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# Violent Video Games, Sexist Video Games, and the Law: Why Can't We Find Effects?

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## Keywords

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## Abstract

During the early 2000s, several states and municipalities sought to regulate minors' access to violent video games owing to perceived harms to minors. The resultant case law, culminating in the US Supreme Court case *Brown v. EMA* (2011), demonstrated court skepticism of the science linking violent games to harm in minors. Such skepticism was increasingly confirmed as numerous newer studies could not link violent games to socially relevant outcomes. In more recent years, there has been a newer focus on sexist games and the harm these might cause. This field appears at risk for repeating some of the problems of the violent game field, including exaggeration of mixed findings, lack of curiosity regarding null findings, and unreliable research designs. By persisting in advancing a narrative of public health crisis, despite evidence to the contrary, social science has risked damaging its reputation in the eyes of the courts.

## INTRODUCTION

Throughout the 1990s, many politicians expressed an interest in regulating violence in video games owing to the perceived harms such games might inflict on minors who played them. During this time, however, research was slim and, for the most part, did not support links between violent games and negative outcomes. This changed in the 2000s when, following closely on the 1999 Columbine High School massacre, which was linked to the violent game *Doom* in the public consciousness, research on video games skyrocketed and scholarly narratives about games became increasingly gloomy (e.g., Anderson & Dill 2000). Using some of this new research, particularly from a relatively small number of labs (primarily those currently housed at Iowa and Ohio State Universities), approximately 11 states and municipalities enacted laws seeking to regulate minors' access to violent video games (VVGs).

Such laws sought to carve out a new realm of unprotected speech, namely entertainment violence, using the rationale that such regulation could be for the public good. Advocates of these laws expressed concern that such games harmed minors by making them more aggressive and less empathic toward others. In some cases [e.g., *Brown v. EMA* (2011)], the argument was made that video games damaged the brains of minors. In each case that made it to the courts, the courts rejected arguments supporting regulation on three grounds. First, video games enjoyed constitutional protections similar to those of other art or speech. Second, minors enjoyed significant free speech rights that could not be easily taken away. Third, the research evidence supplied in support of the laws was significantly flawed, and advocates of the laws failed to detail studies contradicting their concerns. Thus, the research evidence did not meet strict scrutiny necessary to argue for reducing free speech protections of violent games.

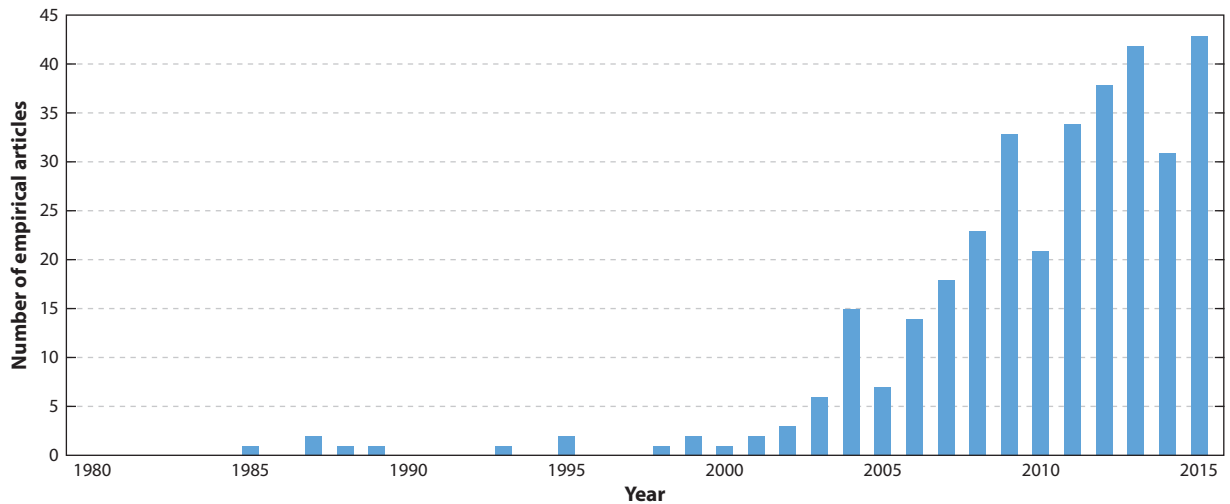
Despite the inconsistency of research evidence, some aspects of the social science community, including some professional advocacy organizations, such as the American Psychological Association (APA) and American Academy of Pediatrics (AAP), offered narratives of harm that arguably provided cover for censorious legislation. This review concerns itself with the science of video game violence, but also with how that science was used and misused to promote legislation that would have chipped away at constitutional protections for free speech. This review extends this discussion into the relatively newer field of sexist video games, which may be following a similar, problematic pattern.

