

Content Analysis of the 18-Year Evolution of Violence in Video Game Magazines

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Video games are popular social artifacts with the potential to shape players' behaviors, attitudes, and identities. For instance, researchers have produced evidence that violent video games are related to aggressive behavior and emotions. Although unstudied, video game magazines containing pictures and descriptions of games could similarly promote aggression. The current study analyzed game magazine articles published over an 18-year span (1988-2005). Results indicate that violence in articles has become more pervasive and realistic. The mood and themes of games have become less happy and more evil, scary, and dangerous. Violent elements (e.g., blood, weapons) have become more frequent, newer characters die in more violent ways, and their appearance, attire, and weapons indicate an increase in depictions of violence. Finally, more current articles contain more extreme violence against victims such as humans, women, police, and soldiers. Increasing violence could have implications for players' behavior.

Keywords: content analysis, video games, aggression

Video games have gained popularity in the past two decades. In fact, monetary sales from games now exceed those of the movie industry (Yi, 2004). The hobby has consumed an increasing amount of American children's time as well. In the mid-1980s, children spent approximately four hours a week playing games (Harris & Williams, 1985); over time, this number increased to seven or eight hours a week (Gentile & Walsh, 2002; Walsh, 2001). Some players take the activity to an extreme, as 3-4% of college freshman played 16 or more hours per week (CIRP, 1999; Sanderson, 2006). This phenomenon is not reserved for an isolated few youth; 79% regularly play video and computer games (Walsh, 2001).

Video game magazines are also popular. The three major video game consoles are Xbox, Nintendo, and Playstation. Each has an official magazine, which attracts primarily young males (Future Publishing, 2007a; 2007b; 2007c). Recent estimates indicate that the magazines reach a great number of readers; for instance XBOX magazine sales for 2006 topped 425,000 (Future Publishing, 2006), a circulation higher than any other officially licensed video game magazine in history (Future Publishing, 2005). The growing popularity of games and game magazines makes it essential to study their content and effects. Specifically, it is important to study the characters and themes of games, and how they have changed over time. There is both anecdotal and scientific evidence that playing video games affects players' attitudes and behaviors (e.g., Sheese & Graziano, 2005; Weitzner, 2005). This is particularly a concern because many games contain

violence (Children Now, 2001), and the level of violence in games may be increasing (Gentile & Anderson, 2003). Such concerns have led a few lawmakers to attempt to regulate video games. In 1994, legislators encouraged the gaming industry to form the Entertainment Software Rating Board (ESRB). This board determines the appropriate age group for each game (ESRB, 2008). For instance, games that are appropriate for any age group receive a rating of “E” for everyone, whereas games that are appropriate for more mature audiences receive a rating of “M.” This rating system is not a law, but is a voluntary self-regulation. The purpose of the ratings system is not to affect the *content* of games, but rather to inform consumers about the content of the game so they can make wise choices about which games to buy.

Concerns about game content illustrate the importance of studying the messages games and video game magazines send in order to understand the behavior and attitudes that players may be emulating. The purpose of this article is to determine whether the violent content of video game magazine articles has changed over an 18-year span. The articles chosen were published in the official magazines for the Xbox, Playstation, and Nintendo consoles. It is important to note, however that the magazines are not a perfect representation of the actual games; for instance, magazine editors may choose only the most violent scenes or exaggerate the amount of violence in a game to try to boost sales. Even though the magazines do not exactly replicate the games, it is still important to study magazines as a separate media type.

THE IMPORTANCE OF STUDYING VIDEO GAMES AND VIDEO GAME MAGAZINES

Dill (2005) asserts that video games comprise an increasingly large part of young people’s time; they have also emerged as an important source of learning and socialization that significantly affects the modern experience of childhood. Video game magazines are also gaining wider circulation, potentially reaching more viewers than in previous years (Future Publishing, 2005). As a result, games and magazines warrant serious attention from researchers.

One area that has garnered much attention is the amount of violence depicted in some games. In the *Grand Theft Auto* series, common activities of the game include car-jacking, driving over pedestrians, and purchasing guns, bats, knives, and chainsaws. These weapons can be used to kill any character appearing on the screen, including innocent bystanders. Similarly, in the *Postal* video game series, the player acts as a man wreaking havoc on his community following a “bad day.” Violent activities include attacking a Middle Eastern shop owner, assaulting dancers at a gay club, and terrorizing a marching band. More generally, concern has focused on “first-person shooter games,” which have been linked to the Beltway Sniper (Thompson, 2002) and Paducah school (Grossman, 2000) shootings. Violent video game play has been associated with at least a dozen violent incidents in the past decade (Anderson, 2004). For example, teenager Devin Moore, who was being held on suspicion of car theft, seized an officer’s gun and fatally shot three people. Moore then stole a patrol car and fled the jail. Moore later told police, “Life is like a videogame. You have to die sometime” (Weitzner, 2005). Moore frequently played the game *Grand Theft Auto*, which raised concerns that the game influenced his violent behavior. Although these incidents highlight possible connections between real-life violence and video games, clearly more research needs to be conducted. Because the media often chooses to portray extreme and shocking stories, such as these, such media representations may

not accurately represent the connection between aggression and video games. Nevertheless, it is an important topic worthy of study.

The incidents just discussed suggest that games may have important implications for players' behavior, attitudes, and identities. Studies have found some negative effects of playing games (see discussion next section). For instance, participants who played a violent version of the video game *Doom* were much more likely to exploit their partners, whereas participants who played a non-violent version of the same game were more likely to cooperate with their partners (Sheese & Graziano, 2005). Further, players who identify with the players are more prone to act aggressively (Konijn, Bijvank, & Bushman, 2007). Specifically, many players wished to be like the violent characters they controlled; this desire led to actual aggressive behavior.

As suggested by Konijn and colleagues (2007), figures in mass media often serve as role models that can affect attitudes and behaviors (see also Aubrey & Harrison, 2004; Fraser & Brown, 2002). This finding is supported by social learning theory, which suggests that individuals learn through observing and modeling others' appearance, actions and reactions (Bandura, 2001). Through game play, players can experiment with numerous possible selves. Specifically, games and other media allow consumers to pretend to have different personalities, dispositions and behaviors (Giles & Maltby, 2004). Often the media provides role models that are fighters who act aggressively (Carnagey & Anderson, 2004; Dill & Thill, 2007) or are muscular (Burgess, Stermer & Burgess, 2007; Leit, Gray, & Pope, 2001; Miller & Summers, 2007). These media messages suggest that being aggressive and muscular is desirable for males.

Often these role models have qualities or abilities that most people do not possess (Oyserman, 2004). This leads the player to experience wishful identification; they wish to have the abilities and behaviors of the role model (Hoffner & Buchanan, 2005). For instance, middle school-aged children were asked to describe the characteristics they would like to possess; the characteristics they listed were similar to the characteristics they assigned to their favorite video game character (McDonald & Kim, 2001). Another study found that players use video games to 'live out' fantasies about possessing power or fame (Olson, Kutner, & Warner, 2008).

