The Effects of Profanity in Violent Video Games on Players’ Hostile Expectations, Aggressive Thoughts and Feelings, and Other Responses

Adrienne Holz Ivory and Christine E. Kaestle

Although effects of violence in video games have been researched extensively, no empirical studies have examined effects of profanity, a form of verbal aggression, in video games. An experiment (N = 321) investigated effects of profanity used by protagonist and antagonist characters in a “first-person shooter” game on players’ hostile expectations, accessibility of aggressive thoughts, aggressive feelings, and other responses. Profanity used by both protagonist and antagonist characters increased hostile expectations, a direct precursor to aggressive behaviors. Findings suggest that profanity in video games may affect aggressive outcomes, emphasizing the need for more research investigating effects of profanity in media.

An extensive body of research indicates that violent video games can increase aggressive behaviors, thoughts, and feelings (Anderson & Bushman, 2001; Anderson, Shibuya, Ihori et al., 2010), though the extent of these effects has been disputed (e.g., Ferguson, 2007, 2010). While research has thoroughly addressed these effects of physical aggression in video game content on players, no empirical studies have examined whether there are similar and parallel effects of extreme verbal aggression in the form of profanity in video game content. Profanity is a prominent form of verbal aggression (Kaye & Sapolsky, 2004a, 2004b, 2009; Roberto, Meyer, Boster, & Roberto, 2003) that has received attention as a potentially problematic presence in some video games (Bushman & Cantor, 2003; Haninger & Thompson, 2004; Ivory, Williams, Martins, & Consalvo, 2009; Thompson, Tepichin, & Haninger, 2006), but despite this concern the effects of its presence in video game content have yet to be examined.

Adrienne Holz Ivory (Ph.D., Virginia Tech) is an assistant professor in the Department of Communication, Virginia Tech. Her research focuses on the social impact of new communication technology, media effects, health communication, and media portrayals of gender, race, and sexuality.

Christine E. Kaestle (Ph.D., University of North Carolina at Chapel Hill) is an associate professor in the Department of Human Development, Virginia Tech. Her research focuses on the intersection of sexual behaviors, substance abuse, violence, and the media as they influence health outcomes during adolescence and emerging adulthood.
Although the majority of commercially popular video games do not contain profanity, it is present in many popular games, and often frequently (Ivory et al., 2009). For example, Rockstar Games’ *Grand Theft Auto* series, consisting of ten games released (so far) since 1997 and multiple supplemental content releases, sprinkles profanity heavily throughout characters’ dialogue in its games’ violent crime-filled narratives. Such profanity may have similar effects on players as physical violence in video games. Recent research (Coyne, Stockdale, Nelson, & Fraser, 2011) found a correlation between adolescents’ exposure to profanity in movies and television and their engagement in aggression. This finding suggests that profanity in media may affect users’ aggression and underscores previous calls (e.g., Bushman & Cantor, 2003; Ivory et al., 2009) for a much-needed causal examination of the effects of profanity in media on users’ aggression.

An investigation into the effects of profanity in video games is a useful starting point for broader research on the effects of verbal aggression in video games and other media. Research on the effects of profanity in violent video games also will add context to the much-discussed effects of video game violence on aggression by showing whether effects of violent content on aggression are unique, or whether profanity can have additional effects on aggression beyond any effects of violent content. This article describes a laboratory experiment examining the effects of profanity uttered by protagonist and antagonist characters in a video game on a number of measures pertaining to aggression and other responses.

### Previous Research on Video Games and Aggression

#### Aggression Defined

Aggression is defined as behavior intended to harm another person who has motivation to avoid the harm (Anderson & Bushman, 2001). Types of aggression include physical aggression, which is direct physical harm by direct physical means, relational aggression, which involves damage to friendships or relationships, and verbal aggression, which is harm by verbal means (Anderson et al., 2007). Profanity is a form of verbal aggression (Kaye & Sapolsky, 2004a, 2004b, 2009; Roberto et al., 2003).

#### Effects of Violence in Video Game Content on Aggression

Much of the research on video games’ effects focuses on violence in video games. Some meta-analyses show that exposure to violent games increases aggressive thoughts, feelings, and behaviors and physiological arousal, and decreases helping behavior (Anderson & Bushman, 2001; Anderson et al., 2010; Sherry, 2001). However, other meta-analyses suggest that findings regarding video games and
aggression are mixed or that effects of video game violence may be weak (Ferguson, 2007).