## VIOLENT VIDEO GAME RESEARCH

VVG research began with the earliest video games in the 1980s. Many early studies considered games such as *Pac Man*, *Centipede*, *Zaxxon*, and *Missile Command* to be violent games. Overall, though the games have changed, the research studies have followed a familiar pattern, and indeed, even the strength of evidence has not changed much until recently.

One thing that has changed is the sheer number of articles. To demonstrate, I conducted a search of empirical articles published in peer-reviewed journals using the search terms “Violen\*” and “video game” in the PsycINFO database. As indicated in **Figure 1**, throughout most of the 1980s and 1990s, video game violence research was sparse. However, both following the 1999 Columbine High School massacre and concurrent with multiple efforts at regulating VVGs, scholarly interest in VVGs skyrocketed rapidly. This observation is unlikely to be accidental, with scholars capitalizing on societal narratives linking violent games to acts of societal violence, including mass shootings.

Nonetheless, the narrative of such articles has also changed in three phases (Ferguson 2010). Prior to the 1999 Columbine High School massacre, research was sparse, and scholars generally recognized that evidence linking games to harm was inconsistent. Following the 1999



**Figure 1**

Violent video game empirical studies by year.

massacre, scholarly narratives rapidly changed, with language increasingly implying public health–level threats; comparisons to important medical findings, such as smoking and lung cancer; and implications that research could be generalized to mass shootings (see Markey et al. 2015a for review). Finally, in more recent years, scholarly narratives have turned more skeptical with considered, often acrimonious, debate.

## Defining Violent Games

The term violent video game is used in the scholarly field with relatively little conceptualization about what it is intended to mean. Typically, “violent” is broadened in definition to include any game in which one character aggresses against another in any form. By virtue of such a definition, relatively mild and inoffensive games, such as *Pac Man* and *Centipede*, are considered VVGs. This can result in alarming claims, such as that 64% of even E-rated (rated for children of any age) games contain violence, claims that sound alarming when expressed without clarifying that this violence is cartoonish, mild, and inoffensive to most consumers.

Thus, the term violent video game, by including almost all games, lacks conceptual integrity or utility, similar to how a violent literature category that encompassed everything from Shakespeare to Stephen King to the Bible to comic books would lack any integrity. If VVG as a term is scientifically meaningless, its utility would seem to be emotional. VVG is a term apparently used by some scholars and policy makers to evoke dislike in the general populace in advance of a moral advocacy agenda. This observation is strengthened by noting that when positive effects of identical games are studied, scholars switch terminology and refer to action games rather than VVGs (e.g., Spence & Feng 2010). The decision by the scholarly community to use such an emotionally evocative and conceptually poor term to describe the topic of interest is a prejudicial one.

One court case in which this became apparent was the 2013 murder trial of Christopher Harris. Harris was accused of murdering a family of five with a tire iron. Physical evidence and the witness account of Harris’s own brother indicated he was the perpetrator, but Harris sought to shift blame to one of his victims, a 14-year-old boy with a history of attention-deficit hyperactivity disorder

(ADHD) issues. As part of this trial, one video game expert, Craig Anderson, testified that the teen's ADHD, combined with the family's home life, his asthma, and his history of playing VVGs, could place the teen at risk of committing violent acts. Under cross-examination, Dr. Anderson acknowledged that he did not know how often the teen actually played VVGs (games and the console found at the family's home appeared to be outdated and seldom used), that it was difficult to use VVGs to predict violence, and that even games such as *Pac Man* could be considered VVGs. One assistant attorney general was later overheard referring to the totality of Dr. Anderson's testimony as "the most offensive testimony I've ever heard in my life, I think." The jury ultimately dismissed this alternate explanation and found Harris guilty (Rushton 2013).

## Research Evidence

Although it remains unclear that VVG is a meaningful term, we shall treat it as if it were and examine the 30 years of research on the topic. Interestingly, although what constitutes a VVG in public perception has changed remarkably during this time (from simple arcade games such as *Zaxxon*, *Pac Man*, *Centipede*, and such to *Grand Theft Auto*), the research has not. Thirty years ago, some researchers claimed similar harmful effects from these earlier games as from more graphic games today (e.g., Anderson & Ford 1986). Research tends to fall into two basic forms: experimental research and survey-based correlational research.

Despite three decades of research, little clarity has been reached. Some meta-analyses (a research approach that combines data from multiple studies to get an overall effect, e.g., Anderson et al. 2010, Greitemeyer & Mügge 2014) have concluded that VVGs can influence negative outcomes [although Hilgard et al. (2017) reanalyzed the experimental studies from Anderson et al. (2010) and found that publication bias, or a tendency for journals to publish statistically significant findings but not null findings, likely resulted in an overestimation of effects]. Other meta-analyses have concluded that there is little evidence linking VVGs to aggression or other harmful outcomes (Ferguson 2015a; Furuya-Kanamori & Doi 2016; Sherry 2007). Some of these (e.g., Ferguson 2015a) have likewise found publication bias to be a significant issue for VVG studies.

