No. 08-1448

IN THE

Supreme Court of the United States

ARNOLD SCHWARZENEGGER, In His Official Capacity as Governor of the State of California, and EDMUND G. BROWN JR., In His Official Capacity as Attorney General of the State of California,
Petitioners,

v.

VIDEO SOFTWARE DEALERS ASSOCIATION AND ENTERTAINMENT SOFTWARE ASSOCIATION,
Respondents.

On Writ of Certiorari to the United States Court of Appeals for the Ninth Circuit

BRIEF OF *AMICUS CURIAE* OF CALIFORNIA STATE SENATOR LELAND Y. YEE, Ph.D, THE CALIFORNIA CHAPTER OF THE AMERICAN ACADEMY OF PEDIATRICS, AND THE CALIFORNIA PSYCHOLOGICAL ASSOCIATION IN SUPPORT OF PETITIONERS

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QUESTIONS PRESENTED

California Civil Code sections 1746-1746.5 prohibit the sale of violent video games to minors under 18 where a reasonable person would find that the violent content appeals to a deviant or morbid interest of minors, is patently offensive to prevailing community standards as to what is suitable for minors, and causes the games as whole to lack serious literary, artistic, political, or scientific value for minors. The respondent industry groups challenged this prohibition on its face as violating the Free Speech Clause of the First Amendment. The court of appeals affirmed the district court's judgment permanently enjoining enforcement of the prohibition.

The questions presented are:

1. Does the First Amendment bar a state from restricting the sale and rental of violent video games to minors?

2. If the First Amendment applies to violent video games that are sold to minors, and the standard of review is strict scrutiny, under *Turner Broadcasting System, Inc. v. F.C.C.*, 512 U.S. 622, 666 (1994), is the state required to demonstrate a direct causal link between violent video games and physical and psychological harm to minors before the state can prohibit the sale of the games to minors?

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INTEREST OF *AMICUS CURIAE* [1]

Senator Leland Y. Yee is the author of the California statute which is at the core of this case. He serves in the California Senate as the Assistant President pro Tempore. Prior to involvement in elected office, Senator Yee earned a doctorate degree in Developmental Psychology at the University of Hawaii and then worked in various mental health and school settings.

Prior to serving in the California Legislature, Dr. Yee spent eight years on the San Francisco Unified School District Board of Education where he worked for the improvement of the education system for school children. During his tenure in the Legislature, Senator Yee has fought for children, mental health services, working families, open government, and civil rights. In addition to authoring legislation protecting minors from the harmful effects of ultra-violent video games, Senator Yee has passed other laws geared to safeguarding children.[2] Likewise, of equal interest is the fact that Senator Yee has

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[1] Pursuant to Rule 37.6 of the Supreme Court of the United States, counsel for amicus curiae authored this brief in whole, and no counsel for a party authored this brief in whole or in part, nor did any person or entity, other than *amicus*, its members, or its counsel make an monetary contribution to the preparation or submission of this brief.

[2] Most notably, in 2004, he authored legislation protecting children from being exploited through prostitution and has been acknowledged for his work by receiving the Special Friend of Children Award by the National Association of School Psychologists.

worked to defend and guarantee the constitutional right of free speech.[3]

The California Chapter of the American Academy of Pediatrics (AAP-CA) is an organized group of over 5,000 board-certified pediatrician members of all four California regional Chapters. Their mission is to promote the health and well-being of all California's children.

The California Psychological Association is a non-profit professional association for licensed psychologists and others affiliated with the delivery of psychological services. CPA was founded in 1948 to work for the licensure of psychologists, and currently sponsors legislative proposals to increase greater access to mental health care services for the consumer and extended protection of the rights of psychologists to practice to the full extent allowed by law.

The California Chapter of the American Academy of Pediatrics, the California Psychological Association and Senator Yee are concerned about the mental health of children.