Wishful identification leads players to imagine being in the role model's position and can affect future behavior (Cohen, 2001). As such, players who experience wishful identification with masculine, aggressive game characters are more likely to emulate the aggressive behavior (Konijn et al., 2007). This wishful identification may also lead to negative views of the self, as men who handled unrealistically muscular action figures had more negative self-esteem, body esteem and body satisfaction than those who handled more realistic figures (Barlett, Harris, Smith, & Bonds-Raacke, 2005). Perhaps participants wished to be like the muscular figures, and failing to do so caused changes in esteem.

These theories and studies suggest that video game characters can act as role models for players, leading players to emulate characters' behavior. This is troublesome if players copy violent behavior found in some games and video game magazines. Even more concerning is that games and characters may have gotten more extreme through the years. Simply put, players are emulating characters who become more and more violent. While early games contained simple mazes and unrealistic characters such as Pac-Man, some may now contain much more complicated and realistic characters and themes. These observations are only speculative,

however. Researchers have studied the content of video games by studying the games or their advertisements (e.g., Scharrer, 2004), though none have measured changes in games over time. Because games potentially influence behaviors and attitudes (e.g., Anderson & Bushman, 2001), any change in content can change this influence. Thus, a longitudinal study is important. It is also important to study the depictions of games found in video game magazines, just as it is essential to study the games themselves, movies, songs, and other types of magazines.

INFLUENCE OF VIDEO GAMES AND OTHER MEDIA

The media has been criticized for the negative impact it has on children (Meltz, 2003; Sparks & Sparks, 2002). Unfortunately, there are no studies (that the author is aware of) that studied the effects of video game magazines on behavior. Even so, magazines can affect behaviors and beliefs. In one experiment, women who viewed magazines containing images of “thin-ideal” women had higher levels of body dissatisfaction, more negative mood, and lower self-esteem and more depression as compared to women who viewed magazine advertisements without thin women (e.g., Bessenoff, 2006). Another study measured the age at which children had been exposed to adult magazines other such media. Researchers found that the younger the age of exposure to these sexual materials, the more likely children were to have stereotypical gender role attitudes, to have had engaged in oral sex and intercourse two years later and (for males only) to have permissive sexual norms (Brown & L’Engle, 2009). Similarly, exposure to magazines and other media depicting alcohol consumption predicts both intentions to drink and actual drinking behavior of 7th graders (Collins, Ellickson, McCaffrey, & Hambarsoomians, 2007). Thus, magazines (and other media) can have important influence on a variety of behavior and attitudes. Although there are no studies measuring the effects of video game *magazines* on behavior, there is a plethora of research on the effects of the games themselves.

A significant amount of research suggests that playing violent video games negatively influences players’ behavior in a variety of ways. Meta-analytic reviews (Anderson, 2004; Anderson & Bushman, 2001; Huesmann, Moise-Titus, Podolski, & Eron, 2003) discovered that playing video games increases children’s aggressive cognitions (see also, Gentile, Lynch, Linder, & Walsh, 2004; Uhlmann & Swanson, 2004), aggressive emotions (see also, Griffiths & Hunt, 1998), aggressive actions (see also, Anderson & Dill, 2000), and physiological arousal (see also, Lynch, 1999). Playing video games also leads to physiological desensitization to violence (Carnagey, Anderson, & Bushman, 2007). Games also decrease positive prosocial behavior (see also, Van Schie & Weigman, 1997). Support for these effects has been derived from an array of methodological approaches, including laboratory, field, and correlational studies (Anderson, 2004). In sum, there is much evidence that violence in video games is related to many negative outcomes. Thus, if violence in games is increasing over time, there is reason to be concerned.

It is important to note, however, that some researchers are more skeptical of the alleged relationship between video games and violence (Griffiths, 1999; Kirsch, 2003; Kutner & Olson, 2008; Olson, 2004; Savage, 2004). These critics argue that games do not have extreme effects (e.g., encouraging murder) or that games have inconsequential influence on players’ violent criminal behavior. Still others argue that many studies are correlational and thus it is impossible to tell whether games make children violent or whether violent children seek video games (e.g., Kirsch, 2003). These researchers conclude that game violence has an inconsequential or general lack of influence on real-life violence (Olson, 2004; Savage, 2004). For example, research has

failed to find a noxious impact of violent video game playing on child or adolescent behavior (Baldaro et al., 2004). Another study found that playing a violent video game led to an increase in anger rating in some players, but a decrease or no change in other players (Unsworth, Devilly, & Ward, 2007). Increased aggression occurred only in those predisposed to aggression, suggesting that one's temperament can influence whether violent games promote real-life violence. Thus, the impact of games on behavior is somewhat controversial. Nevertheless, there is evidence that games do contain some violent content.

EVOLVING CONTENT OF GAMES

Because some research has indicated that games influence behavior and attitudes, it is important to study the messages the games send. Several researchers have studied the violent content of video games or game magazine advertisements. Scharrer (2004) found that 55.8% of magazine ads contained act of violence. Similarly, Smith, Lachlan and Tamborini (2003) watched the first 10 minutes of the most popular games of 1999 and found that 68% contained at least one violent act and 90% of games rated for older audiences contained violence. A few years earlier, Thompson and Haninger (2001) found that 64% of games contained violence intended to harm other characters, and violence was mandatory to meet the goals of 60% of games. That same year, another analysis estimated that as high as 89% of video games contain some violent content, and about half contain acts of serious violence directed at other characters (Children Now, 2001). Dietz (1998) found that 79% of games contained violence, while Braun and Giroux (1989) found that 71% of arcade games contained violence. Thus, content analyses indicate that the violence levels in games and magazine advertisements vary from 56-89%. These studies used a variety of media (e.g., some studied the games, some studied advertisements), game types (e.g., arcade games, computer games, console games) and ways of measuring violence (e.g., different dependent variables). Thus, it is difficult to determine if the violence level has changed over time. Although none of the past studies measured change in violence over time, anecdotal evidence indicates that games have likely become more violent through the years.

THE THREE ERAS OF VIDEO GAMES

Gentile and Anderson (2003) suggest that the history and development of video games can be divided into three eras. The first era, spanning from 1977 to 1985, is referred to as the "Atari era," named after the Atari game consoles that dominated the market. The games of this period possessed relatively humble technologically, making depictions of graphic violence difficult. Games during this time period contained little violence, most of which was quite abstract in nature.

The second era, 1985-1995, is labeled the "Nintendo era," also for the principal console of the period. As computers became more sophisticated during this time period, more complicated graphics also become possible. As a result, violence became more realistic and creative. Games at the beginning of the period contained largely innocuous portrayals of violence; for instance, in the game *Super Mario Brothers*, characters defeated harmful enemies by jumping on top of them. As the era progressed, the first truly violent video games, such as *Mortal Kombat*, were introduced (Carnagey & Anderson, 2004). Later games contained more extreme, though not always realistic, portrayals of violence.

The third and final era began in 1995 and extends to the present day. This time period saw the addition of Playstation 2, Playstation 3, Xbox, Xbox 360, Nintendo Game Cube and Nintendo Wii consoles. Extraordinary technological advances led to greater possibilities for graphic display; many current games near virtual reality. Gentile and Anderson note that, during this time period, violent game themes dominated the industry.