Experimental studies have been mixed in outcome and are often criticized for poor methods. Poor matching of video games (i.e., the games should be similar in all respects other than violent content) in experimental and control conditions has been identified as a common flaw, with some recent studies suggesting that controlling for competitiveness (Adachi & Willoughby 2011), frustration (Przybylski et al. 2014), or difficulty (Kneer et al. 2016) eliminates the effects of VVGs on aggression. Other scholars have noted that aggression measures used as outcomes are often used in an unstandardized way. This means that they are constructed in such a manner as to provide a range of possible outcomes from which scholars can select data that fit their hypotheses and ignore data that do not. This state of affairs increases the probability of false positives (statistically significant results that are due to researcher data manipulation, whether intentional or unintentional, rather than real effects in the real world) and researcher expectancy effects (Elson et al. 2014). The latter construct refers to researchers consciously or unconsciously injecting their personal opinions into research designs or data analysis in such a manner as to bias the study toward confirming their personal beliefs. This phenomenon has been well documented in this field, with correlations observed between researchers' stated beliefs in effects and the magnitude of results found in their studies (Ferguson 2015a).

Perhaps the most interesting evidence comes from longitudinal studies, which examine whether playing VVGs at a time one can predict later aggression or violence. Particularly when time one outcomes are controlled, as well as other factors, such as family environment, mental health, gender, and personality, longitudinal evidence overwhelmingly suggests that VVG influences on

youths' long-term well-being are minimal (Breuer et al. 2015b, Etchells et al. 2016, Ferguson 2011, Shibuya et al. 2008, Wallenius & Punamäki 2008, Willoughby et al. 2012).

## Preregistered Studies

If research results are inconsistent and the field is limited by the poorly considered, unstandardized use of outcome measures (Elson et al. 2014), researcher expectancy effects may be polluting research results. As noted, some data suggest that researchers who fail to acknowledge the existence of null studies (i.e., citation bias) tend to produce studies with higher effect sizes (Ferguson 2015a). In this sense, video game research may very much mirror the larger replication crisis in psychology, in which we have become overconfident about false-positive results.

One approach to solving this issue has been preregistration. With proper preregistration, authors publish, in advance of data collection, the materials they will use and the data analyses they plan to conduct. Making these analysis plans public before data collection renders it difficult for scholars to fail to report unfavorable results or to continually try different statistical analysis techniques until results supporting the hypothesis are achieved.

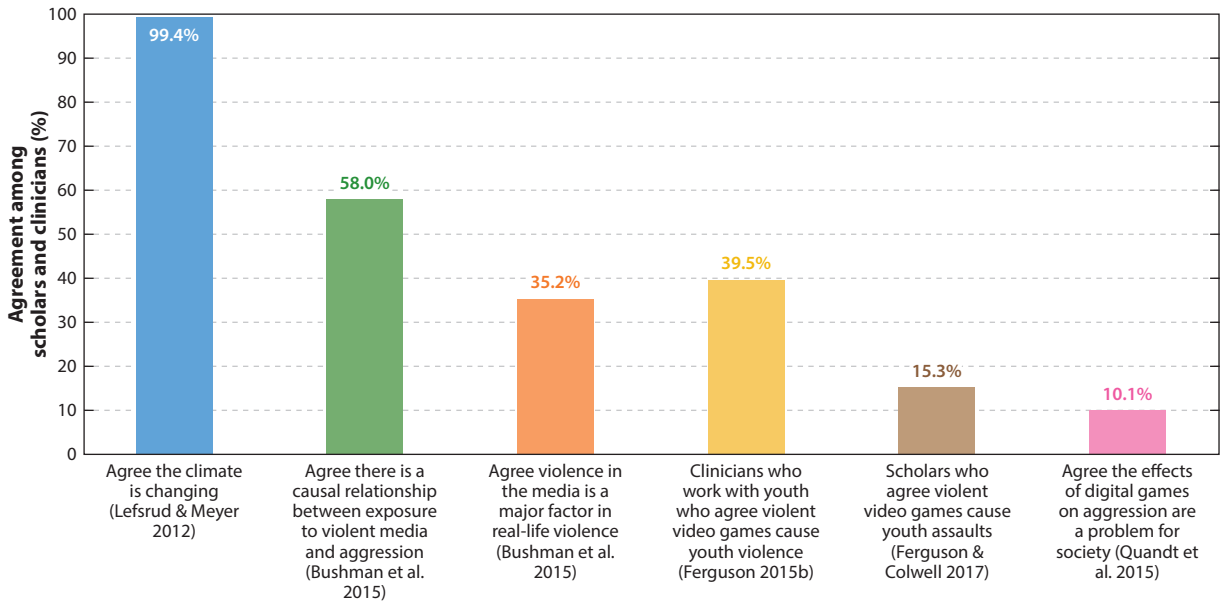
A small number of preregistered studies have now been published. Thus far, only a single preregistered study (Ivory et al. 2017) has correlated video game play with negative outcomes. All other preregistered studies (e.g., Ferguson et al. 2015, 2017; McCarthy et al. 2016) have failed to find links between VVGs and aggression. Of course, preregistration is not necessarily going to fix all problems—it is entirely possible to preregister a poorly designed study. However, preregistration may help reduce some researcher bias effects.