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[3] For his legislative and community efforts, Senator Yee has also been honored with the Freedom of Information Award by the California Newspaper Publishers Association. In addition, as result of his work for public access, open government and free speech rights, Californians Aware named Yee "Senator Sunshine." His legislation includes laws protecting high school and college teachers and other employees from retaliation by administrators as a result of student speech. In fact, Senator Yee authored legislation making California the first state in the nation to specifically prohibit censorship of college student press, including school newspapers and broadcast journalism.

Simply put, not only do *amicus* have a direct and vital interest in the specific statute before the Court, but additionally have a longstanding interest in safeguarding the mental well-being of children.

SUMMARY OF ARGUMENT

By any measure, California has a compelling interest in protecting the physical and psychological care of minors. When juxtaposed against the backdrop of protecting the First Amendment, this Court has held that the Constitution does not confer the protection on communication aimed at children as it does for adults. When weighing the conflicting concerns of minors this Court correctly carved a flexible standard of review and not a strict scrutiny approach. We know, of course, that a state can prohibit the sale of sexually-explicit material to minors under a "variable obscenity" or "obscenity as to minors" standard. *Ginsberg v. New York*, 390 U.S. 629 (1968). Just as it was rational for the State to conclude that that type of material was harmful to minors, the restrictions to assist parents in protecting their children's well-being is, in a practical sense, no different than the concerns supporting California's enactment of California Civil Code Sections 1746 – 1746.5.

Indeed, restricting the sale and rental of extremely violent interactive videos to minors advances the very same societal interests understood in *Ginsberg*. Contrary to the Ninth Circuit's perception, *Ginsberg* was not meant to exclusively apply to sexually explicit materials, but can and should apply to equally harmful materials depicting violence. *Video Software Dealers Association v. Schwarzenegger*, 556 F.3d 950 (9th Cir. 2009).

Needless to say, the world is much different today than it was in 1968 when *Ginsberg* was decided. What *has* remained for the past 40 years, however, is the commonsense understanding that the First Amendment does not protect materials harmful to minors.

In 2006, a Federal Trade Commission study revealed that nearly 70 percent of 13 to 16 year olds are able to successfully purchase Mature or M-rated video games. These M-rated games, labeled by the industry as such in an attempt to voluntarily "police" the distribution of harmful videos, are designed specifically for adults. The content in these types of games enable the user to murder, burn, and maim law enforcement officers, racial minorities, and members of clergy as well as sexually assault women.

In his March 29, 2006 testimony submitted to the Subcommittee on the Constitution, Civil Rights, and Property Rights of the United States Senate Judiciary Committee, Senator Yee noted that the interactive nature of video games is vastly different than passively listening to music, watching a movie, or reading a book. With interactive video games, the child becomes a part of the action which serves as a potent agent to facilitate violence, and over time learns the destructive behavior. This immersion results in a more powerful experience and potentially dangerous learned behavior in children and youth. In fact, often times it is the same technology that our military and police use to simulate and train for real life battle conditions and violent law enforcement confrontations in the community.

Moreover, there is a practical side in favor of the State's effort to regulate the sale or rental of violent video games to children. Parents can read a book,

watch a movie or listen to a CD to discern if it is appropriate for their child. These violent video games, on the other hand, can contain up to 800 hours of footage with the most atrocious content often reserved for the highest levels that can be accessed only by advanced players after hours upon hours of progressive mastery.

Just as the technology of video games improves at astonishing rates, so too does the body of research consistently demonstrate the harmful effects these violent interactive games have on minors. Hundreds of peer-reviewed studies, produced over a period of 30 years documenting the effects of screen violence (including violent video games), have now been published in the professional journals of the American Academy of Pediatrics, American Academy of Child and Adolescent Psychiatry, American Psychological Association, American Medical Association, American Academy of Family Physicians, and the American Psychiatric Association and others.

This *amicus* brief includes some of the most recent research addressing this serious concern including a meta-analysis of approximately 130 studies pertaining to the effects of playing violent video games which was published in March 2010.

