Do Video Games Promote Positive Youth Development?

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Abstract

We argue that video game play may meet Larson's (2000) criteria for fostering initiative in youth, and thus, may be related to positive outcomes such as flow, cooperation, problem solving, and reduced in-group bias. However, developmental and social psychologists examining adolescent video game use have focused heavily on how video games are related to negative outcomes, while neglecting potential positive outcomes. In this article we review the adolescent video game literature, examining both negative and positive outcomes, and suggest important directions for future research.

Introduction

Video game play is the *fastest* growing form of entertainment in the world and many adolescents play video games for hours every day. For example, a nationally representative study of video game play among adolescents in the United States showed that 97% of adolescents aged 12 to 17 years play computer, web, and portable or console video games (Lenhart et al., 2008). In terms of frequency, 31% of adolescents play video games every day and another 21% play games 3 to 5 days a week. Similarly, Gentile (2009)

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conducted a large survey study in the United States and found that 88% of youth aged 8 to 18 years play video games and the average amount of time spent playing video games per week is 13.2 hours. Despite the extreme popularity of video games among adolescents, however, researchers in the fields of developmental and social psychology examining video game use have focused mainly on the association between video game use and negative outcomes (e.g., aggression, addiction), while research on positive outcomes is more limited. Yet, similar to organized activities, video game use may facilitate positive youth development (PYD; Lerner, Dowling, & Anderson, 2003), such as the development of initiative.

According to Larson (2000), organized activities, such as participating in sport teams or clubs, often elicit initiative because these activities involve three elements: (1) intrinsic motivation, (2) concentration and cognitive effort, and (3) cumulative effort over time to achieve a goal. For example, when participating in sports, arts, clubs, and hobbies, American adolescents report higher levels of both intrinsic motivation and concentration than when they are in school. Indeed, adolescents often report feeling bored and unmotivated in school. Similarly, initiative is seldom present during passive unorganized activities, such as hanging out with friends or watching television, as adolescents report higher intrinsic motivation but lower concentration during these activities than when they are in school. Organized activities also often involve sustained effort over time in order to meet goals (e.g., win a championship, organize a food drive).

Although video game play is an unorganized and often unsupervised adolescent activity, it also may fit the criteria for initiative. For example, video game play is consistent with Larson's (2000) first criterion as adolescents are clearly intrinsically motivated to play video games. Indeed, adolescents often spend more time playing video games than they do participating in organized activities, and they report that their motivation to play stems from the exciting and challenging content of games, as well as the social benefits of gaming, such as when adolescents play video games with their peers (Olson, Kutner, & Wagner, 2008).

Second, video game play meets Larson's (2000) criterion of requiring concentration and cognitive effort, as video games involve clearly defined rules, challenge, and complexity. Specifically, video games involve learning new skills and solutions to problems, retaining those skills and solutions, and then applying them to future problems or challenges in the game. In terms of the intensity of the challenge, video games offer a variety of difficulty settings, so more experienced or skillful players can create a greater challenge for themselves.

In addition, video games meet Larson's third criterion for initiative as they require cumulative effort over time to achieve the goal of completing the game. In order to complete the game, the player is faced with a variety of setbacks and challenges that require changes in strategies. For example, a strategy that was effective in the first few levels of a game may no longer work in the subsequent levels, forcing players to adapt their strategy in order to succeed. Furthermore, information regarding new strategies or the opportunity to learn new skills in video games tends to occur "on demand" and "just in time" (Gee, 2008), which encourages players to persist in the face of adversity and challenge. Indeed, instead of having to learn every skill and strategy simultaneously at the beginning of the game, each skill tends to build upon the last in a sequential order, resulting in a cumulative effort over time to complete the game. Moreover, the acquisition of new skills usually occurs when players are most motivated to learn them: When the previous strategy and skill set are no longer effective.