However, preregistration does not necessarily fix other sources of bias. For instance, publication bias, wherein authors fail to publish preregistered studies with null results, or journals continue to show disregard for such studies, may not be reduced. It is also entirely possible to preregister a poorly designed study with methods that bias results toward a particular conclusion. As such, though important, preregistration is only one solution to problems of bias in the field.

## Scholarly Views

During the years in which court cases concerning regulation of VVGs were active, it was not uncommon to hear some scholars claim that a consensus existed regarding the impact of such games on aggression. An argument to consensus is a logical fallacy and has no evidentiary value in science (the history of science is littered with overturned consensus positions), but such arguments have emotional appeal to the general public and, potentially, to the courts. However, no one bothered to examine whether a consensus actually existed. Perhaps the closest was an informal survey from the 1980s (Murray 1984) concerning whether scholars believed media violence contributed to societal violence. Murray found approximately 85–90% agreement with this view at that time.

Interestingly, by the time scholars began to reexamine evidence for consensus beginning in the 2010s, that degree of agreement had largely evaporated. Indeed, surveys of scholars began to lean more toward skepticism, with various surveys finding that only approximately 10–39.5% (Ferguson 2015b, Ferguson & Colwell 2017, Quandt et al. 2015) of scholars and clinicians agreed that media or video game violence could contribute to societal aggression or violence. Some scholars associated with antimedia advocacy (e.g., Bushman et al. 2015) tried to claim a consensus anyway, although these efforts were subsequently criticized for being misleading (e.g., Etchells & Chambers 2014, Ivory et al. 2015). **Figure 2** presents data from recent surveys of clinicians and scholars. These figures on media and video game violence are contrasted with the consensus on climate change among climate scientists for comparison.



**Figure 2**

Agreement among scholars and clinicians on climate change and violent video game effects.

Thus, it is clear no consensus exists regarding violent game influences. This also highlights the risk of using consensus arguments as evidence. Scholarly consensus changes with time and new evidence. Confidence in violent game effects on aggression has likely eroded as the evidence base has expanded.

### Professional Guild Resolution Statements

One issue of contention is public resolution statements by professional guilds, such as the APA and AAP, which have linked VVGs to aggression or societal violence. Such statements have been criticized for citation bias issues (failing to acknowledge null studies conflicting with the resolution statements) and for appearing to stack the committees that develop them with known antimedia advocates (Ferguson & Beresin 2017, Hall et al. 2011a, Kutner & Olson 2008). This has raised concerns for the integrity of these public statements, whether they misinform the public to promote the guild professions and damage the reputation of science in the process.

As a notable example, concerns regarding the composition and mission of the APA's most recent task force resolution statement (Am. Psychol. Assoc. 2015) led more than 230 scholars to write an open letter to the APA asking them to refrain from releasing further misleading policy statements (Consort. Scholars 2013). Unfortunately, the APA chose to ignore this large group of scholars and did not address their concerns in the subsequent 2015 resolution statement.

The conclusions of these professional guild resolution statements have conflicted with other reviews. For instance, the APA's Media Psychology and Technology division released a public education statement noting that VVGs cannot be linked to societal violence and that evidence for aggression effects is mixed (Soc. Media Psychol. Technol. 2017). Government reviews in Australia (Aust. Gov. Atty. Gen. Dep. 2010) and Sweden (Swed. Media Counc. 2011) acknowledged that research evidence on VVGs is inconsistent and often limited by significant flaws. A 2001 US government report on youth violence relegated media violence to a minor role in such outcomes

and noted inconsistencies in the literature (US Dep. Health Hum. Serv. 2001), as does a report from the United Kingdom (Cumberbatch 2004). Thus, professional guild reports are often out of sorts with other independent reports. Of greater concern, however, is the issue of citation bias and the failure of many guild reports by the APA and AAP to acknowledge inconsistencies and controversies regarding VVG research. As such, such reports should not be regarded as competent and unbiased scientific works that would provide the foundation for policy or legal decisions (Hall et al. 2011a). Unfortunately, the main impact of such resolution statements is to provide cover for groups such as the National Rifle Association to blame video games rather than actual weapons as a cause of violent crime (e.g., D'Angelo 2017). To the extent that guild resolution statements distract society from actual causes of violence, they can be viewed as an unintentional net harm rather than a benefit, particularly given the misleading coverage of research common in guild resolution statements.