These data continually and strongly suggest that participating in the playing of violent video games by children increases aggressive thought and behavior; increases antisocial behavior and delinquency; engenders poor school performance; and desensitizes the game player to violence.

Notably, extended play has been observed to depress activity in the frontal cortex of the brain which controls executive thought and function, produces intentionality and the ability to plan sequences of

action, and is the seat of self-reflection, discipline and self-control.

Also, United States Surgeon General David Satcher warned in his Report on Youth Violence (2000) of a demonstrated link between screen violence and subsequent physical aggression in children and adolescents that is stronger than the link between secondhand smoke and cancer.

Finally, new data shows that the intensity of interactive video games may be habituating and that 2 to 3 hour sessions of intense interactions with video games raise adrenaline levels in children and produces extended physiological arousal. In the medical community concern has been raised at prolonged and regularly repeated states of adrenalized arousal and hyper-vigilance involved in children watching violent video games and the possible harmful effects on still developing bodies and brains.

These studies demonstrate that playing ultra-violent games can cause automatic aggressiveness, increase aggressive thoughts and behavior, antisocial behavior, desensitization, poor school performance and reduced activity in the frontal lobes of the brain.

As a society, we understand the clear unequivocal commonsense reasons to prohibit the sale of alcohol, tobacco, firearms, driver's licenses and pornography to minors. That same reasoning applies in the foundation and enactment of California Civil Code Sections 1746 – 1746.5. Given that the First Amendment does not protect the State's restriction on the sale or rental of harmful violent video games to minors, the Court should reverse the decision of the Ninth Circuit Court of Appeals and uphold the California law as a statutory safeguard necessary in this modern day world.

ARGUMENT

I. THIS COURT HAS ACKNOWLEDGED SOCIETY'S RATIONAL AND COMPELLING INTEREST IN DISTINGUISHING AND LIMITING THE RIGHTS ENJOYED BY MINORS.

This Court has long agreed that there is an overriding justification in protecting children from conduct pervasive in society. Without question, restricting a minor's access to gambling, smoking and alcohol serve the community's interest in both protecting a minor's development as well as safeguarding against the individual and widespread collateral consequences which flow from a minor's early addiction to these vices.

As a general proposition, many constitutional rights vary in the degree to which the exercise of the right by minors is protected from government abridgment. For example, minors do not have the right to exercise the franchise. Similarly, a minor's right to have an abortion may be subject to regulations that would be rejected as unduly burdensome if they were applied to adult women. Thus, there is a recognized foundation for distinguishing between minors and adults in analyzing the constitutionality of regulations.

This foundation comports with the common sense intuition that, because children lack maturity to make wise judgments, their autonomy deserves less respect from the state than does the autonomy of adults. While paternalistic state regulations are correctly viewed as demeaning when applied to adults, there are considered appropriate, if not necessary, for children.

In *Ginsberg*, of course, this Court concluded that the State had greater authority to limit the exercise of protected freedoms because children were involved and, in relying on its precedents, recognized that "the State has an interest 'to protect the welfare of children' and to see that they are 'safeguarded from abuses' which might prevent 'their growth into free and independent well-developed men and citizens.'"

As it relates to expressive materials, there is no language from this Court suggesting that the State's interest in protecting minors from such material *is limited* to speech with sexual content. In *Erznoznik v. City of Jacksonville*, a case concerning restrictions on films depicting nudity from being shown in drive-in movies, the Court was unwilling to protect minors from brief exposure to such images.

However, the alleged harm caused by the minimal exposure to nude images a child passing by a drive-in theater might witness cannot realistically be compared to harm resulting from repeated and long term exposure to violent video games. In fact, in *FCC v. Pacifica Foundation*, 438 U.S. 726 (1978), this Court supported an FCC determination that the radio broadcast of a George Carlin monologue containing "filthy words" could be restricted precisely because it was accessible to young children.