While the categories created by Gentile and Anderson (2003) are important and quite helpful in explaining how games have changed, they are merely descriptive and lack substantiating research. The current study seeks to fill this gap in research by investigating how video game magazine articles have changed over time. While Scharrer (2004) investigated content of games by analyzing magazine advertisements, the current study seeks to investigate the content of video game magazine articles. The current research will focus more specifically and in-depth on violence and investigate changes over an 18 year period.

OVERVIEW OF STUDY

Past analyses have indicated that violence is a dominant theme in some games, though they neglect to test whether the violence level has changed over time. The current study is a content analysis that expands on these past studies by studying the amount and nature of violence in game magazine articles from 1988 to 2005. In addition, this content analysis evaluates articles from video game magazines instead of advertisements or game play, as previous studies used. These magazine articles contain reviews, tips, and strategies for playing the game. These articles are a good source to study for a variety of reasons. Advertisements are typically one or two pages long and contain little text. In contrast, articles in the current study are many pages long, contain many pictures, and describe the roles and goals of the game in detail. Articles averaged 5.9 pages in length and contained an average of 5.7 magazine columns of text. Analysis of articles may also be superior to analysis of brief game play. Although game play may give an indication of the violence level, researchers are limited to only a few minutes of play. Researchers cannot play hundreds of games from start to finish, and thus cannot always know all of the goals, characters and scenes of the game. Nor can these researchers observe the level of violence at many points in the game. In contrast, many articles contain depictions and descriptions of many different points in the game. Finally, the current study uses many more dependent variables than in most previous studies, with the intention of achieving a more detailed picture of how depictions of violence have changed in quality and quantity.

In general, games were coded to measure any changes in overall violence, violent themes, and violent elements (e.g., blood). Characters were coded to determine if they are depicted in more violent ways (e.g., wearing fighting uniforms or carrying guns). Finally, games were coded to determine whether the types of victims or the level of violence against victims changed.

HYPOTHESES

Gentile and Anderson (2003) speculate that games have become more violent, in part because advancing technology allowed for depictions of more graphic violence. Although it seems likely that games have become more violent over time, there has been no statistical support for this notion until now.

Based on these rationales, it is predicted that games have changed significantly in their portrayal of violence. Specifically, *Hypothesis One* predicts that overall violence and realism of violence will be greater in more recent time periods (i.e., 2003-2005, 2000-2002 and 1997-1999) as opposed to earlier time periods (i.e., 1988-1990, 1991-1993, 1994-1996). *Hypothesis Two* states that the mood and themes of games will be more violent in recent time periods. Additionally, the presence and degree of violence-related elements (e.g., blood, fire, and fighting) will increase in later periods. Characters will also be more likely to die in more violent ways in later periods. *Hypothesis Three* predicts that depictions of characters have become more violent. For instance, characters will appear more powerful and evil; they will also be more likely to wear army or fighting uniforms and have weapons. *Hypothesis Four* expects to find that newer games have a broader variety of victims, who are depicted in more violent ways in current games. For instance, older games are expected to have more violence against animals, while newer games are expected to have more violence against people. The degree of violence against all types of victims is expected to increase in later periods.

METHOD

The researcher selected three magazines for analysis: They included the official magazines for the Xbox, Playstation, and Nintendo consoles. Magazines were published from 1988-2005, beginning with the first issue of *Nintendo Power*. Two graduate and two undergraduate students (two male; two female) helped choose the articles, create the codebook, and code the measurements for this project.

Articles were chosen based on the quality and quantity of content. Games were omitted if the article contained very little description that would further the purpose of the study. For instance, if the characters were never seen out of the car they race in the game, the game was not chosen. Similarly, games without characters (e.g., card or puzzle games) were not chosen because they would not reveal how characters have changed over time.

If the article portrayed multiple characters, coders selected the two main male characters and two main female characters (determined by text or the frequency of pictures of the character). If there were more than two characters of either gender and coders were unable to determine which characters were the main characters, coders chose the characters randomly.

In creating the codebook, researchers looked to past studies for variables to include (e.g., overall level of violence). They also looked at many magazines (during all time periods) to get ideas of what previously unused variables might also answer the research questions (e.g., could a characters' clothing indicate their propensity to be violent?) This examination of the pictures indicated some variables that would indicate whether violence had increased. For example, pictures that contained blood and gore indicated that this variable could be measured. Similarly, researchers noticed that the types of victims (e.g., women, animals) may have changed over time; thus, these variables were chosen to be included as measures in the codebook. When researchers were comfortable that they had a wide range of variables that would be useful across all time periods, the codebook was completed. Researchers practiced coding the same articles until the lead researcher was comfortable that all researchers were coding similarly.

Interrater reliability was conducted for 8% of the total sample (22 games and 65 characters). Researchers were considered in agreement if their responses were exact or only varied by one unit on a 0 to 7 scale (e.g., a “6” and a “7” was an “agree” but a “5” and a “7” was a “disagree.”). For items measuring presence or absence, the coders had to agree. Any disagreements were discussed until agreement was reached. Holsti’s coefficient averaged .86 and ranged from .65 to .98. Four dependent variables were eliminated from the analysis because their coefficients were below .65.

In order to make an 18-year longitudinal analysis more manageable, games were coded in three-year time periods: 1988-1990, 1991-1993, 1994-1996, 1997-1999, 2000-2002, and 2003-2005. For each time period, a roughly equal number of games and characters were chosen from the larger database. Because Playstation magazine did not exist until 1997 and Xbox magazine did not exist until 2002, not every time period contained games from each magazine. The ultimate sample contained 268 games (each 3-year time period contained between 40 and 49 games) and 810 characters (each 3-year time period contained between 129 and 138 characters). This large sample allowed for a better idea of how games have changed. A smaller sample could have introduced bias into the data. For example, a small sample might have included a violent game like *Doom* but eliminated a non-violent game like *Mario Brothers*. Thus, a large sample of games from each time period helped ensure that a broader variety of games were included.

RESULTS

For some measurements (e.g., “what is the overall mood of the game”), the unit of analysis is the video game article. For other measurements (e.g., “does the character have a weapon”), the unit of analysis is the character. Analysis of Variance was used for continuous dependent variables, using the six time periods as independent variables.¹ Tukey’s post-hoc tests were used for follow up analyses.² Pearson’s Chi-Square was used for categorical variables.³ Results are presented by hypothesis.

General Violence

Hypothesis One predicted that overall violence level and the realism of the violence would increase over the years. This hypothesis was fully supported. Two questions measured the general violence of games. The first question asked coders to indicate overall violence level on a scale from 0 (“not at all violent”) to 7 (“extremely violent”). Overall violence generally increased in the first four time periods (though sometimes insignificantly) ($F(5, 261) = 6.7, p < .0001$). Means and statistical significance among groups are listed in Table 1. The second

1 An Analysis of Variance (i.e., “ANOVA”) is a statistical test used when one has categorical independent variables (e.g., the categories of time periods in this study) and continuous variables as dependent variables (e.g., the 0 to 7 scales measuring the degree of violence used in this study). This test determines whether different categories of the independent variable are statistically different from each other on the dependent variable.