Although video games fit Larson's (2000) criteria for experiencing initiative similar to organized activities, and organized activity involvement is related to many other components of PYD such as well-being, academic orientation, and interpersonal functioning (e.g., Busseri, Rose-Krasnor, Willoughby, & Chalmers, 2006), it is less clear whether video game play is also related to other components of PYD. Video game research in social and developmental psychology that has targeted youth has been largely focused on negative outcomes, such as aggression, risky behavior, and video game addiction. In contrast, positive outcomes of video game play have seldom been explored, especially among adolescents. In the following sections, adolescent video game research will be reviewed, followed by important directions for future research.

Research on Adolescent Video Game Play and Negative Outcomes

A large amount of developmental and social psychological research in the video game literature has focused on the relation between violent video games and negative outcomes among children, adolescents, and adults, such as aggression, hostility, decreased empathy, and video game addiction. To our knowledge, the negative effects of video games have been examined in several hundred empirical studies. For example, Anderson et al. (2010) list over 150 studies that have examined the effect of video games on negative outcomes such as aggression, hostility, and decreased empathy, and since then, over 50 studies have been published that have focused on

these outcomes (e.g., Bushman & Gibson, 2011;). In addition, video game addiction and pathological gaming have been examined in over 100 studies (e.g., Porter, Starcevic, Berle, & Fenech, 2010). In contrast, developmental and social psychologists have examined the positive effects[1] of video games, such as prosocial behavior or psychological well-being, in less than 30 empirical studies (e.g., Gentile et al., 2009). The large discrepancy between video game studies examining negative and positive outcomes likely stems from the increase in public scrutiny of violent games after the horrific shooting sprees by violent video game players at Columbine High School in 1999 and Virginia Tech in 2007, as well as the "Beltway" sniper shootings in 2002. However, evidence for a relation between violent video games and aggression has been mixed. Although violent video games, which are very popular among adolescents (Lenhart et al., 2008), have been shown to elevate aggression (see Anderson et al., 2010), other researchers have failed to find a relation between violent video game play and aggression (e.g., Ferguson & Reuda, 2010). For example, we recently found that video game competitiveness, not violence, had the greatest influence on aggressive behavior (Adachi & Willoughby, 2011). Thus, the violent content in games may not undermine the promotion of initiative.

In terms of the discrepancy between video game studies focusing on negative and positive outcomes in adolescent research specifically, over 20 studies have targeted negative outcomes, while we are only aware of only 4 studies that have focused on positive outcomes. Researchers have focused on negative outcomes such as aggression (e.g., Konijn, Nije Bijvank, & Bushman, 2007), decreased empathy (e.g., Krahé & Möller, 2010), risk taking behavior (e.g., Beullens, Roe, & Van den Bulck, 2010), and video game addiction (e.g., Rehbein, Kleimann, & Mößle, 2010). Clearly, there is an abundance of research examining the negative effects of adolescent video game play.

Research on Adolescent Video Game Play and Positive Outcomes

Developmental and social psychological research regarding the effects of adolescent video game play on positive outcomes has been limited. Olson et al. (2008) conducted a qualitative study to investigate why American adolescent boys (aged 12 to 14 years) play violent video games and if they perceive nonviolent games to be fun. In addition, adolescent boys were asked how they viewed the role of video games in their social relationships, as well as how they believed violent video games may influence their thoughts,

feelings and behaviors, and that of younger children. Olson et al. found that adolescent boys play video games to express their fantasies of glory and power, and because they are attracted to qualities of the main characters, such as persistence and strength. The boys also indicated that they were aware that behavior in violent video games has much different and more serious consequences in real life. In addition, they believed that nonviolent games such as sports or racing games could also be fun. In terms of social aspects of video games, the boys believed that video games are a common social activity among friends, and even a vehicle to cooperate and network with people from different cities or countries via online gaming. Finally, the adolescent boys did not believe that they had been negatively influenced by video games, but showed some concern for younger children in terms of imitating behavior from violent games.

