Does it matter with whom you slay? The effects of competition, cooperation and relationship type among video game players

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ABSTRACT

Cooperation and competition have emerged as factors that may affect video game players. Competition consistently has been found to elicit increased aggression whilst cooperation has been found to mitigate aggression and increase cooperative behaviors after game play. Of interest is the effect of the relationship between players (friend vs. stranger) in cooperative and competitive multiplayer contexts. In this study, we considered how game goal structure – competition or cooperation – and relationships between players – friend or stranger – affect aggression and cooperative behaviors. Compared with competition, cooperative play resulted in significantly more cooperative behaviors in a modified Prisoner's Dilemma task. However, neither competitive nor cooperative goal structures significantly increased state hostility, suggesting that altering players' gaming goals (e.g. competition or cooperation) may not be enough to elicit strong affective aggression. Additionally, cooperative game play was found to predict increased cooperative behaviors and trust in their partner. Implications of the findings are discussed.

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1. Introduction

Multiplayer gaming has become a standard feature for most video games on modern game consoles and computers in recent years. Multiplayer modes not only allow players to play with others on the same console but also with others online with friends or strangers matched by the game system by skill and interest. Unlike the massively multiplayer online games that draw millions of players to the persistent virtual world, these types of multiplayer game sessions are for relatively small groups of people of as few as two players and at most 40 or so in a non-persistent virtual world. Traditionally, video game research had focused on the single-player experience. However, playing with others has been cited as a primary draw for video game players (Sherry, Lucas, Greenberg, & Lachlan, 2006), and players report that they regularly play with other people, both friends and strangers online (Lenhart et al., 2008).

The literature has shown that single players often experience video gameplay differently than those playing with others (Eastin, 2007; Eastin & Griffiths, 2009; Ekman et al., 2012; Ratan, Chung, Shen, Williams, & Poole, 2010). Multiplayer mode differs from the single-player mode in several ways, including the social context of the game and its goal structures. Socially, game players report more positive experiences when playing with or against another human compared to the computer (for a review of avatar vs. human agency see Lim & Reeves, 2010). In most multiplayer video game studies, players are matched with relative strangers. However, it seems that playing with friends may be different than playing with strangers (Peng & Hsieh, 2012). When friends played together, they reported higher degrees of spatial presence, engagement, and physiological arousal than when strangers played together (Ravaja et al., 2006).

Multiplayer modes often have different goals than solo play. Solo players compete against the gaming environment and game-controlled characters; multiplayers compete against or cooperate with another person or a team of other players. It is well-supported in the social psychology literature that competition and cooperation have different effects (Axelrod & Hamilton, 1981; Bonta, 1997; Deutsch, 1973). Within the field of video games research, competition also has emerged as a significant predictor for aggression post-game play (Adachi & Willoughby, 2011; Anderson & Carnagey, 2009; Ewoldsen et al., 2012; Jerabeck & Ferguson, 2013; Schmierbach, 2010). Cooperation, however, may have positive effects, such as increased cooperative or prosocial behaviors (Anderson et al., 2010; De Simone & Riddle, 2011, August; Greitemeyer, Traut-Mattausch, & Osswald, 2012; Peng & Hsieh, 2012).

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The vast multidisciplinary cooperation literature ties cooperation with friendship, and competition with aggression. Although many researchers have started to examine how goal structures affect players (Adachi & Willoughby, 2011; Anderson & Carnagey, 2009; Peng & Hsieh, 2012), only a handful have examined the effects of playing with a friend vs. playing with a stranger. However, no known studies have examined the effects of players' relationship (friend or stranger) and subsequent aggression or cooperative behaviors. Nor has the relationship between a game's different modes, or goal structures (competitive vs. cooperative), and the type of player relationships been fully explored. The goal of this study is to fill the research gap by conducting a between-subjects factorial experiment to examine the effects of goal structure (competition vs. cooperation) and the relationship type between players (positive pre-existing relationship [friends] or no pre-existing relationship [strangers]) on affective aggression and cooperative behaviors after playing a violent video game.

2. Literature review

2.1. Multiplayer goal structures: competition and cooperation

In social science and psychology literature, competition and cooperation have been defined as two different types of goal structures. Competition occurs when a person attains a personal goal whilst others do not obtain their goals (Johnson, Johnson, & Stanne, 1986). Cooperation occurs when people work toward a collective goal (Ewoldsen et al., 2012; Van Lange & Liebrand, 1991). A collective, or mutual, goal is one that is shared by the self and others (Brewer & Gardner, 1996). Social psychology studies have shown that priming people with "cooperative" words (i.e. "collaborative," "friendly," "forthcoming," "helpful," "cooperative," etc.) influenced the extent to which they thought of themselves as part of a team and engaged in helpful behaviors later (Nelson & Norton, 2005; Smeesters, Warlop, Van Avermaet, Corneille, & Yzerbyt, 2003). According to the Social Interdependence theorists, competition and cooperation are cognitive mindsets that define a situation (Deutsch, 1949; Deutsch, 1973). Competitive situations provoke competitive reactions, such as aggression toward a competitor; cooperative situations promote cooperative interactions, such as collaboration and mutual affiliation between partners (Deutsch, 2011).