2 Tukey’s post-hoc test is a statistical test that tells which categories of the independent variable are different from each other. In this study, there were 6 different categories (time periods). The ANOVA tells whether the categories are statistically different *as a group*, however the post hoc tests will tell which pairs of the 6 time periods are different from each other.

3 A Pearson’s Chi-Square test is a statistical test used when one had both categorical independent variables (e.g., time periods) and categorical independent variables (the yes/no measure of whether blood and gore was present). This test tells whether the categories (time periods) differ from each other on the score on the other variable (blood and gore).

question measured the realism of the violence on a scale from 0 (not at all realistic) to 7 (extremely realistic). This difference was also highly significant ($F(5, 255) = 38.2, p < .0001$). Realism increased in every time period except the second.

Table 1: Differences by time period

Dependent Variable	Time Period					
	1988-90	1991-93	1994-96	1997-99	2000-02	2003-05
Overall violence	2.67 ^{ab}	2.95 ^{cd}	3.17 ^{ef}	3.80	6.08 ^{ace}	5.65 ^{bdf}
Realism of violence	1.65 ^{abc}	1.60 ^{def}	1.73 ^{ghi}	3.10 ^{adgi}	4.06 ^{behk}	5.51 ^{cfijk}
Evil mood	1.62 ^{ab}	1.34 ^{cd}	1.88	2.37	3.48 ^{ac}	3.51 ^{bd}
Scary/fear mood	1.62 ^{ab}	1.24 ^{cd}	1.73 ^{ef}	2.6 ^{gh}	3.98 ^{aceg}	4.21 ^{bdfh}
Danger mood	3.34 ^{ab}	2.42 ^{cd}	2.85 ^{ef}	3.92	4.96 ^{ace}	5.29 ^{bdf}
Happy mood	1.81 ^{ab}	1.41	1.23	1.06	.53 ^a	.6 ^b
War/fighting theme	2.75 ^a	2.26 ^{bc}	2.85	3.31	4.38 ^{ab}	4.18 ^c
Blood/gore	.57 ^{ab}	.57 ^{cd}	2.35 ^e	2.76 ^f	3.58 ^{ac}	5.00 ^{bdef}
Bodies/skeleton	.88 ^{ab}	1.15 ^{cd}	2.06 ^e	2.60	3.74 ^{ac}	4.30 ^{bde}
Weapons	3.43 ^{ab}	3.03 ^{cd}	4.26 ^{ef}	4.23 ^{gh}	5.74 ^{aceg}	5.84 ^{bdfh}
Fire	2.24	2.76	3.90	3.23	4.08	4.11
Threatening situation	2.84 ^{abc}	2.56 ^{defg}	4.53 ^d	4.83 ^{ac}	4.92 ^{bf}	5.19 ^{cg}
Strategy to kill	2.00 ^a	2.52 ^b	2.65 ^c	4.07	4.55 ^{abc}	4.16
Powerful character	3.32 ^a	3.24 ^b	3.48 ^c	3.43 ^d	3.37 ^e	4.38 ^{abcde}
Happy character	2.19 ^a	2.12 ^b	1.69 ^c	1.65 ^d	1.53 ^e	.63 ^{abcde}
People victims	3.52 ^a	3.84 ^b	3.89 ^c	4.75	5.03	6.15 ^{abc}
Property damage	1.56	1.95	1.59 ^a	3.64	3.30	4.04 ^a
Women victims	2.09	1.64 ^a	2.50	4.42	3.73	4.47 ^a
Monster victims	3.54	3.44	4.30	4.79	4.94	5.20
Soldier victims	1.78	.70	1.17	4.0	3.83	4.15
Police victims	.00	.72	.42 ^a	3.4	2.5	3.64 ^a

Note. Within each variable (row), means that have superscripts in common are significantly different from each other (Tukey's HSD, $p < .05$). I.e., for the "overall violence" variable, the time periods 1988-90 and 2000-02 both have a subscript "a" which indicates that these two time periods are statistically different from each other on this variable.

Depictions of Violence

The second set of analyses tests *Hypothesis Two*, which predicted that the depictions of violence in games has changed (e.g., become more extreme) through the years. This hypothesis

was largely supported. The first set of variables measured the general mood or theme of the game. Coders indicated the level of each theme on a 0 (not at all) to 7 (very much) scale. The general trends are discussed below. Means and statistical significance among groups are listed in Table 1. With the exception of the second time period, evil mood ($F(5, 234) = 4.39, p < .01$) and scary/fear mood ($F(5, 237) = 15.8, p < .0001$) both increased each time period. Starting with the second time period, a mood indicating danger increased each time period ($F(5, 248) = 11.14, p < .0001$). The theme of war/fighting increased every time period, except the second and last time periods ($F(5, 236) = 4.37, p < .01$). In contrast, games continually decreased in happy or humor mood ($F(5, 228) = 3.18, p < .01$), with exception for the last period.

The second set of analyses concerned the presence and degree of violence-related elements (e.g., blood, weapons, use of killing strategies). This was a two-part analysis. In the first part, coders indicated either presence or absence of each element. The second part of the analysis measured the level of the violent element within games that contained the element.

The proportion of games containing blood or gore increased with each passing time period ($X^2(5) = 28.58, p < .0001$). Similarly, the proportion of games that used fire increased in every time period except 1994-96 and 1997-99 ($X^2(5) = 12.64, p < .05$), and the proportion of games that used killing strategies generally increased, with exception for the second period ($X^2(5) = 24.67, p < .0001$). There was no difference in the presence of dead bodies/skeletons, use of weapons, or threatening situations (all $ps > .05$). Table 1 contains the means for each period.

In the second part of the analysis, the sample was limited to those games that contained these elements. Coders rated the frequency or intensity of the element on a 0-7 scale. Trends in means are discussed below. Means and post hoc significance results appear in Table 1.

Of the games that had these elements, the level of blood and gore ($F(5, 110) = 10.23, p < .0001$), dead bodies/skeletons ($F(5, 95) = 5.63, p < .0001$), and use of weapons ($F(5, 213) = 12.93, p < .0001$) increased each period. With exception of the 1997-99 time period, amount of fire increased every period ($F(5, 121) = 2.5, p < .05$), although none of the periods significantly differed from each other. The largest difference was between the first and last periods ($p = .08$). Next, the level of threatening situations increased in every time period, with the exception of the second time period ($F(5, 182) = 7.34, p < .0001$). Finally, with the exception of the last time period, the frequency of killing strategies increased each period ($F(5, 121) = 4.31, p < .01$).

Another set of variables measured changes in how characters are injured or die. Coders marked either yes or no; a no answer was chosen if the article did not depict death in that manner. In general, as time goes by, characters became more likely to get shot ($X^2(5) = 29.62, p < .0001$) or stabbed ($X^2(5) = 12.43, p < .05$). In contrast, they became less likely to fall ($X^2(5) = 27.11, p < .0001$), freeze, ($X^2(5) = 17.09, p < .01$), or simply disappear off the screen ($X^2(5) = 50.19, p < .0001$). An unexpected pattern was found for the death by fire variable ($X^2(5) = 23.96, p < .0001$); death by fire was less frequent during the 1988-90 and 1997-99 periods than the other periods. There was no difference in the rate of death by drowning, being eaten, being beaten up, or hanging (all $ps > .05$). Finally, there was no statistical change in the number of pictures of violence depicted in the articles, whether the character was rewarded for being violent, or whether the character was rewarded with new ways of being violent ($p > .05$). The prevalence of each variable is presented in Table 2.