Children, this Court has acknowledged, are different in the eyes of the law because of brain development. *Ropers v. Simmons*, 543 U.S. 551 (2005). Under the "evolving standards of decency" test, the *Ropers* Court held that it was cruel and unusual punishment to execute a person who was under the age of 18 at the time of the murder. Writing for the majority, Justice Kennedy cited a body of sociological and scientific research that found that juveniles have

a lack of maturity and sense of responsibility compared to adults. Adolescents were found to be overrepresented statistically in virtually every category of reckless behavior.

In *Ropers*, the Court noted that in recognition of the comparative immaturity and irresponsibility of juveniles, almost every state prohibited those under age 18 from voting, serving on juries, or marrying without parental consent. The studies also found that juveniles are also more vulnerable to negative influences and outside pressures, including peer pressure. They have less control, or experience with control, over their own environment. More recently, in *Graham v. Florida*, 130 S.Ct. 2011 (2010) this Court used the same rationale in finding that some life sentences without parole for minors were unconstitutional. This unequivocal commonsense approach by the Court to constitutional matters and children should be likewise applied in addressing the deepening dangers to minors from violent video games.

In sum, "[A] state or municipality can adopt more stringent controls on communicative materials available to youths than on those available to adults." *Erznoznik,* at 212.

Here, California's marginal control on the sale or rental of violent video games to minors is within the permissible advancement of a significant, if not compelling, public interest in protecting the development and mental health of minors.

California's concern for its minors in the modern violent video game world is not fanciful or without basis. Science supports the legislative public policy determination.

II. SCIENCE CONFIRMS THAT VIOLENT VIDEO GAMES ARE HARMFUL TO MINORS ALLOWING THE STATE CLEAR JUSTIFICATION IN REGULATING CHILDREN'S ACCESS TO THESE MATERIALS.

1. Overview of Scientific research confirms harmful effects to minors from violent video games.

Testimony before Congress[4] has elicited a large body of testimony by national experts, medical and mental health professional associations and others, the gist of which is that there is a significant relationship between exposure to media violence and aggressive behavior, and that repeated exposure leads to general increases in aggressiveness over time. The following testimony is typical:

> "Though there are many complexities in this realm of behavioral research, there is one clear and simple message that parents, educators, and public policy makers such as yourselves need to hear: Playing violent video games can cause increases in aggression and violence."[5]

In October 2009, the American Academy of Pediatrics (AAP) issued its Policy Statement on Media Violence.[6] The AAP, after considering the evidence

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[4] *March 21, 2000 United States Commerce Committee hearing on the "The Impact of Interactive Violence on Children".*

[5] *Testimony of Craig A. Anderson, Ph.D. Director, Center for the Study of Violence, Department of Psychology, Iowa State University; see also http://www.CraigAnderson.org*

[6] American Academy of Pediatrics, (2009) *Pediatrics,* published online on October 19, 2009; *http:www.pediatrics.org*

from the extensive research on the effects of media violence, concluded that exposure to media violence, including playing violent video games, "represents a *significant risk to the health of children and adolescents*." (emphasis added). Indeed, both before and since California's enactment of the statutes in this case, there have been hundreds of studies in the area of the effects of playing violent video games on children.

In fact, as part of this *amicus* brief, leading researchers, scholars and scientists from around the United States, Germany and Japan, who have studied the harmful effects of violent video game playing on minors, are submitting their Statement on Video Game Violence for this Court's consideration. *See* Appendix. Nearly 100 other leading researchers and scholars from around the globe have endorsed this Statement. *See* Endorsement list in Appendix. These researchers have clearly found harmful effects to minors in playing violent video games.

Repeatedly thinking about violent characters, choosing to be aggressive, enacting that aggressive choice, and being rewarded for it can be conceived as a series of learning trials influencing a variety of types of aggressive knowledge structures. *"Violent Video Games: Specific Effects of Violent Content on Aggressive Thoughts and Behavior,"* Advances in Experimental Social Psychology, Vol. 36 (2004).