## VIOLENT VIDEO GAMES IN COURT

### History

VVG court cases have historically taken two forms. The first of these are court cases in which blame for specific crimes is placed on video games. The second have been court cases in which states or municipalities have sought to regulate the sale of VVGs to minors.

The first type of case was more prominent in the late 1990s and early 2000s, although the Christopher Harris case mentioned earlier (from 2013) is a more recent such example. One of the first such cases involving video games involved a 1997 shooting at a high school in Paducah, Kentucky, which killed three students and wounded five. Led by anti-video game activist and lawyer Jack Thompson, the families of the three slain victims sought damages from several video game companies (Assoc. Press 1999). Setting the stage for all such cases, the case was dismissed as lacking factual grounds linking violent media to specific acts of violence [*James v. Meow Media* (2002)]. Mr. Thompson would lead other, similar cases against games such as *Grand Theft Auto* (e.g., Roach 2003). All such cases have been dismissed by the courts or ended with juries rejecting the argument of video game causality, as in the Christopher Harris case.

The second type of case involved attempts by municipalities and states to regulate the sale of VVGs to minors. One of the first cases was in the city of Indianapolis (*American Amusement Machine Association v. Kendrick*), which sought to prevent minors from accessing coin machines with violent content in video arcades, which were still popular at the time. The ordinance was originally upheld by a district judge but was later struck down in the US Court of Appeals. A small group of eight scholars wrote an amicus brief to the court expressing concerns about the misuse and miscommunication of the science to support the law. The Court decided that video games represented protected speech and that the research evidence failed to document harms caused to minors (Free Expr. Policy Proj. 2007). In 2003, a similar case (*Interactive Digital Software Association, et al., v. St. Louis County*) resulted in a similar decision, ruling efforts to restrict violence in video games unconstitutional. In this case, an amicus brief was submitted featuring 33 scholars opposing the misuse and miscommunication of the science.

In the early 2000s, several federal legislative efforts also sought to criminalize the sale of VVGs to minors. Senators Hillary Clinton and Jay Rockefeller, as well as Representatives Joe Baca and Frank Wolf, among others, became known for advocating for various legislative efforts. However, none ever made it into law.

In 2005, an Illinois case [*ESA, VSDA and IRMA v. Blagojevich, Madigan and Devine* (2005)] would become a seminal case for the field. In striking down the law, the district court affirmed



the unconstitutionality of these efforts. But the court was also specifically critical of the issue of citation bias used by the state to support regulation. The court noted that the majority of the state's evidence came from a single scholar (Dr. Craig Anderson), and the state failed to acknowledge research evidence that did not support their view of the need for regulation. The court noted (p. 16),

Finally, the Court is concerned that the legislative record does not indicate that the Illinois General Assembly considered any of the evidence that showed no relationship or a negative relationship between violent video game play and increases in aggressive thoughts and behavior. The legislative record included none of the articles cited by Dr. Goldstein or Dr. Williams. It included no data whatsoever that was critical of research finding a causal link between violent video game play and aggression. These omissions further undermine defendants' claim that the legislature made "reasonable inferences" from the scientific literature based on "substantial evidence." See *Turner Broadcasting System v. FCC*, 512 U.S. 622, 665 (1994).

Testifying for the state of Illinois, Dr. Anderson claimed that playing VVGs rehearsed aggression in such a way that aggressive scripts become "chronically accessible" and "automatized." The court was not convinced by Dr. Anderson's testimony, responding, "The research underlying Dr. Anderson's testimony, however, does not support such a stark and sweeping conclusion" (p. 9). The court also noted,

Though the Court believes that many of the measures of aggression used in violent video game research are likely valid, we agree with Dr. Goldstein and Dr. Williams that neither Dr. Anderson's testimony nor his research establish a solid causal link between violent video game exposure and aggressive thinking and behavior. . . . Even if one were to accept the proposition that playing violent video games increases aggressive thoughts or behavior, there is no evidence that this effect is at all significant. Dr. Anderson provided no evidence supporting the view that playing violent video games has a lasting effect on aggressive thoughts and behavior—in other words, an effect that lingers more than a short time after the player stops playing the game. Based on general psychological theories and long-term studies of television and movie violence, Dr. Anderson hypothesizes that frequently and intensely playing violent video games will have a lasting effect on young players. Tr. 291–92. He does not, however, cite any data or studies to back up his hypothesis.

### ***Brown v. EMA***

Most famous of the video game regulation cases is that of *Brown v. EMA* (2011), which originally began as *Schwarzenegger v. EMA* under then-governor Arnold Schwarzenegger. The legislation behind this court case began life in 2005, authored by state senator and former child psychologist Leland Yee (who would go on to be imprisoned for corruption and gun trafficking). That the legislation was signed into law by Schwarzenegger, who had made a former career in violent R-rated movies popular with teens, raised some cries of hypocrisy. The law was quickly struck down by the district court, then the Ninth Circuit Court, both of which raised skepticism about whether the research evidence was sufficient to support causal connections between VVGs and aggression.