Table 2: Presence of violence related elements in video games

<u>Dependent Variable</u>	<u>Time Period</u>					
	1988-90	1991-93	1994-96	1997-99	2000-02	2003-05
Blood or Gore						
Yes	6	8	10	19	24	24
Total	49	40	41	40	49	49
Percent	12.2%	20.0%	24.4%	47.5%	49.0%	49.0%
Fire						
Yes	16	25	21	12	21	24
Total	49	40	41	40	49	49
Percent	32.7%	62.5%	51.2%	30.0%	42.9%	49.0%
Strategies to kill						
Yes	8	23	15	14	29	22
Total	49	40	41	40	49	49
Percent	16.3%	57.5%	36.6%	35.0%	59.2%	44.9%
Death by shooting						
Yes	8	17	13	18	25	33
Total	49	40	41	40	49	49
Percent	16.3%	42.5%	31.7%	45.0%	51.0%	67.3%
Death by falling						
Yes	12	13	19	8	7	2
Total	49	40	41	40	49	49
Percent	24.5%	32.5%	46.3%	20.0%	14.3%	4.1%
Death by fire						
Yes	4	15	19	5	11	14
Total	49	40	41	39	49	49
Percent	8.2 %	37.5%	46.3%	12.8 %	22.4%	28.6%
Death by freezing						
Yes	1	7	4	1	0	2
Total	49	40	41	40	49	49
Percent	2.0%	17.5%	9.8%	2.5%	0.0%	4.1%
Death by disappearing						
Yes	21	6	7	4	0	0
Total	49	40	41	40	49	49
Percent	42.9%	15.0%	17.1%	10.0%	0.0%	0.0%
Death by stabbing						
Yes	5	4	8	7	15	15
Total	49	40	41	40	49	49
Percent	10.2%	10.0%	19.5%	17.5%	30.6%	30.6%

Overall, these data indicate that the themes and moods of game articles became more violent and extreme as time passed. Violence-related elements (e.g., blood, weapons) generally became more frequent, and the ways characters died became more violent.

Depictions of Characters

Characters can be depicted in ways that make them appear more violent; for instance they can be in an angry mood, wear clothing associated with fighting, or carry weapons. Therefore, *Hypothesis Three* predicted that characters would be depicted in increasingly violent ways as time progressed. This hypothesis was largely supported.

Coders rated characters on several items using a 0 (not at all) to 7 (extremely) scale. Means are presented in Table 1. Characters were depicted as equally powerful in most of the time periods, though characters in the last time period were significantly more powerful than all the other time periods ($F(5, 693) = 3.88, p < .01$). Means indicated that characters were depicted as less happy in every passing time period ($F(5, 693) = 3.88, p < .0001$). There was no difference in evil or mad appearance ($ps > .05$).

Coders indicated characters' clothing and weapon use by selecting yes or no to indicate presence or absence. Over the years, characters generally became more likely to wear army attire ($X^2(5) = 22.72, p < .0001$). Frequencies are presented in Table 3. There were no significant differences in the presence of fighting uniform (e.g., Karate) among time periods ($p > .05$).

Table 3: Changes in characters and victims over time

<u>Dependent Variable</u>	<u>Time Period</u>					
	1988-90	1991-93	1994-96	1997-99	2000-02	2003-05
Character wears army uniform						
Yes	5	8	5	12	17	23
Total	129	137	133	135	138	138
Percent	3.9%	5.8%	3.8%	8.9%	12.3%	16.7%
Character has gun						
Yes	12	32	23	31	49	60
Total	129	137	133	135	137	138
Percent	9.3%	23.4%	17.3%	23.0%	35.8%	43.5%
Character has grenade						
Yes	2	6	3	8	16	12
Total	129	137	133	135	138	138
Percent	1.6%	4.4%	2.3%	5.9%	11.6%	8.7%
Character has fighting ability						
Yes	17	19	41	26	23	25
Total	129	137	133	135	138	138
Percent	13.2%	13.9%	30.8%	19.3%	16.7%	18.1%
Character has ice as weapon						
Yes	1	6	3	0	4	0
Total	129	137	133	135	138	138
Percent	0.8%	4.4%	2.3%	0.0%	2.9%	0.0%
Violence against animals						
Yes	14	14	13	9	2	6
Total	49	40	41	40	49	49
Percent	28.6%	35.0%	31.7%	22.5%	4.1%	12.2%

In general, newer characters were more likely to have guns ($X^2(5) = 54.27, p < .0001$) and grenades ($X^2(5) = 18.42, p < .01$). Newer characters were also less likely to have ice as a weapon ($X^2(5) = 12.49, p < .05$). There was an unexpected pattern for the variable measuring the use of fighting as weapon; the 1994-96 time period contained fighting more often than the rest of the time periods ($X^2(5) = 18.03, p < .01$). There were no differences in the presence of knives, fire, tanks, bows and arrows, magic spells, poison, or rope used as weapons (all $ps > .05$). There was also no difference in total number of weapons the character possessed; the means for time

periods ranged from 1.16 to 1.89 weapons ($p > .05$). Overall, games now depict characters in ways that indicate an increase in violent content of games.

Portrayal of Victims

Victims can also change over time, indicating a change in violence. Thus, the fourth hypothesis was that victims have changed. It was expected that there would be more types of victims, more human victims, and fewer animal victims. This hypothesis was partially supported.

The first analysis was a two-part analysis designed to determine what types of victims were portrayed (e.g., women, animals) and the level of violence that was committed against each victim type. Coders first indicated the presences or absence of violence against each type of victim. The second part of the analysis only included games that contained violence against each group; this analysis determined if the degree of violence against each group differed over time.

The analysis determined that newer games were less likely to contain violence against animals ($\chi^2(5) = 19.53, p < .01$). Table 3 contains the frequencies for each time period. There was no difference in presence/absence of violence against people, women, children, monsters, soldiers, bystanders, or police (all $ps > .05$).

For those games that did contain violence against these groups, coders rated the level of violence on a scale from 0 to 7. General patterns of means are discussed here; exact means and statistical significance are listed in Table 1. The degree of violence against people ($F(5, 167) = 6.54, p < .0001$), property ($F(5, 101) = 3.71, p < .01$), women ($F(5, 84) = 3.23, p < .05$), and police/security guards ($F(5, 55) = 3.53, p < .01$) generally increased with each passing time period, with the largest increases in the most recent time period.