** Relevant Theoretical Perspectives **

To describe processes related to human aggression, the general aggression model (GAM) (Anderson & Bushman, 2002) integrates several other theoretical models, including Bandura’s (2009) social cognitive theory, Berkowitz’s (1989) cognitive-neoassociation model, and Zillmann’s (1971) excitation transfer theory. The GAM describes human aggression as the result of a process wherein personal (e.g., a person’s existing traits) and situational (e.g., a provocation such as an insult) “input” factors influence the “outcomes” of appraisals, decisions, and behavior.

These personal and situational inputs combine to influence the outcomes of appraisals, decisions, and behavior through the psychological states they create. Once influenced by the personal and situational input factors, the internal psychological state variables of cognitions (e.g., hostile thoughts), affect (e.g., hostile feelings), and arousal (e.g., blood pressure, heart rate) may also influence each other. The internal psychological state variables then influence the outcomes of appraisal, expectation, and decision processes (e.g., hostile expectations), which in turn will lead to aggressive or nonaggressive behavioral actions depending on the nature of the personal and situational input factors and the internal psychological states they produced. The results of the entire episode then cyclically affect personal and situational inputs that will influence outcomes of subsequent episodes.

The GAM predicts that repeated exposure to violent media, including video games, leads to increased aggression in both the long-term and short-term (Anderson & Bushman, 2002). The model has been employed extensively in investigations of video game violence (Anderson & Bushman, 2001; Anderson et al., 2010), but it is also relevant to the potential effects of profanity in video games because profanity in video game content may also serve as a situational input factor influencing players’ thoughts, feelings, and physiological arousal, in turn influencing hostile appraisals and expectations and aggressive behaviors.

Like the GAM, social cognitive theory (Bandura, 2009) maintains that personal and situational factors influence behavior, and that people can learn behavior directly or vicariously by observing others’ behaviors and the consequences of their actions. This learning can extend beyond direct mimicry to incorporate higher-order abstract modeling of general rules and patterns. Similarly, the GAM’s description of internal states that are influenced by personal and situational inputs and in turn influence behavior is consistent with the priming perspective of the cognitive neo-association model (Berkowitz, 1989), which claims that associative networks link related thoughts, feelings, and physiological reactions in the mind. Exposure to a cue can prime automatic accessibility of thoughts, feelings, expectations, and behaviors, and this accessibility can also influence more complex and deliberate cognitive processes, judgments, and behaviors. Therefore, the GAM, social cognitive
theory, and the cognitive neo-association model (among other relevant perspectives) all suggest that profanity in video games may lead players to abstractly model its extreme verbal aggression, influencing automatic accessibility of thoughts, feelings, higher-order appraisal processes, and behaviors related to aggression.

Investigating the Effects of Profanity in Video Games

The Need for Research on the Effects of Profanity in Video Game Content

Although much research has examined the effects of violence in video games, the effects of profanity also merit attention. In a content analysis of a sample of top-selling video games, profanity was found in approximately 1 in 5 games (Ivory et al., 2009). In the games that did contain profanity, it tended to occur very frequently. Profanity is conceptualized as a type of verbal aggression (Kaye & Sapolsky, 2004b, 2009). As Potter (2003) explains, media users may be more likely to imitate verbal aggression than physical aggression because it is easier for them to model, and some forms of verbal aggression may cause long-term psychological damage. Exposure to verbal aggression can also have negative effects on self-concept (Kaye & Sapolsky, 2004b).

The effects of profanity and other forms of verbal aggression in video games and other media content have yet to be examined empirically, despite calls for such investigations (Bushman & Cantor, 2003; Coyne et al., 2011; Ivory et al., 2009). Studies of players in multiplayer online games (Eastin, 2007, 2009) have measured players’ use of verbal aggression while playing, but the effects of profanity as a specific form of verbal aggression in actual video game content remain unexamined. However, a recent survey (Coyne et al., 2011) found that adolescents’ exposure to profanity in video games and television was correlated with their engaging in both physical and relational aggression. Based on those correlational findings, that survey’s authors note the need for experiments investigating the causal effects of profanity on aggression (Coyne et al., 2011).