There also have been two studies examining video game play and adolescents' psychological well-being. Colwell and Kato (2003) conducted a study with 12- and 13-year-old Japanese students and found that frequency of video game play was related to a factor called "prefer to friends," which consisted of items measuring adolescent's preference of playing video games over spending time with friends. However, adolescents that scored high on this "prefer to friends" factor did not differ in the amount of good friends they had compared to those who scored low on this factor. Thus, Colwell and Kato concluded that preferring video game play over hanging out with friends may not be related to social isolation or having fewer friends, but instead, may be an emotional substitute for real friendship that is used when adolescents are alone.

Durkin and Barber (2002) referred to video game play as a voluntary leisure activity that is both challenging and stimulating. Durkin and Barber conducted a study with 16-year-old Americans to examine the relation between video game play (3 categories based on frequency of video game play: none, low and high) and a variety of positive outcomes. They found that compared to adolescents who did not play video games, video game players, regardless of gender, reported higher levels of family closeness, activity involvement, attachment to school, and positive mental health. Video game players also had less risky friendship networks and a more favorable self-concept compared to nonvideo game players. Thus, Durkin and Barber concluded that video game play is related to several aspects of positive adolescent development.

In terms of video game content, Gentile et al., (2009) examined the relation between prosocial video games and prosocial behavior (behavior intended to help others) in both correlational and longitudinal studies. First,

the results of a correlational study showed that in Singapore, young adolescents' (*M* age = 13 years) prosocial video game play was related to helping behavior, cooperation and sharing, and empathy. Second, a 3- to 4-month longitudinal study in Japan with 5th, 8th, and 11th grade students found that prosocial video game play at time 1 predicted prosocial behavior at time 2. Interestingly, prosocial behavior at time 1 also predicted prosocial video game play at time 2, supporting the notion of an upward spiral model (i.e., prosocial people may select prosocial video games, which in turn may increase their prosocial behavior). Although the findings in the previous studies suggest that video games may have positive effects within American and Asian cultures, more research examining the relation between video game play and PYD is needed. In the next section, new directions for research on video games will be discussed.

Directions for Future Research

According to Larson (2000), in addition to being an important element of PYD, initiative is also a "core requirement" (p. 170) for other components of PYD such as flow and prosocial behavior. As video game play meets Larson's criteria for initiative, researchers should examine whether video game play also is related to other components of PYD. For example, researchers should test whether Larson's third criterion for initiative (cumulative effort over time to achieve a goal) is related to flow. Csikszentmihalyi (1975) coined the term flow that refers to a person's mental state when they are fully immersed in an activity. Video game play may induce flow as the player may experience extreme focus, lose track of time, and find the activity intrinsically rewarding; all conditions that have been shown to be related to the experience of flow (Gentile, 2009). Specifically, researchers should test whether flow is induced by the on demand structure of video games. As previously mentioned, video games require cumulative effort over time to complete the game, which involves setbacks and changes in strategy. As the opportunity to learn new strategies and skills occur on demand and just in time in video games, adolescents may be encouraged to persist through challenges and setbacks, which in turn may produce an immersive state of flow.

Consistent with the notion that video game play may induce flow, Weibel, Wissmath, Habegger, Steiner, and Groner (2008) found that when participants played a video game against human opponents, they experienced greater levels of flow compared to playing against computer opponents. Many adolescents play video games with friends and peers both online and in person, from first-person shooters such as *Call of Duty* to role-playing games

such as *World of Warcraft*. Thus, researchers should compare how adolescents experience flow when playing with friends or peers online and in person, versus playing alone. Furthermore, it would be interesting to study this question across cultures. For example, perhaps in an Asian collectivist culture where the goals and prosperity of the group are more important than that of the individual, adolescents would be more engaged and thus, experience flow to a greater extent when playing video games cooperatively with peers compared to playing competitively or alone. In contrast, flow may be induced to a greater extent by playing competitively against peers among adolescents from an individualistic culture where individual goals and prosperity is the primary focus (with emphasis on "standing out" from the group), such as in the United States.