The degree of violence against a monster/alien/dragon was significant overall ($F(5, 154) = 3.02, p < .05$), with increasing violence as time passed. Although no time periods were significantly different from each other, the first and last periods were marginally significantly different ($p = .08$) and the 1991-93 time period and last period were marginally significantly different ($p = .05$). Similarly, the degree of violence against soldiers was significantly different ($F(5, 71) = 3.20, p < .05$), with more extreme violence occurring in later periods. The only differences among time periods were a marginally significant differences between the 1991-93 and 2000-02 ($p = .053$) time periods and another marginally significant difference between the 1991-93 and 2003-05 ($p = .055$) time periods. Across the time periods, there were no differences in the degree of violence against animals, children, or bystanders (all $ps > .05$). There was also no significant change in the total number of enemies shown in the article ($p > .05$). Overall, games now display more extreme violence against many different kinds of victims.

DISCUSSION

The expansion of the video game industry has led to a great deal of research on the content and social implications of video games (Children and Watching TV, 2001; Anderson et al., 2003). Many researchers have determined that video games are related to aggressive behaviors (Anderson & Bushman, 2001; Anderson, 2004; Sheese & Graziano, 2005). Some anecdotal evidence suggests that game violence has the potential to encourage violent behavior, such as shootings (Weitzner, 2005). While the effects of video game magazines have yet to be

studied, it is possible that they (like other media) could affect behavior. Thus, it is important to study the content of such games and their corresponding magazines in order to fully understand how they might affect behavior.

As a whole, results indicate that the violent content of video game articles has changed over time. *Hypothesis One* concerned overall violence and was fully supported; over the years, games became more violent, and the violence became more realistic. As predicted by the second hypothesis, the mood and theme of the games became more evil, scary, and dangerous. Further, war/fighting themes increased and happy/humor themes decreased. Blood and gore, fire, and use of killing strategies increased. In addition, the degree of blood and gore, dead bodies, use of weapons, fire, threatening situations, and use of killing strategies generally increased each time period. Characters were more likely to get shot or stabbed in later time periods; in earlier time periods they were more likely to fall, freeze, or simply disappear off the screen. Thus, methods of death became more extreme. As predicted by *Hypothesis Three*, characters in later periods were more powerful and less happy. They became more likely to wear army attire and carry a gun, and they became less likely to have ice as a weapon. *Hypothesis Four* was also mostly confirmed. Newer games were less likely to contain violence against animals, yet contained more extreme violence against people, property, women, police, monsters, and soldiers.

Some variables did not change over time however. There are a variety of reasons this might have occurred. The main reason that many of the variables did not become more frequent (as predicted) was because they appeared so infrequently in any year. For example, the appearance of fighting uniforms, violence against children, and violence against police was rare in every year. Similarly, many articles did not provide enough information to code some variables (resulting in a “no” coding). For example, most articles did not specify whether the character was rewarded for violence or rewarded with new methods of violence. Thus, the infrequency of these variables made statistical significance impossible to achieve. The lack of differences among years also indicates that some activities (e.g., use of weapons), themes (e.g., fighting monsters, fighting soldiers, threatening situations) and appearances (e.g., evil or mad) have maintained steady popularity. Even so, it is important to note that, even though the presence has not changed, the degree has changed. For instance, the frequency of weapon use may not have changed, but the degree of violence caused by weapons may have become more extreme.

Although not all variables yielded significant results, the overall results confirm that depictions of games in magazine articles have gotten considerably more violent since 1988. These advances are likely due both to technological advances and the desire of game makers to create new ways to attract players. As technology continues to advance, it is likely that game content will continue to change. If research is correct that games can influence behavior (e.g., Anderson, 2004), such changes will have serious implications for players’ behavior. Specifically, if violence in games and game articles leads to real-life aggression, it is possible that more extreme violence in games can lead to more extreme violence in real life. Thus, further research should continue to investigate the effects of games and game articles on behavior.

Broader Implications

While the intent of this research was to investigate changes in game articles, and not necessarily to measure changes in actual games, it could raise concerns that violence in actual games might also have changed over time. If so, this could have implications for legal

ensorship. In a joint statement to Congress, the American Psychological Association and other professional associations stated that scientific research provides overwhelming evidence that media violence leads some children to behave aggressively (Joint Statement, 2000). The potential deleterious effects of violent video game playing has led various researchers (Walsh, 2000), politicians (Harris, 2005), professional associations (American Academy of Pediatrics, 2001), and advocacy groups (Jerkowitz, 2002) to consider regulation of the video game industry. For instance, Senator Hilary Clinton introduced the Family Entertainment and Protection Act (McCullagh, 2005). The bill was introduced in late 2005 and, at the time of this writing, was being developed in legislative committee. The 2006 Senate approved a large study to be conducted by the Centers for Disease Control and Prevention designed to determine the impact of media (McCullagh, 2006). Thus, the study of video games has been an important policy topic in recent years. Nevertheless, it is important to note that, even if video game articles have become more violent, games themselves may not have become more violent. Thus, further research on the games themselves is needed to help inform this policy debate.

Limitations

A number of limitations are noteworthy. First, the current study did not contain a fully random sampling of all video game magazines ever published. Because it was necessary to find back issues (some 18 years old!) it was not feasible to purchase every issue ever published by these three different magazines. It is possible that the issues obtained were different from those that were not, although there is no reason to believe this is the case.

Second, the study only included magazines that were officially licensed by the console makers (i.e., XBOX, Playstation, Nintendo). Thus, these magazines would not include articles about games that were only playable on personal computers or in arcades. Although many games are available for both consoles and computers, this study cannot address computer-only games or arcade-only games. In addition, the games in these magazines may not represent all games. For instance, magazine editors may have a bias toward violent games. This means that the violence in the magazines may not accurately represent the violence in all actual games. Nevertheless, games in magazines are likely to be the most popular, in part because of their publicity in the magazines. For instance, a recent report indicates that 88% of readers reported that they rely on the magazine to inform their game purchases (Future, 2007a). Thus, the analysis includes games likely to be influential.

Third, the analysis did not involve actual game play. The large sample of games would have made this a very time consuming endeavor. In addition, there have been ten versions of the consoles in the 18-year time period. Thus, it would have been difficult to find every console and over 250 games in order to watch them being played. Even if it were feasible to play the games, it would have taken many hours of game play to observe the characters and their actions at many points in the game. Most magazines described or included pictures of various times in game play, making this an easier endeavor than analyzing game play. This is important because nearly all of the research linking video games and violent behavior has been conducted with game play, rather than game magazines. Nevertheless, the increase in violence represented in the magazines is of interest, as it raises the possibility that games, like magazines, have become more violent.

Fourth, data coding was not always straight-forward. For example, the way the articles

were designed can affect the quantity of the data. The newer XBOX and Playstation magazines sometimes gave less detail about the games than the older Nintendo magazines. Thus, older games and characters had somewhat less missing data. Coding is also made more complicated by the complexity of new games. For example, some of the newer games allow a character to change based on the player's decisions. In the recent game *Fable*, the character's appearance changes based on whether the player chooses to make decisions that are good (e.g., helping people), or bad (e.g., committing crimes). Other games allow the player to "create" a character (e.g., deciding on the costume, body shape, facial features), and others allow players to scan in their own pictures so that the character will resemble the player. These examples demonstrate the complexity of analyzing games and highlights the limited ability of any study to fully analyze every character and activity in the game. Despite the limitations, the study is able to provide a rich set of data about the content of game articles over an 18 year time period.