California appealed to the US Supreme Court (SCOTUS), which granted a writ of certiorari to hear the case in 2010. Given that prior court cases had been unanimous in striking down similar laws as unconstitutional, some commentators wondered if SCOTUS was willing to carve out VVGs (and potentially other violent art, such as movies or books) as lacking constitutional protections (Hilden 2010). By the time the court case was decided, Schwarzenegger's term as governor ended, and he was replaced by Jerry Brown.



## Amicus Briefs

*Brown v. EMA* (2011) exposed significant divisions in the scholarly field. Two sets of amicus briefs of scholars were filed with SCOTUS, with one supporting California with claims of evidence linking VVGs to aggression and the other opposing California, stating that evidence could not support links between VVGs and aggression. It is worth noting that, over time, the number of scholars opposing regulation through briefs to the court had risen from 8 in the Indianapolis case, to 33 in the St. Louis case, to 88 in the case of *Brown v. EMA*. [This number would rise to 230 by the time of the open letter to the APA (Consort. Scholars 2013).]

These amicus briefs would also expose deep resentment between these groups of scholars. Two of the most prolific antigame scholars (Dr. Craig Anderson, mentioned above, and Dr. Brad Bushman) joined with a lawyer (Deana Pollard-Sacks) to publish a paper claiming that they and their colleagues on the brief supporting California had more expertise than those opposing California (Pollard-Sacks et al. 2011). However, these claims would in turn be examined by several scholars uninvolved with either amicus brief (Hall et al. 2011b), who found the arguments of Pollard-Sacks et al. to be problematic, misleading, and self-aggrandizing.

Those same scholars (Hall et al. 2011a) had written a review expressing concern that the scientific community, embodied by both individual scholars and professional guilds such as the APA and AAP, were risking a credibility crisis with the courts. This credibility crisis was created by the willingness of some scholars and groups to make false and extreme claims about effects (such as comparing them with smoking and lung cancer or other important medical effects or tying video games to mass shootings and other societal acts of violence) and make dishonest claims about the consistency of the research evidence. Unfortunately, more recent documentation (Markey et al. 2015a) has found that the scientific community has not learned from the *Brown v. EMA* (2011) case.

In June 2011, SCOTUS affirmed the lower court rulings in a 7–2 decision, striking down the California legislation without holding open a door for further efforts. This ruling has set a clear standard that violent content in media cannot be regulated by the government. The applicability of this ruling became evidence after the 2012 Sandy Hook shooting, the last period in which lawmakers discussed efforts to regulate VVGs (though, it would turn out, the shooter mainly played nonviolent games such as *Dance, Dance Revolution*; see State Atty. Judic. Dist. Danbury 2013). By the time of this writing, the research evidence has even more clearly turned away from that which could support causal claims of harm owing to VVGs, with an increasing plethora of null studies (Ferguson 2015a) and some studies suggesting that VVGs might actually reduce societal crime (Cunningham et al. 2016, Markey et al. 2015b). Although *Brown v. EMA* (2011) sets up a clear precedent regarding the unconstitutionality of government regulation of violent media, new technologies, such as augmented reality or virtual reality, may stoke new interest in revising restrictive legislation (Grubb 2017).

## SEXIST VIDEO GAMES

In recent years, a parallel field has opened similar to that related to violence in video games. This field is concerned with sexism in video games. As with the concept of violence, what is meant by sexism in video games may not always be entirely clear. For instance, media critic Anita Sarkeesian (2013) has noted that female characters have historically been presented in damsel-in-distress roles in most video games, rather than as active heroic characters. In an analysis of video games through the year 2009, Williams et al. (2009) found that female characters are generally underrepresented in video games. If such criteria are used to define sexism in video games, then almost all video games are sexist, from *Pac Man* to *Grand Theft Auto*.

The definition of sexism in games could alternatively be narrowed to include those games that actively sexualize female characters. Studying the concept can still be difficult, however. For instance, the *Grand Theft Auto* series often includes sexualized images of female characters (e.g., strippers, prostitutes). However, this observation comes with two caveats. First, many parts of the game do not include such portrayals, and whether players access this material or not is often dependent upon player choices rather than an integral part of the game. Second, in the *Grand Theft Auto* series, such portrayals are often gritty and (for lack of a better word) sad and may not be particularly appealing. Thus, using a game such as *Grand Theft Auto* in an experiment may not succeed in focusing player attention on sexist content because, owing to the sandbox nature of the game (sandbox refers to games in which players can choose their own course), players may simply not access sexist material. This can be a challenge to experimental studies of sexist games.