Considering that adolescents frequently play video games with friends and peers, another line of research should be focused on whether cooperative video game play may influence subsequent prosocial behavior. For instance, playing prosocial games such as *Super Mario Sunshine*, and *Chibi Robo* (Gentile et al., 2009) has been shown to elevate prosocial behavior among undergraduate participants in the short-term. However, researchers have not tested whether playing cooperative versions of violent video games (e.g., *Call of Duty*) can influence prosocial behavior (e.g., cooperation). According to McGonigal (2011), the video game industry is increasingly recognizing that video game players would rather cooperate with each other in a game instead of compete against each other. Researchers should investigate whether playing a cooperative version of a violent video game leads to more cooperative behavior among youth than a competitive version. In addition, playing a cooperative version of a violent and competitive video game may negate any possible effects of violent and competitive games on adolescent aggression and hostility (McGonigal, 2011). Thus, both the content (e.g., prosocial) and context (e.g., cooperative versus competitive version) of the video game may influence PYD (see Gentile, 2011 for a detailed description of video game dimensions). In addition, it would be interesting to examine the relation between cooperative and competitive video game play on cooperation from a cultural context. For example, perhaps due to the cooperative nature of a collectivist culture, playing a cooperative video game would affect cooperation among adolescents to a greater extent than in an individualistic culture.

Cooperation in online video games may also lead to reductions in bias between members of different cultural, racial, or ethnic groups. Specifically, there are many different online video game formats that allow players from across the world to cooperate. For example, the first-person shooter series *Call of Duty* has a "team deathmatch" format in which a group of players

cooperate together against another group of players. When members of different cultural, racial, or ethnic groups cooperate in an online video game (e.g., an American and an Afghani), the players may think of themselves more as a single group (i.e., members of a team) and less as two distinct groups (i.e., Americans and Afghanis), which in turn, may decrease bias between the two groups. According to the Common Ingroup Identity Model (Gaertner, Dovidio, Anastasio, Bachman, & Rust, 1993), if two subgroups are recategorized into a superordinate category that includes both subgroups (e.g., an American and an Afghani join the same team in a video game and are recategorized as teammates), then positive attitudes toward in-group members may be applied to the former out-group members, who are now part of the new in-group. Furthermore, intergroup cooperation may promote recategorization. Specifically, Allport (1954) in his Contact Hypothesis states that intergroup cooperation is necessary for reducing bias and conflict between two groups. In addition, researchers have shown that cooperation between two groups may lead to perceptions of one inclusive group, instead of two separate subgroups (e.g., Gaertner, Mann, Dovidio, Murrell, & Pomare, 1990). Considering that millions of players from different cultural, racial, and ethnic groups cooperate in online video games every day, researchers should examine whether cooperation in video games promotes reductions in bias between members of different groups.

Another avenue for future research is to examine the relation between video game play and problem solving skills. For example, Gee (2005) suggests that video game play can promote problem solving skills, such as when games encourage players to stop, thoroughly explore different possibilities, and consider new strategies and goals before moving on, rather than simply progressing toward their goal as fast as possible. However, this notion has not been investigated empirically. Only certain types of video games may predict increases in problem solving skills. For instance, in strategy and role playing games, the player often must gain information, weigh different options, and formulate a strategy before acting. Considering that this form of problem solving is constantly repeated throughout these games, sustained playing of strategy and role playing games over time may increase the player's problem solving skills. Moreover, the direction of effects between video game play and problem solving skills has not been investigated. That is, it is not clear whether strategy and role playing video games predict higher problem solving skills (i.e., the socialization hypothesis) or whether individuals who have better problem solving skills are more likely to play strategy and role playing video games (i.e., the selection hypothesis).

In summary, video game researchers in the fields of developmental and social psychology have focused on negative outcomes to a greater extent than positive outcomes. However, as video games meet Larson's (2000) criteria for producing initiative in youth, and initiative is an important requirement for other forms of PYD, researchers should focus more on how video games are related to PYD. To address this gap in the literature, we offer several directions for future research examining positive outcomes of video game play. Considering that video games are extremely popular among adolescents, it is important to understand the positive aspects of video games so that these aspects can be maximized in the future.

Declaration of Conflicting Interests

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Note

1. Note that this review does not include research focusing on educational or serious games (video games created for educational purposes), or video games and learning.

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Bios

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