In conclusion, video game articles have become more violent over time. It is worthy of note that the analysis only involved video game magazines. Thus, it is unwise to make strong assumptions about what has occurred in actual games. It is possible that the magazines do not adequately represent the changes that have occurred in actual games. Over time, magazine publishers could have decided to include more violent games and exclude less violent games. Thus, study of actual games is needed to determine the changes in, and effects of, actual games. Nevertheless, it is concerning that video game magazines have become more violent. Though unstudied, it is possible that viewing violence in video game magazines (like other media) can affect behavior.

Research has indicated that many players wish to be like video game characters and even emulate characters' behavior (Konijn et al., 2007). Thus, it is concerning that game magazines have become more violent over time. Simply put, if games are becoming more violent, there is concern that their players may also become more violent. Because of the important behavioral and legal implications, video games remain an important area of study.

REFERENCES

- American Academy of Pediatrics. (2001). Media violence. *Pediatrics*, *108*, 1222-1226.
- American Amusement Machine Association v. Kendrick*, 244 F.3d 572 (7th Cir. 2001)
- Anderson, C. A. (2004). An update on the effects of playing violent video games. *Journal of Adolescence*, *27*, 113-122.
- Anderson, C. A., Berkowitz, L., Donnerstein, E., Huesman, L. R., Johnson, J. D., Linz, D., Malamuth, N. M., & Wartella, E. (2003). Influence of media violence on youth. *Psychological Science in the Public Interest*, *4*, 81-92.
- Anderson, C. A., & Bushman, B. J. (2001). Effects of violent video games on aggressive behavior, aggressive cognition, aggressive affect, physiological arousal, and prosocial behavior: A meta-analytic review of the scientific literature. *Psychological Science*, *12*,

353-359.

Anderson, C. A., & Dill, K. E. (2000). Video games and aggressive thoughts, feelings, and behavior in the laboratory and in life. *Journal of Personality and Social Psychology*, 78, 772-790.

American Psychological Association (2005). Violent video games: Psychologists help protect children from harmful effects. Retrieved February 5, 2007, from, <http://www.psychologymatters.org/videogames.html>

Aubrey, J. S., & Harrison, K. (2004). The gender-role content of children's favorite television programs and its links to their gender-related perceptions. *Media Psychology*, 6, 111-146.

Baldaro, B., Tuozzi G., Codispoti, M., Montebanocci, O., Barbagli, F., Trombini, E., Rossi, N. (2004). Aggressive and non-violent videogames: short-term psychological and cardiovascular effects on habitual players. *Stress and Health*, 20 (4), 203-208.

Bandura, A. (2001). Social cognitive theory of mass communications. *Media Psychology*, 3, 265-299.

Bessenoff, G. R. (2006). Can the media affect us? Social comparison, self-discrepancy, and the thin ideal. *Psychology of Women Quarterly*, 30, 239-251.

Barlett, C., Harris, R., Smith, S., & Bonds-Raacke, J. (2005). Action figures and men. *Sex Roles*, 53, 877-885.

Braun, C.M.U., & Giroux, J. (1989). Arcade video games: Proxemic, cognitive, and content analyse. *Journal of Leisure Research*, 21, 92-105.

Brown, J. D., & L'Engle, K. L. (2009). X-rated: Sexual attitudes and behaviors associated with U.S. early adolescents' exposure to sexually explicit media. *Communication Research*, 36, 129-151.

Burgess, M. C. R., Stermer, S. P., & Burgess, S. R. (2007). Sex, Lies, and video games: The portrayal of male and female characters on video game covers. *Sex Roles*, 57, 419-433.

Carnagey, N. L., & Anderson, C. A. (2004). Violent video game exposure and aggression: A literature review. *Minerva Psichiatrica*, 45, 1-18.

Carnagey, N. L., & Anderson, C. A., & Bushman, B. J. (2007). The effect of video game violence on physiological desensitization to real-life violence. *Journal of Experimental Social Psychology*, 43, 489-496.

Children and Watching TV - AACAP Facts for Families #52. (2001). Retrieved June 2, 2005, from, <http://www.aacap.org/publications/factsfam/tv.htm>

Children Now. (2001). Fair play: Violence, gender and race in video games. Oakland, CA:

Children Now.

CIRP (Cooperative Institutional Research Program). (1999). CIRP survey results. Ames, IA: Office of institutional research.

Cohen, J. (2001). Defining identification: A theoretical look at the identification of audiences with media characters. *Mass Communication and Society*, 4, 245- 264.

Collins, F. L., Ellickson, P. L., McCaffrey, D., & Hambarsoomians, K. (2007). Early adolescent exposure to alcohol advertising and its relationship to underage drinking. *Journal of Adolescent Health*, 40, 527-534.

Dietz, T. L. (1998). An examination of violence and gender role portrayals in video games: Implications for gender socialization and aggressive behavior. *Sex Roles*, 38 (5), 425-442.

Dill, K.E. (2005). Children at play? An essay on Kids and Media in America. Retrieved June 8, 2005, from, <http://www.lrc.edu/psy/dillk/images/Professional/Children%20at%20Play-K.Dill-2-10-05.doc>

Dill, K. E., & Thill, K. P. (2007). Video game characters and the socialization of gender roles: Young people's perceptions mirror sexist media depictions. *Sex Roles*, 57, 851-864.

Fraser, B. P., & Brown, W. J. (2002). Media, celebrities, and social influence: Identification with Elvis Presley. *Mass Communication and Society*, 5, 183-206.

Future Publishing (2005). Official Xbox magazine delivers largest paid circulation of any officially licensed US Games Magazine. Retrieved November 7, 2007, from, http://www.futureus-inc.com/archives/2005/09/official_xbox_m.php

Future (2006). U.S. circulation update, January-June 2006. Retrieved November 7, 2007, from, http://www.futureplc.com/future/uploads/ABCJanJun2006_US.pdf

Future Publishing (2007a). No title. Retrieved November 7, 2007, from, <http://www.future-advertising.co.uk/ads/portfolio/print.jsp?print=44&brand=33>

Future Publishing (2007b). No title. Retrieved November 7, 2007, from, <http://www.future-advertising.co.uk/ads/portfolio/print.jsp?brand=30&print=40>

Future Publishing (2007c). No title. Retrieved November 7, 2007, from, <http://www.future-advertising.co.uk/ads/portfolio/print.jsp?brand=27&print=37>

Gentile, D. A. & Anderson, C. A. (2003). Violent video games: The newest media violence hazard. In D. A. Gentile (Ed.), *Media violence and children*. Westport, CT: Praeger Publishing.

Gentile, D. A., Lynch, P. J., Linder, J. R., & Walsh, D. A. (2004). The effects of violent video game habits on adolescent aggressive attitudes and behaviors. *Journal of Adolescence*,

27, 5-22.

Gentile, D. A., & Walsh, D. A. (2002). A normative study of family media habits. *Journal of Applied Developmental Psychology, 23*, 157-178.

Giles, D. C., & Maltby, J. (2004). The role of media figures in adolescent development: Relations between autonomy, attachment, and interest in celebrities. *Personality and Individual Differences, 36*, 813-822.