For those who are concerned about the effects of violence in video games on aggression (e.g., Anderson et al., 2010), the possibility that profanity in video games may influence users’ aggression might raise new concerns about the societal effects of profanity in addition to violence. For others who argue that the effects of video game violence on aggression are not strong enough to merit substantial concern (e.g., Ferguson, 2007, 2010), effects of profanity might suggest that the effects of video game violence are not unusual enough to be particularly problematic. In any case, examining the effects of profanity in video games on users’ aggression will add context and nuance to the ongoing discussion about the effects of video game content on aggression. Further, studying the effects of profanity on aggression in a violent video game will explore whether the effects of profanity are unique
enough to influence aggression above and beyond any effects of violent content on profanity.

Investigating the Effects of Profanity Used by Both Protagonists and Antagonists

Video games are unique among most media in that they often provide the player with close control of a specific character, and the popular “first-person shooter” game genre enhances this association with one character by displaying content exclusively from the player character’s perspective. This visual perspective is conducive to feelings of immersion and identification with characters, both in video games and other screen media (Cohen, 2001; McMahan, 2003). Identification is also associated with aggression (Konijn, Bijvank, & Bushman, 2007). Because game players may identify differently with player-controlled characters than other characters, profanity in video games may have different effects on various player responses depending on whether the player-controlled protagonist uses profanity, the computer-controlled antagonists use profanity, or both the protagonist and antagonists use profanity. Therefore, it is important to investigate the effects of profanity used by both protagonist and antagonist characters in video games, and to investigate them in concert.

Research Questions

Profanity has been frequently characterized as a form of verbal aggression (Kaye & Sapolsky, 2004a, 2004b, 2009; Roberto et al., 2003), so this study adapts previous research that examined effects of violence in video games on aggression-related responses (Anderson et al., 2010) to test for similar effects of profanity. It is not clear, however, whether it is appropriate to view profanity simply as a form of verbal aggression with similar effects as media violence or whether such a conceptualization is too simplistic to describe profanity’s role in media content and effects. Therefore, we approach this first investigation of the effects of profanity on aggression with a series of research questions about profanity’s effects on several states and outcomes related to aggression.

Hostile Appraisals and Expectations

Direct examination of effects on aggressive behaviors, particularly in a natural context, is logistically challenging and beyond the scope of this initial investigation. Instead, this study measures effects on hostile expectations, the aggressive outcome most closely linked to aggressive behavior in the GAM (Anderson & Bushman, 2002), to gain some insight into the potential effects of profanity in video games on
aggressive behavior. Previous research (e.g., Bushman & Anderson, 2002; Eastin & Griffiths, 2006) has found that physical violence in video games increases hostile expectations, so the following research question was examined:

**RQ1:** Does profanity used by video game protagonists and antagonists affect hostile expectations among game players?

**Accessibility of Aggressive Thoughts**

An understanding of the effects of profanity in video games on the internal psychological states described in the GAM (Anderson & Bushman, 2002) is important to an understanding of media effects on aggression. Effects of physical violence in games on accessibility of aggressive thoughts are well-evidenced (Anderson & Bushman, 2001; Anderson et al., 2010), so the following research question was examined:

**RQ2:** Does profanity used by video game protagonists and antagonists affect accessibility of aggressive thoughts among game players?

**Aggressive Affect**

Aggressive affect is another internal psychological state described in the GAM (Anderson & Bushman, 2002) as a predictor of aggressive outcomes, so it also merits attention in an investigation of the effects of profanity in video games. Effects of physical violence in games on aggressive affect are also documented (Anderson & Bushman, 2001; Anderson et al., 2010), so the following research question was examined:

**RQ3:** Does profanity used by video game protagonists and antagonists affect aggressive feelings among game players?

**Perceived Arousal**

In addition to being a psychological state described in the GAM (Anderson & Bushman, 2002) as a predictor of aggressive outcomes, physiological arousal is also an important component of the media experience (Zillmann, 1971). Given the number of other measures under study, direct measurement of physiological arousal was beyond the scope of this initial exploration. Instead, this study measured self-reported perceptions of arousal, which have been found to be correlated with physiological arousal (Ivory & Kalyanaraman, 2007). Previous research indicates that exposure to physical violence in games can increase arousal (Anderson et al., 2010), so the following research question was examined:
RQ4: Does profanity used by video game protagonists and antagonists affect perceptions of physiological arousal among game players?

Enjoyment

Enjoyment is also an important variable related to effects of video game content on aggression, as relationships between media consumption and enjoyment may allow users to be particularly susceptible to negative effects, such as aggression (Nabi & Krcmar, 2004), so the following research question was examined:

RQ5: Does profanity used by video game protagonists and antagonists affect game players’ enjoyment?