The American Academy of Pediatrics also, with numerous others, concludes that exposure to violence in media, including violent video games, can contribute to aggressive behavior, desensitization to violence, nightmares and fear of being harmed. *"Media Violence,"* American Academy of Pediatrics, Volume 108, Number 5, (November 2001). The

American Academy of Pediatrics found that American children between 2 and 18 years of age spend an average of 6 hours and 32 minutes each day using media, including video games.

Predicated on years of studies and research, in August 2005, the American Psychological Association formally recognized the serious negative impact of violent video games on this nation's children and passed its Resolution "On Violence in Video Games and Interactive Media."

These prestigious associations of experts concluded not only that there are long term negative effects on children in playing these violent video games, but that the industry, the public, parents, caregivers and educational organizations had a responsibility to intercede in this epidemic.

The statute authored by Senator Yee which California enacted into law was a direct response to that alarm for state assistance given our children's unfettered access to violent video games.[7] The First

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[7] As noted in *Boys Adrift: the Five Factors Driving the Growing Epidemic of Unmotivated Boys and Underachieving Young Men,* (2005) (p.237), Sax, L., there is a significant negative correlation between academic performance and amount of time playing video games which has been documented in several studies: *In Elementary School Students*: C. Anderson, D. Gentile, and K. Buckley, "Study 3: Longitudinal study with elementary school students," in the authors' book Violent Game Effects on Children and Adolescents, (2007)(pp. 95-119); *In Eight-and Ninth Grade Students*: D. Gentile, P. Lynch, J. Ruh Linder, and D. Walsh, "The Effects of Violent Video Game Habits on Adolescent Hostility, Aggressive Behaviors, and School Performance,: *Journal of Adolescence*, volume 27, pp.5-22, (2004); and, *In High School Students*: C. Anderson, D. Gentile, and K. Buckley, " Study 2: Correlational study with high school students," in the authors' book Violent Game Effects on Children and Adolescents, (2007)(pp. 78-94).

Amendment does not preclude the state action carefully crafted in this case.

2. A Minor's Exposure To Violent Video Games - More Time Spent Playing Games With Increasing Graphic Violence

A minor's exposure to the avalance of violent video games is staggering. Video games first emerged in the 1970s, but it was during the 1990s that violent games truly came of age. In 1992, *Wolfenstein 3D,* the first major "first-person shooter" game was released. In a first-person shooter, one "sees" the video game world through the eyes of the player, rather than seeing it as if looking on from afar.[8] The player is the one fighting, killing, and being killed. Video game historian Steven Kent noted that "part of *Wolfenstein 3D* popularity sprang from its shock value. In *Wolfenstein 3D*, enemies fell and bled on the floor."[9]

With ever changing advancements in technology, the dramatic increases in speed and graphic capability have resulted in more realistic violence. As an example, in the video game *Soldier of Fortune,* the player/shooter can wound an enemy causing exposed bone and sinew.

As the video games became more graphically violent, the average time children played these games continued to climb. In the book, *Violent Video Game*

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[8] Anderson, C., Gentile, G., Buckley, K., Violent Video Game Effects On Children and Adolescents: Theory, Research, and Public Policy (2007), p. 5.

[9] Kent, S.L., The Ultimate History of Video Games (2001), page 458.