Griffiths, M. (1999). Violent video games and aggression: A review of the literature. *Aggression and Violent Behavior, 4*, 203-212.

Griffiths, M. D., & Hunt, N. (1998). Dependence of computer games by adolescents. *Psychological Reports, 82*, 475-476.

Grossman, D. (2000). Teaching kids to kill. In R. Moser & C. Frantz (Eds.), *Shocking violence: Youth perpetrators and victims – A multidisciplinary perspective*. Springfield, IL: Charles C. Thomas.

Harris, M. B., & Williams, R. (1985). Video games and school performance. *Education, 105*, 306-309.

Harris, R. (2005, July 20). Video game's sex hack put focus on industry-run software rating board. *Pittsburg Post-Gazette*, pp. C1.

Hoffner, C., & Buchanan, M. (2005). Young adults' wishful identification with television characters: The role of perceived similarity and character attributes. *Media Psychology, 7*, 325- 351.

Huesmann, L. R., Moise-Titus, J., Podolski, C. L., & Eron, L. D. (2003). Longitudinal relations between children's exposure to TV violence and their aggressive and violent behavior in young adulthood: 1977-1992. *Developmental Psychology, 39*, 201-221.

Jerkowitz, M. (2002, October 2). Appeals court holds key in battle over regulation of violent video games. *Boston Globe*, p. D1.

Joint statement on the impact of entertainment violence on children: Congressional public health summit. (2000, July 26) Retrieved June 20, 2005, from, <http://www.aap.org/advocacy/releases/jstmtevc.htm>

Konijn, E. A., Bijvank, M. N., & Bushman, B. J. (2007). I wish I were a warrior: The role of wishful identification in the effects of violent video games on aggression in adolescent boys. *Developmental Psychology, 43*, 1038-1044.

Kirsch, S. (2003). The effects of violent video games on adolescents: The overlooked influence of development. *Aggression and Violent Behavior, 8*, 377-389.

- Kutner, L., & Olson, C. K. (2008). Grand theft childhood. The surprising truth about violent video games. Simon and Schuster: New York.
- Leit, R. A., Gray, J. J., & Pope, H. G. (2001). Cultural expectations of muscularity in men: The evolution of Playgirl centerfolds. *International Journal of Eating Disorders*, 29, 90-93.
- Lynch, P. J. (1999). Hostility, Type A behavior, and stress hormones at rest and after playing violent video games in teenagers. *Psychosomatic Medicine*, 61, 113.
- McCullagh, D. (2005). Senators target 'graphic' video games. Retrieved January 25, 2007, from, http://news.com.com/Senators+target+graphic+video+games/2100-1043_3-5975913.html
- McCullagh, D. (2006). Senate panel Oks video game study. Retrieved January 25, 2007, from, http://news.com.com/2100-1047_3-6047750.html
- McDonald, D. G., & Kim, H. (2001). When I die, I feel small: Electronic game characters and the social self. *Journal of Broadcasting and Electronic Media*, 45, 241-259.
- Meltz, B. F. (2003, May 22). Legislation would target violence in video games. *Boston Globe*, p. H1.
- Miller, M.K., & Summers, A. (2007). Gender differences in video game characters' roles, appearances, and attire. *Sex Roles*, 57, 419-433.
- Morrison, T. G., Kalin, R., & Morrison, M. A. (2004). Body-image evaluation and body-image among adolescents: A test of sociocultural and social comparison theories. *Adolescence*, 39(155), 571-592.
- Olson, C. (2004). "Media violence research and youth violence data: Why do they conflict?" *Academic Psychiatry*, 28, 144-150.
- Olson, C. K., Kutner, L. A., & Warner, D. E. (2008). The role of violent video game content in adolescent development. *Journal of Adolescent Research*, 23, 55-75.
- Oyserman, D. (2004). Self-concept and identity. In M. G. Brewer & M. Hewstone (Eds.), *Self and social identity: Perspectives on social psychology* (pp. 5-24). Malden, MA: Blackwell.
- Sanderson, R. A. (2006). Cooperative Institutional Research Program 2005 Freshman Survey Results. Retrieved August 24, 2007, from, <http://oregonstate.edu/studentaffairs/docs/2005%20CIRP%20Report.pdf>
- Savage, J. (2004). Does viewing violent media really cause criminal violence? A methodological review. *Aggression and Violent Behavior*, 10, 99-128.
- Scharrer, E. (2004). Virtual violence: Gender and aggression in video game advertisements. *Mass Communication and Society*, 7, 393-412.

- Sheese, B. E., & Graziano, W. G. (2005). Deciding to defect. The effects of video game violence on cooperative behavior. *Psychological Science, 16* (5), 354-357.
- Smith, S.L., Lachlan, K., & Tamborini, R. (2003). Popular video games: Quantifying the presentation of violence and its context. *Journal of Broadcasting and Electronic Media, 47*, 58-76.
- Sparks, G. G., & Sparks, C. W. (2002). Effects of media violence. In J. Bryant & D. Zillmann (Eds.), *Media Effects* (pp. 269-285). Mahwah, NJ: Lawrence Erlbaum.
- Swing, E., & Anderson, C A. (2007). The unintended negative consequences of exposure to violent video games. *International Journal of Cognitive Technology, 12*, 3-13.
- Thompson, J. (2002, December 14). *Beltway sniper trained on sniper video game* (Press Release). Miami, FL.
- Thompson, K. M., & Haninger, K. (2001). Violence in E-rated video games. *Journal of the American Medical Association, 286*, 591-598.
- Uhlmann, E., & Swanson, J. (2004). Exposure to violent video games increases automatic aggressiveness. *Journal of Adolescence, 27*, 41-52.
- Unsworth, G., Devilly, G. J., & Ward, T. (2007). The effect of playing violent video games on adolescents: Should parents be quaking in their boots? *Psychology, Crime & Law, 13*, 383-394.
- Van Schie, E. G. M., & Wiegman, O. (1997). Children and videogames: Leisure activities, aggression, social integration, and school performance. *Journal of Applied Social Psychology, 27*, 1175-1194.
- Video Software Dealers Association v. Schwarzenegger*, C-05-04188 RMW (2006). Retrieved January 25, 2007, from, http://i.n.com.com/pdf/ne/2005/california_ruling.pdf
- Walsh, D. A. (2000). Testimony submitted to the United States Senate Committee on Commerce, Science, and Transportation. *Hearing on the impact of interactive violence on children*. Retrieved May 31, 2005, from, <http://www.senate.gov/~commerce/hearings/0321wall.pdf>
- Walsh, D. A. (2001). *Video game violence and public policy*. Paper presented at the University of Chicago Cultural Policy Center conference (entitled: Playing by the rules: the cultural policy challenges of video games). Chicago, IL. Retrieved May 28, 2005, from, <http://culturalpolicy.uchicago.edu/conf2001/papers/walsh.html>
- Weitzner, M. (Producer). (2005, March 6). Can a video game lead to murder? In *60 Minutes*. New York: CBS Broadcasting.

Yi, M. (2004, December 18). They got game: Stacks of new releases for hungry video game enthusiasts mean it's boom time for an industry now even bigger than Hollywood. *San Francisco Chronicle*, p. A1.

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