Influence of Individual Differences

Many individual difference variables may influence effects of profanity in video games, including gender (e.g., Anderson & Dill, 2000), trait aggressiveness, prior video game experience (both in general and violent games specifically), and current video game use (Anderson & Dill, 2000). Therefore, a final research question was examined:

RQ6: Do differences in video game players’ gender, pre-existing aggression, prior general video game experience, prior violent video game experience, and current video game use influence the effects of profanity used by video game protagonists and antagonists on players’ responses?

Method

Design

The study was an experiment with a 2 (protagonist profanity: present versus absent) X 2 (antagonist profanity: present versus absent) between-subjects factorial design. The study’s two factors were manipulated via production of four versions of an original “first-person shooter” video game. A pre-exposure questionnaire was used to collect demographic and individual difference measures, and a post-exposure questionnaire was used to collect dependent measures.

Participants

Participants in this study were 321 university students, 176 (54.83%) of whom were female and 145 (45.17) of whom were male. Participants’ age range was 18 to
32 years ($M = 20.25; SD = 1.77$). Participants were randomly assigned to conditions in approximately equal groups (80–81 participants per condition). A power analysis using guidelines from Faul, Erdfelder, Lang, and Buchner (2007) indicated that the design would detect moderate effects ($f = .25$) with power of .973 and $p = .05$.

To ensure a large group of participants from the university population with varying video game experience, students were recruited via two means: some ($N = 301$) received course credit, and others ($N = 20$) received a $10 gift certificate from a local video game store. Another 17 participants were recruited for a separate pilot study conducted in advance to test the efficacy of procedures, materials, and measures. Pilot study data were not analyzed.

Stimulus Materials

An original “first-person shooter” video game was designed and produced with the FPS Creator software package from The Game Creators, which allows users to design video games using existing character and object models and adding graphic and audio files. The game, titled Rescue Strike, places the player in control of an armed agent assigned to rescue hostages from a fortress guarded by armed enemies. If the protagonist reaches the hostages, the game ends. If the protagonist’s “health” is depleted, the character loses a “life” and play resumes at a point nearby. Once three “lives” are exhausted, the game ends. A skilled player can complete the game in several minutes.

The study’s conditions were manipulated by adding different audio files to four different versions of the game. Volunteers recorded dialogue for the protagonist character and for several antagonist characters. Each volunteer read a series of scripted lines, recording two versions of each line: one with profanity and one without (e.g., “I'll fuck you up!” or, “I’ll mess you up!”). The lines were as similar as possible in wording and meaning except for the profanity, and the volunteers attempted to read both versions of each line in the same tone. The audio files were placed into the different game versions to be heard at appropriate points during play. Other than the variation in those audio files, all elements of the four game versions were identical.

Dependent Measures

Hostile Expectations.

Hostile expectations were measured via a story-completion task adapted from Bushman and Anderson (2002). Participants read two story stems (one about a minor car accident and the other about a slow-arriving restaurant order) and were asked what the character would think, feel, and do or say. Participants were asked to list five responses for each of the three categories (15 total responses for each story stem and 30 responses overall). The hostile expectations score was the total
number of aggressive responses for both story stems across all 30 response items.
Two independent raters who were blind to the study’s purpose were hired to code
scores for the hostile expectations measure. Each coder was randomly assigned
186 of the 321 cases, including an overlap of 51 cases (15.89%) assigned to both
coders to allow assessment of intercoder reliability. Coders received the cases in
random order, and each coder’s list of cases was randomized separately to prevent
order effects. Intercoder reliability for the measure was assessed using the intraclass
correlation coefficient, which was high (.919). For the 51 cases assigned to both
coders, coders’ scores were averaged for analyses.

Accessibility of Aggressive Thoughts.

Accessibility of aggressive thoughts was assessed by a word-completion task
(Anderson, Carnagey, & Eubanks, 2003). Participants were presented with 98 words
that had at least one letter missing and instructed to fill in missing letters to complete
as many words as possible in 3 minutes. All word fragments were designed so
that they could form either aggressive or non-aggressive words (e.g., explo_e as
“explore” or “explode”). The score for accessibility of aggressive thoughts was the
proportion of completed words that were aggressive. The same two independent
raters hired to code the story completion task coded scores for the word-completion
task. The same random assignment procedures were followed, with an overlap of
51 cases (15.89%) assigned to both coders, but the random assignment procedures
for the two measures were carried out separately so that assignment of cases was
not the same for both measures. The intraclass correlation coefficient between
coder scores for the accessibility of aggressive thoughts measure was high (.862),
as were the coefficients for the word completion categories used to calculate it
(.785 for neutral words, .818 for ambiguous words, .923 for aggressive words,
.864 for nonwords). For the overlap of 51 cases, coders’ scores were averaged
for analyses.

