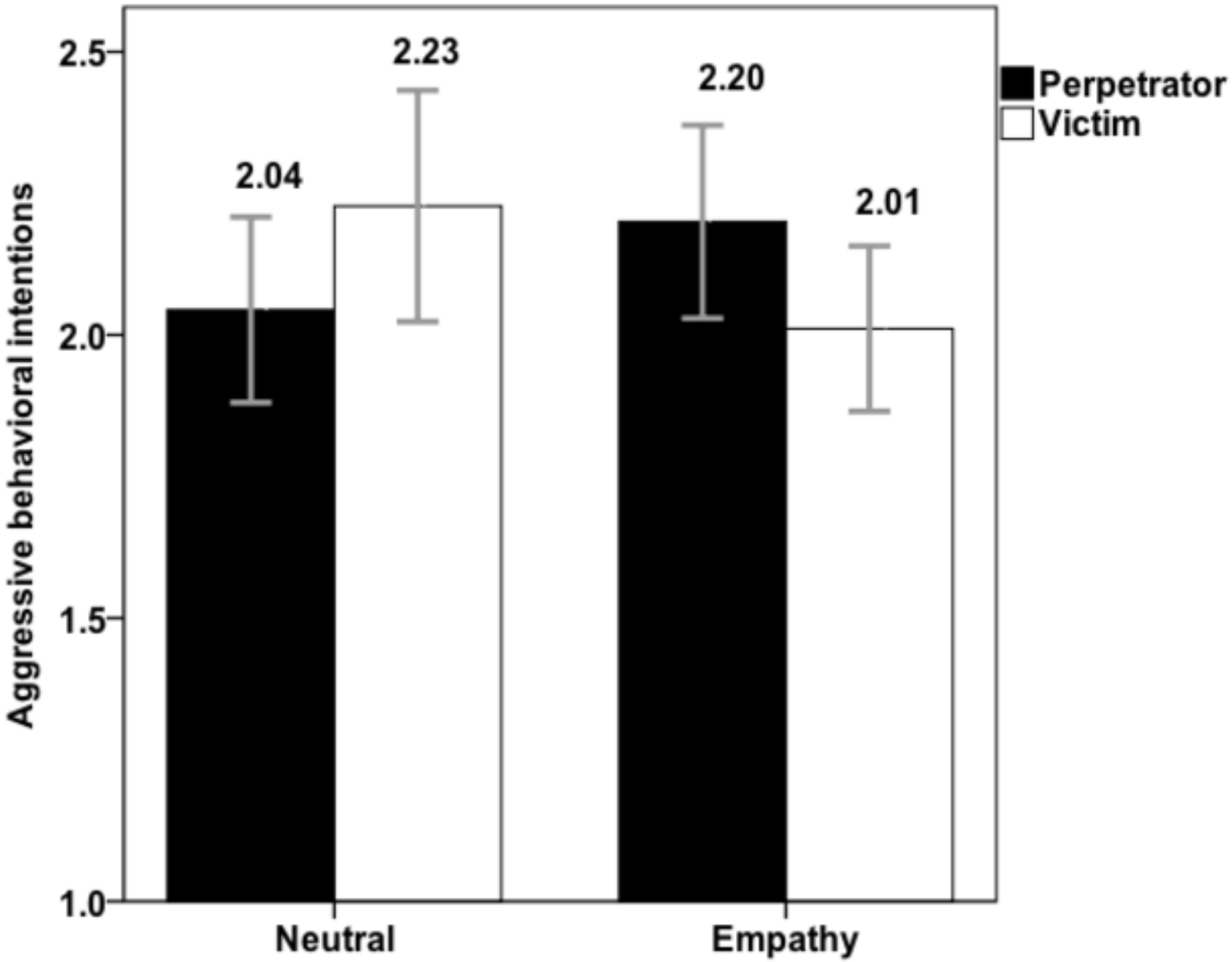
.90
Neutral
Empathy
Perpetrator
Victim

Figure4


2.5
2.0
1.5
1.0
Aggressive behavioral intentions
2.04
2.23
2.20
2.01
Neutral
Empathy
Perpetrator
Victim

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