Studies examining competition and cooperation in video games also have conceptualized these contextual variables similarly (Anderson & Morrow, 1995; Eastin, 2007; Eastin & Griffiths, 2009; Peng & Hsieh, 2012; Schmierbach, Xu, Oeldorf-Hirsch, & Dardis, 2012). In general, video games are competitive by nature, pitting the player against non-player controlled characters (NPCs) or a competitive environment. Video games also may have players cooperate with an NPC or environment, as well. Deutsch's (1949) definition examines competition and cooperation against other humans. For this study, we regard competition and cooperation as having competitive or cooperative human counterparts, respectively.

2.2. Competition and aggression

Since video games' debut more than 30 years ago, the scientific community and other interested parties have debated and devoted a substantial portion of research to ascertain whether or not *violent content* in video games fosters aggression, and what may be done to attenuate aggressive effects. Recent research indicates that contextual factors such as game play mode (e.g., multiplayer competition), social interactions among players, game outcome, etc., may play a large role in affecting players' mindsets after game play.

After matching non-violent and violent games in terms of difficulty and pace of action, Adachi and Willoughby (2011) found that more competitive games produced greater levels of aggressive behavior, irrespective of the amount of violence in the games. Eastin and Griffiths (2009) found that participants playing the violent first-person shooter (FPS) game *Unreal Tournament* exhibited more hostility post game play and verbal aggression during game play after playing competitively compared to playing cooperatively. Similarly, Schmierbach (2010) found that competitive dyads were more cognitively aggressive and did not make as much progress as cooperative partners. Breuer, Scharkow, and Quandt (2013) suggested that game play mode might increase the mindset of players' through priming, which is supported through early work demonstrating that players who are told think of competitive or cooperative situations before game play display increased aggressive or prosocial mindsets (Anderson & Morrow, 1995). Breuer et al. (2013) also found that outcome of competition (i.e., losing) can increase postgame aggression. In most competitive situations, winning becomes important, and people feel increased performance anxiety. Failure to perform may result in more negative feelings, increasing conflict and aggression toward others (Deutsch, 2011; Stanne, Johnson, & Johnson, 1999).

Based on the above empirical evidence, it is proposed that individuals playing competitively will exhibit more hostility than those playing cooperatively (H1).

2.3. Cooperation and cooperative behaviors

Although not all video games involve multiplayer competition, all video games involve some level of conflict or opposition, at least with non-player characters or the gaming environment, which may results in aggression. Cooperation among players has been shown to reduce the amount of residual aggression post-game play (Eastin & Griffiths, 2009; Jerabeck & Ferguson, 2013; Schmierbach, 2010). Social Interdependence theory suggests that this occurs because the cooperative actions necessary among team members foster positivity, which negates aggression (Deutsch, 2011; Tajfel & Turner, 1979). To work together, group members must cooperate with one another. Cooperation occurs when two or more people have positively interdependent goals; wherein the goals are linked in such a way that the probability of a person's goal attainment is positively correlated with the probability of another obtaining his goal (Deutsch, 2011). When people are engaged in cooperation, the tasks require behaviors that encourage positive interactions amongst themselves (Johnson, 2003). Just as aggression studies have found that excitement and aggression is maintained beyond the initial stimulus task (Anderson & Morrow, 1995), cooperation studies also have found that the positive feelings engendered by cooperative tasks also last beyond the initial task (Velez, Mahood, Ewoldsen, & Moyer-Guse, 2012).

Cooperation has been operationalized as cooperative behaviors by choosing the cooperative choice in a social dilemma task or using tit-for-tat behaviors in a Prisoner's Dilemma task (Ewoldsen et al., 2012; Velez et al., 2012). Research has found that, in general, players in cooperative conditions are more likely to choose cooperative strategies in a modified Prisoner's Dilemma task (Ewoldsen et al., 2012; Velez et al., 2012). Players who choose to "cooperate" are behaving in a way that is beneficial mutually rather than benefitting only themselves. Players who predict that their partners also will choose to "cooperate" are considered to be displaying trust in their partners, another cooperative action. Trust occurs when one person believes another will act cooperatively (Cook, Hardin, & Levi, 2007; Ferrin, Bligh, & Kohles, 2007). If a player violates cooperative expectations, his or her partner likely would not be as willing to engage in cooperative or trusting behaviors. Based on the above rational based on Social