Aggressive Feelings.

Aggressive affect was measured using the state hostility scale (Anderson et al.,
2003), which includes 32 statements containing adjectives related to hostility (e.g.,
“I feel mad”). The 32 item scores (1 = Strongly disagree, 5 = Strongly agree) were
averaged to produce a state hostility index (Cronbach’s \( \alpha \) = .96).

Perceived Arousal.

Perceived arousal was measured using the perceived arousal scale (PAS) (Ander-
son, Deuser, & DeNeve, 1995), which requires participants to rate 24 statements
containing adjectives related to arousal (e.g., “excited”). The 24 item scores (1 =
Does not describe how I feel at all to 7 = Accurately describes how I feel) were
averaged to produce a perceived arousal index (Cronbach’s \( \alpha \) = .92).
Enjoyment.

Enjoyment was measured with an index used by Klimmt, Rizzo, Vorderer, Koch, and Fischer (2008), which included 10 items (e.g., “I liked playing the game”). The 10 item scores ($1 = \text{Strongly disagree}, \ 7 = \text{Strongly agree}$) were averaged to produce an enjoyment index (Cronbach’s $\alpha = .88$).

**Individual Difference Variables**

Participants reported their gender and age. Pre-existing aggression was measured through Buss and Perry’s (1992) aggression questionnaire, which includes 29 items (e.g., “I have threatened people I know”). The 29 item scores ($1 = \text{Extremely uncharacteristic of me}, \ 5 = \text{Extremely characteristic of me}$) were averaged to produce a pre-existing aggression index (Cronbach’s $\alpha = .88$). An adapted version of Anderson and Dill’s (2000) video game experience questionnaire was used to assess prior general video game experience and prior violent video game experience. Participants named their three favorite video games and indicated how often ($1 = \text{rarely}, \ 7 = \text{often}$) they played the games during four time periods ranging from “in recent months,” to “during 7th and 8th grades.” These 12 scores were averaged to produce a prior general video game experience index. Participants also rated the amount of violence in each of the games’ content ($1 = \text{little or no violent content}, \ 7 = \text{extremely violent content}$) and graphics ($1 = \text{little or no blood and gore}, \ 7 = \text{extremely bloody and gory}$). A violence exposure score was calculated for each game by summing its ratings for violent content and violent graphics and multiplying this number by the average rating of how often they played the game over the four time periods (Anderson & Dill, 2000, p. 778). Scores for all games were averaged to create a prior violent video game experience index. Current video game use was assessed with an item asking how many hours per week participants spent playing video games.

**Procedures**

Upon arriving in groups at a computer laboratory, participants were seated at desktop computers equipped with headsets. The appropriate version of the Rescue Strike game was installed for each participant’s condition in advance, with participants unaware of the different game versions. Participants completed the pre-exposure questionnaire, then put on the headsets and played the game for 12 minutes. If participants lost the game or completed the game before the 12-minute period ended, they played the game again until time was up. After playing the game for 12 minutes, participants completed the timed word-completion task, then completed the remainder of the post-exposure questionnaire, were thanked and dismissed, and were debriefed via email after the study.
Results

Descriptive Statistics

Participants reported playing video games an average of 3.50 (SD = 6.16) hours per week, with males (M = 6.17, SD = 7.29) reporting more hours than females (M = 1.30, SD = 3.85), t(319) = 7.65, p < .001. Gender has been found to influence some responses to video games (e.g., Anderson & Dill, 2000), so a chi-square analysis was conducted to ensure that gender was not unevenly distributed across conditions, χ²(3, N = 321) = .368, p = .947.