Understanding the current state of evidence on sexist games is worthwhile. Even if regulating violence in games is considered unconstitutional, attempts to target sexist content could create a new line of legal attack, capitalizing on the *Ginsburg v. New York* (1968) or *Miller v. California* (1973) precedent for regulating obscene content. Granted, thus far the courts have been skeptical of this line of reasoning, and precedent already exists for rejecting it [e.g., *ESA, VSDA and IRMA v. Blagojevich, Madigan and Devine* (2005)].

Research designs related to sexist games look very similar to those for VVGs. In experiments, participants may be randomized to play a game that is judged to be sexist by the experimenters then rated on outcomes such as empathy toward women, attitudes toward women, or rape myth acceptance. Such experiments can be tricky given that players can easily avoid sexist content. For instance, *Grand Theft Auto* has some content that many viewers would consider sexist, but it is not integral to playing the game. So, players might begin play in a sexist area (a strip club, for instance) but leave it immediately, returning to driving, shooting, or other aspects of the game not involving sexist content.

Correlational evidence is typically survey based, involving questions related to video game play, ratings of the sexist content in those games, and outcome measures similar to those indicated above for experiments. Participants can sometimes be tracked longitudinally to look for long-term evidence of effects (e.g., Breuer et al. 2015a).

## Current Evidence

The research base on sexist video games is much smaller than that for VVGs. Yet, like VVG research, the evidence base has been mixed at best and often suffers from similar methodological flaws.

Perhaps most illustrative of this issue is a recent article by Gabbiadini et al. (2016). In an experiment contrasting the *Grand Theft Auto* series with other violent and nonviolent games, the authors found no evidence that playing *Grand Theft Auto* reduced players' empathy toward women. However, by applying a complicated three-way mediation/moderation analysis that was not preregistered (and thus subject to researcher bias), the authors implied that sexist games could decrease empathy among some male players. The complexity of this analysis often appeared to be downplayed in a subsequent press release and coverage of the article.

However, a reanalysis of this article (Ferguson & Donnellan 2017a) demonstrated that the research had significant flaws and could not be used to support the idea that even indirect effects of sexist games existed. First, the randomization of participants appeared to have fully failed, with the youngest participants all put into the *Grand Theft Auto* condition. This conflation of age with sexist content is a fatal flaw and, arguably, should be grounds for the retraction of the study, which the authors claimed was a randomized experiment. The authors' subsequent attempts to explain the failure of the randomization process were contradictory, with at least six different explanations

being offered (Ferguson & Donnellan 2017b). Reanalysis of the data suggested that the original article had made numerous mistakes, with results that capitalized on chance findings and potential researcher bias (Ferguson & Donnellan 2017a). As such, this data set provides better evidence against the belief that sexist games promote sexist beliefs in real life than for it.

Other research has, similarly, provided little real evidence for harmful effects for sexist games. As with most other areas of video game effects, studies in this realm have been mixed, with some finding evidence for effects on negative outcomes, such as benevolent (but not hostile) sexism toward women (Stermer & Burkley 2015), whereas others have not (Breuer et al. 2015a). Breuer et al. (2015a) found no evidence that playing sexist games led to later sexism during a longitudinal study. Similarly, Stermer & Burkley (2015) found no evidence that playing sexist games led to hostile sexism, most likely the behaviors the public are most concerned about. Their findings related to benevolent sexism (i.e., a protective view of women) are difficult to interpret given limitations of the scales used to measure this construct. For instance, items such as “Women have more moral values than men” may be difficult to answer for those attempting to avoid sexism. Answering positively may be considered benevolent sexism, whereas answering negatively could just as easily be considered hostile sexism. Thus, the research by both Breuer et al. (2015a) and Stermer & Burkley (2015) is best interpreted as providing evidence against the belief that sexist games result in players’ attitudes that are harmful to women.

Advocates for concerns about sexist games sometimes point to several other studies, although none of these provide compelling evidence for harmful effects as, by and large, none of them are studies that involve video games. For instance, two studies from The Ohio State University (Fox et al. 2013, 2014) suggested that the use of sexualized avatars results in higher rape myth acceptance among women. However, neither study actually involved a video game, instead making use of avatars in social situations. Further, in the first study (Fox et al. 2013), rape myth acceptance was actually lowest among women using a sexualized avatar without their own face, even compared with nonsexualized control groups. One could argue from this study that it is better to use sexualized avatars so long as they do not have one’s own face. However, both studies have potential flaws, such as rather blatant demand characteristics, a problem unfortunately common to media/body image research (Want 2014, Whyte et al. 2016). Demand characteristics occur when participants can guess the hypothesis of the study and alter their behavior accordingly. Demand characteristics tend to cause false results.