Effects of Protagonist and Antagonist Profanity on Hostile Expectations

RQ₁ asked whether profanity used by protagonists and antagonists affects players’ hostile expectations. A two-way ANOVA with protagonist and antagonist profanity as independent factors and hostile expectations as the dependent variable revealed a significant main effect of protagonist profanity, F(1, 317) = 5.71, p = .017, η²p = .018, with hostile expectations significantly higher with protagonist profanity present (M = 11.33, SD = 4.81) than absent (M = 10.04, SD = 4.83), and a significant main effect of antagonist profanity, F(1, 317) = 4.35, p = .038, η²p = .014, with hostile expectations significantly higher with antagonist profanity present (M = 11.25, SD = 4.84) than absent (M = 10.13, SD = 4.82). The interaction effect between protagonist and antagonist profanity was not significant, F(1, 317) = .031, p = .861, η²p < .001.

Effects of Protagonist and Antagonist Profanity on Accessibility of Aggressive Thoughts

RQ₂ asked whether profanity used by protagonists and antagonists affects players’ accessibility of aggressive thoughts. A two-way ANOVA with protagonist and antagonist profanity as independent factors and accessibility of aggressive thoughts as the dependent variable indicated no significant main effect of protagonist profanity, F(1, 317) = .109, p = .742, η²p < .001, or antagonist profanity, F(1, 317) = .285, p = .594, η²p = .001, and no significant interaction effect between protagonist and antagonist profanity, F(1, 317) = 1.43, p = .232, η²p = .005.

Effects of Protagonist and Antagonist Profanity on Aggressive Feelings

RQ₃ asked whether profanity used by protagonists and antagonists affects players’ aggressive feelings. A two-way ANOVA with protagonist profanity and antagonist
profanity as independent factors and state hostility as the dependent variable indicated no significant main effect of profanity, $F(1, 317) = .067, p = .796, \eta^2_p < .001$, but there was a significant main effect of antagonist profanity, $F(1, 317) = 4.71, p = .031, \eta^2_p = .015$, with state hostility significantly higher with antagonist profanity absent ($M = 2.12, SD = .624$) than present ($M = 1.97, SD = .577$). The interaction effect between protagonist and antagonist profanity was not significant, $F(1, 317) = .305, p = .581, \eta^2_p = .001$.

**Effects of Protagonist and Antagonist Profanity on Perceived Arousal**

RQ$_4$ asked whether profanity used by protagonists and antagonists affects players’ perceived arousal. A two-way ANOVA with protagonist profanity and antagonist profanity as independent factors and the perceived arousal measure as the dependent variable indicated no significant main effect of protagonist profanity, $F(1, 317) = .391, p = .532, \eta^2_p = .001$, or antagonist profanity, $F(1, 317) = .157, p = .692, \eta^2_p < .001$, and no significant interaction effect between protagonist and antagonist profanity, $F(1, 317) = .569, p = .451, \eta^2_p = .002$.

**Effects of Profanity in Video Game Content on Other Game Experience Dimensions**

RQ$_5$ asked whether profanity used by video game protagonists and antagonists affects enjoyment among game players. A two-way ANOVA with protagonist profanity and antagonist profanity as independent factors and the enjoyment measure as the dependent variable indicated no significant main effect of protagonist profanity, $F(1, 317) = .516, p = .473, \eta^2_p = .002$, or antagonist profanity, $F(1, 317) = .070, p = .792, \eta^2_p < .001$. There was a significant interaction effect between protagonist and antagonist profanity on enjoyment, $F(1, 317) = 4.445, p = .036, \eta^2_p = .014$. Specifically, there was a transverse interaction effect such that when protagonist profanity was absent, enjoyment was higher with antagonist profanity absent ($M = 3.37, SD = 1.31$) than present ($M = 3.04, SD = 1.21$), but when protagonist profanity was present, enjoyment was higher with antagonist profanity present ($M = 3.23, SD = 1.24$) than absent ($M = 2.97, SD = 1.22$).

**Influence of Individual Differences on Effects of Profanity in Video Game Content**

RQ$_6$ asked whether players’ gender, pre-existing aggression, prior general video game experience, prior violent video game experience, and current video game use influence any effects of profanity used by protagonists and antagonists. To examine the potential moderating role of gender, the series of ANOVA tests carried out to
investigate RQs 1–5 were repeated as three-way ANOVA tests with gender added as a
third independent factor. In this series of ANOVAs, no two- or three-way interaction
effects involving gender were significant (ps > .05). Further, results for all main and
interaction effects of the protagonist and antagonist profanity factors mirrored those
observed with the two-way ANOVAs reported above for RQs 1–5.

To examine the influence of pre-existing aggression, prior general video game
experience, prior violent video game experience, and current video game use, the
series of ANOVA tests carried out to investigate RQs 1–5 were repeated as ANCOVA
tests with pre-existing aggression, prior general video game experience, prior violent
video game experience, and current video game use added as covariates in separate
tests (i.e., each test was a two-way ANCOVA with one covariate added to isolate the
influence of each covariate for each dependent variable). In this series of ANCOVAs,
results for all main effects of the protagonist profanity and antagonist profanity factors
mirrored those observed with the two-way ANOVAs reported above for RQs 1–5.

However, the two-way interaction effect of protagonist profanity and antagonist
profanity on enjoyment, which was significant in the initial ANOVA test for RQ6,
was no longer significant in the ANCOVA tests with pre-existing aggression, $F(1, 316) = 3.25, p = .073$, $\eta_p^2 = .010$, or prior general video game experience, $F(1, 316) = 3.63, p = .058$, $\eta_p^2 = .011$, added as covariates. Results of the ANCOVAs
for all other two-way interaction effects between the protagonist and antagonist
profanity factors mirrored those observed with the two-way ANOVAs reported above
for RQs 1–5.

Discussion

This study was conducted to answer calls (Bushman & Cantor, 2003; Coyne et al.,
2011; Ivory et al., 2009) for an experiment investigating the effects of profanity
in video games. As such, it examined potential effects of profanity on several
measures, most of them related to aggression, to ascertain what potential effects
might merit further inquiry and what effects are unlikely. The study explored effects
of profanity in a violent game to examine whether profanity had unique effects
on aggressive responses beyond the already-studied effects of violent content, and
it compared effects for protagonist and antagonist characters to examine whether
effects of profanity might depend on the type of character using it.

This study’s most significant discovery is that profanity used by both protagonists
and antagonists increased video game players’ hostile expectations. These findings
suggest that some previously observed effects of video game violence on aggression
may be complemented by similar effects of profanity. Hostile expectations are the
outcome linked most closely to aggressive behaviors in the GAM (Anderson &
Bushman, 2002), and frequent exposure to stimuli that increase hostile expecta-
tions can also lead to a chronic propensity for hostile appraisals and expectations
(Anderson, Carnagey, & Eubanks, 2003). Although no definitive claims about effects
on behavior can be made from these results, this study’s finding that profanity in
video games significantly influenced the appraisal processes that can determine behaviors suggests that profanity in video games may also influence behaviors.

The observed effects on hostile expectations also suggest that at least some aspects of the GAM, which is often applied to effects of media violence, may apply to effects of profanity in media. Profanity’s effects on hostile expectations here are also consistent with social cognitive theory’s claim that learning can incorporate higher-order abstract modeling instead of mere mimicry. Furthermore, the observed effects of profanity on hostile expectations may also have implications regarding other perspectives such as cultivation theory (Gerbner, Gross, Morgan, & Signorielli, 1980), as the present findings imply that those exposed to profanity in media may develop “mean world” perceptions that their environment is hostile.

Moreover, this study’s findings showed that the effects of profanity used by two types of characters, protagonists and antagonists, on hostile expectations did not differ substantially or depend on each other. The mere presence of profanity used by either character type increased hostile expectations among game players. It should be noted, however, that participants in this study played the game for only 12 minutes, which is consistent with exposure times for related research but may not have been enough time to establish differences in participants’ responses to different character types. With longer game play periods, effects of profanity used by a game’s protagonist may be intensified as a game player comes to identify with the game’s protagonist to a greater degree. Further, a manipulation check assessing awareness of profanity used by different types of characters might inform whether players distinguish between profanity used by protagonists and antagonists.

Although this study’s observed effects of profanity in game content on players’ hostile expectations can be interpreted as cause for social concern, these results are also subject to an alternative response from those who are skeptical about effects of video game violence on aggression (e.g., Ferguson, 2007, 2010). Laboratory studies finding effects of video game violence on measures of aggressive outcomes have been used to support claims that violent video games pose a societal risk factor (e.g., Anderson et al., 2010), so this study’s finding that profanity can induce some similar effects could be interpreted as evidence that profanity in video games and other media poses a similar risk factor. This study’s findings, however, could also support an argument that the effects of media violence on aggression are not uniquely problematic because other content—in this case, profanity—can have similar effects. Such interpretations might depend on opinions regarding the validity of the aggression measures used in this and other research. In any case, this study has shown that profanity in video games may have some similar effects as video game violence, but the effect sizes observed were small and profanity had no effects on some aggression measures. More research is needed to determine whether the effects of profanity observed here represent a legitimate societal risk.