One other study (Dill et al. 2008) sometimes cited as providing evidence for sexist game effects likewise is difficult to interpret. As with the Fox studies, participants in Dill et al.’s study did not play video games but were exposed to PowerPoint slides. Randomization did not properly occur, and individuals were not randomized to conditions. Instead, classes of individuals were randomized to conditions en masse. Introductory psychology courses were used, and demand characteristics in the experiment appear as a significant confound. Despite these issues, results from the experiment were inconsistent. Outcomes related to judgements of sexual harassment were statistically significant, albeit small in effect size. However, no effects were found for rape-supportive attitudes. The finding for sexual harassment was also only for males, with females exposed to sexualized images actually lowest in their tolerance toward sexual harassment [a finding that is diametrically opposed to those in Fox et al.’s (2014) studies]. The authors also administered a survey of VVG exposure. This predictor was correlated with both outcomes initially. However, once this variable was entered into multivariate analyses with other predictors, the influence of prior VVG use became nonsignificant. This inconsistent set of results from a fairly weak design provides less-than-compelling evidence for sexist game effects.

It is clear from this relatively small set of studies that strict scrutiny would not be met for this area of research. Nonetheless, the field of sexist video games is in danger of making many of the

**Table 1 Sensationalist claims by scholars linking sexist games to sexist attitudes or behaviors in real life**

Quote	Citation
“The effect of violent video games exposure on adolescent development continues to be urgent.”	Gabbiadini et al. 2017
“This finding gives us a better idea of what exactly a combination of violence and sexism in video games does to harm male players.”	Grabmeier 2016 (Ohio State University press release for original Gabbiadini et al. 2016 study)
“It’s not just an association. You can’t say all the boys who lacked empathy played the sexist game. If they are randomly assigned, they should have equal [empathy] levels. If they differ after the game, the only things that can cause that difference is the game or a random fluke. Scientists are pretty careful to avoid random flukes.”	Gabbiadini et al. (2016) study coauthor Brad Bushman, as quoted by Sifferlin (2016) and discussing a study in which random assignment did not occur
“Here’s what sexist video games do to boys’ brains.”	Sifferlin 2016 ( <i>Time</i> headline on Gabbiadini et al. 2016 study based on Ohio State press release)
“... violent video game players are more likely than nonplayers to believe ‘rape myths’ such as the idea that sometimes women ‘deserve’ rape and to hold sexist beliefs such as the idea that men are more capable as leaders and professionals, and that women deserve less freedom than men and are subservient to men.”	Dill 2007
“If video games degrading (e.g., objectification, battery, murder) women increase rape myth acceptance, as suggested by study findings, and that acceptance decreases victim sympathy, then, based on social learning theory of rape, playing such video games may indirectly promote an increase in rape.”	Beck et al. 2012, p. 3026
“... the increasingly realistic sexually aggressive violence found in today’s video games can influence men’s attitudes toward women.”	Beck et al. 2012, p. 3027
“... women who spend time in virtual environments and playing video games featuring sexualized characters may subsequently self-objectify, and that this self-objectification may in turn lead to generalized negative attitudes toward women in the form of endorsing rape myths.”	Fox et al. 2014, p. 359
“It is impossible to ignore the role that media and computer technology play in shaping offender motivation, modus operandi, and in neutralizing guilt and providing justification for offenders’ actions.”	Helfgott 2015, p. 59
“Research has indicated that many video games are saturated with stereotypes of women and that these contents may cultivate sexism.”	Bégué et al. 2017

same mistakes as that for VVG research. Most pronounced among these is the tendency for some scholars to irresponsibly make claims that go beyond the data and exaggerate the potential harms of video games.

Ferguson & Donnellan (2017b) provided several examples of potentially problematic and exaggerated claims made by scholars related to sexist video games. These examples are replicated in **Table 1**. Echoing the concerns of Hall et al. (2011a) and Markey et al. (2015a), this sort of behavior among scholars is likely to frighten parents and policy makers in the short term but ultimately damage the credibility of the scientific field in the long term. Our field clearly needs to improve peer review and its culture to discourage scholars from taking advocacy stances and using citation bias or exaggerated claims to speak beyond the data.

## CONCLUDING STATEMENTS

The US courts, including SCOTUS, have been consistent in finding that the research linking VVGs to aggression in real life has not been convincing and has been limited by significant

methodological flaws. This is consistent with positions taken by the governments of Australia (Aust. Gov. Atty. Gen. Dep. 2010), Sweden (Swed. Media Counc. 2011), and the United Kingdom (Cumberbatch 2004). This is also consistent with the recent statement by the APA's Media Psychology and Technology division, which notes that research evidence does not link VVGs to societal violence and research evidence on milder aggression is mixed (Soc. Media Psychol. Technol. 2017). The courts have been right to take a skeptical eye to claims being made by policy makers and some scholars, as citation bias and exaggerated claims of harm have become too much the norm.

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