While there was a clear effect of profanity in video games on a higher-order thought process, it is not clear what route or internal state mediated profanity’s effects on hostile expectations. Profanity used by video game protagonists and antagonists did not appear to affect accessibility of aggressive thoughts among players.
This null finding does not support the GAM's predicted mechanism in terms of effects on accessibility of aggressive thoughts. Profanity appears to influence hostile expectations differently than it does accessibility of aggressive thoughts, calling the applicability of the full GAM framework to profanity's effects into question. It is also possible that there may have been a ceiling effect in terms of accessibility of aggressive thoughts because the game played by all participants was a violent game that primed accessibility of aggressive thoughts whether profanity was present or not.

Interestingly, while there was no evidence for an effect of protagonist profanity on participants' aggressive feelings, antagonist profanity decreased participants' aggressive affect. This finding is in contrast to the GAM's prediction regarding effects on aggressive feelings. It is possible that the profanity directed toward the protagonist evoked other affective responses that were not conducive to aggression, again calling the full GAM model's applicability to profanity's effects into question. The results regarding affect may also stem from a self-report bias; given that the state hostility scale asks for overt reports of hostility, participants who had been cursed at by antagonists in the game may have simply been more willful in indicating that they were not bothered by it.

This study found no relationship between profanity used by protagonist or antagonist characters and participants' perceived arousal. This supports prior evidence suggesting that even though arousal is a state related to aggression in the GAM's predictions, arousal may not be a key path to player aggression because many video games tend to be exciting (Anderson & Bushman, 2001), as may have been the case in this study with all conditions containing violence.

Anderson and Bushman (2001) have suggested that of the GAM's three routes, only the cognitive route is closely tied to the effects of violent video games on aggression (see also Anderson & Dill, 2000). The present study's findings similarly suggest that effects of profanity as a form of verbal aggression may be limited to the cognitive route, and further to higher-order thinking in the form of hostile expectations rather than more automatic aggressive thoughts. This study suggests that profanity in video games may elicit aggressive responses, but findings do not support all of the patterns of effects predicted by the GAM, and the mechanisms by which profanity may affect hostile expectations need more study.

The effects of profanity in game content on aggression-related responses were not influenced by participants' gender, pre-existing aggression, prior general video game experience, prior violent video game experience, or current video game use. These findings indicate the robustness of the observed effects of profanity across different individuals, though other personal factors may influence profanity's effects.

The interaction effect between protagonist and antagonist profanity on enjoyment, with enjoyment greatest when profanity use was consistent across character types and lowest when profanity use was inconsistent across character types, is consistent with cognitive consistency theories that explain how individuals expect consistency and inconsistencies may create a state of dissonance (Abelson, 1983). The interaction effect, however, might only occur with some individuals given that it was no
longer significant after controlling for pre-existing aggression or prior general video game experience.

In addition to the typical limitations of laboratory experiments and others already mentioned here, other limitations of this study should be noted. All of this study’s game conditions were violent, which was useful because violent games are more likely to include profanity and because the design showed that the effects of profanity on aggressive responses observed here extended beyond any effects of violent content, but replication with nonviolent games may be useful. Similarly, the design manipulated profanity, but not verbal aggression more generally; manipulating verbal aggression would inform whether profanity’s effects are unique compared to other forms of verbal aggression. This study did not vary the amount or intensity of profanity in the games; varying the prevalence of profanity, as well as length of play sessions, would help determine whether any effects of profanity intensify, plateau, or attenuate with increased exposure. Physiological measures may also be superior to some of this study’s self-report measures, particularly regarding affect and arousal, and the use of behavioral measures is needed to determine whether the effects seen here with oft-used questionnaire measures are also manifested in behavioral outcomes. Additionally, many online video game users may encounter profanity used by other players in addition to profanity in pre-programmed character dialogue, so future research should examine the effects of profanity used by players online as well. Additionally, some results may have been the product of alpha inflation due to the number of tests employed. Conversely, it is unknown whether more effects would have been observed with a more powerful design using a larger sample.

This study’s findings, which suggest a link between profanity in video games and hostile expectations in players, are in many ways exploratory. While this study does not flesh out the entire picture of profanity’s effects, it does show that something is happening when video game players are exposed to profanity in game content. It is now imperative that future research examines what exactly is happening when video game players and other media users encounter profanity in their media content—and what we can do about it.

References