Effects on Children and Adolescents, the authors note that in the early 1990s, boys averaged 4 hours a week and girls 2 hours a week playing video games. In a few years these averages jumped to 7.1 and 4.5, respectively. In a recent survey of over 600 eighth and ninth-grade students, children averaged 9 hours per week with boys averaging 13 hours per week and girls averaging 5 hours per week.[10]

In 1993, United States Senators Joseph Lieberman and Herbert Kohl noticed the increasing violence in video games and held hearings to examine the issue. Although there was much less research on the effects of violent video games, the senators put pressure on the video game industry to create a rating system. The goal of the rating system was to provide information to parents about the content of games so that they could make informed decisions about which games their children could play.[11] However, these industry "voluntary" labels rating video games are inherently flawed and have failed due to "invalid assumptions about what is safe versus harmful."[12]

In 2003, more than 239 million computer and video games were sold in the United States; that is almost two games for every household in the United States.[13]

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[10] Gentile, Lynch, Linder, Walsh, *The Effects of Violent Video Game Habits On Adolescent Hostility, Aggressive Behaviors, and School Performance* Journal of Adolescense, 27, 5-22 (2004).

[11] Anderson, C., Gentile, G., Buckley, K., Violent Video Game Effects On Children and Adolescents: Theory, Research, and Public Policy (2007), p. 152.

[12] Anderson, C., Gentile, G., Buckley, K., Violent Video Game Effects On Children and Adolescents: Theory, Research, and Public Policy (2007), p. 156-157.

[13] Entertainment Software Association,(2004), Essential Facts About the Computer and Video Game Industry.

More than 90% of all U.S. children and adolescents play video games. The National Youth Violence Prevention Resource Center (2004) has stated that a 2001 review of the 70 top-selling video games found 49% contained serious violence.[14] In 41% of the games, violence was necessary for the protagonists to achieve their goals. There is no doubt, violent video games are among the most popular entertainment products for teens and adolescents, especially for boys.[15]

New generation violent video games contain substantial amounts of increasingly realistic portrayals of violence. Elaborate content analyses revealed that the favored narrative is a "human perpetrator engaging in repeated acts of justified violence involving weapons that results in some bloodshed to the victim."[16]

3. Scientific Studies Confirm that Violent Video Games Have Harmful Effects Minors

In a nutshell, teens and adolescents play video games frequently, and a significant portion of the games contain increasingly realistic portrayals of violence. Viewing violence increases aggression and

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[14] National Youth Violence Prevention Resource Center, (2004), *Media Violence and Statistics.*

[15] Vorder, P., Bryant, J.K., & Weber, R. (2006) Playing Video Games As Entertainment. In P. Vordere & J. Bryant (Eds., Playing Video Games—Motives, responses, and Consequences (pp. 1-7), Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

[16] Weber, R., Ritterfeld, U., Mathiak, K., (2006) Does Playing Violent Video Games Induce Aggression Empirical Evidence of a Functional Magnetic Resonance Imaging Study, *Media Psychology,* 8, 39-60.

greater exposure to media violence is strongly linked to increases in aggression.[17]

Playing a lot of violent games is unlikely to turn a normal youth with zero, one or even two other risk factors into a killer. But regardless of how many other risk factors are present in a youth's life, playing a lot of violent games is likely to increase the frequency and the seriousness of his or her physical aggression, both in the short term and over time as the youth grows up. These long term effects are a consequence of powerful observational learning and desensitization processes that neuroscientists and psychologists now understand to occur automatically in the human child.[18] Simply stated, "adolescents who expose themselves to greater amounts of video game violence were more hostile, reported getting into arguments with teachers more frequently, were more likely to be involved in physical fights, and performed more poorly in school.[19]

In a recent book, researchers once again concluded that the "active participation" in all aspects of violence: decision-making and carrying out the violent act, result in a greater effect from violent video games than a violent movie. Unlike a passive observer in movie watching, in first-person shooter

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[17] Bushman, B., Anderson, C., (2001), Media Violence and the American Public: Scientific Facts Versus Media Misinformation, *American Psychologist*, June/July 2001.

[18] Huesmann, L., (2007), The Impact of Electronic Media Violence Scientific Theory and Research, Journal of Adolescent Health, 41, S6-S13.

[19] Gentile, D., Lynch, P., Linder, J., Walsh, D., (2004) The Effects of Violent Video Game Habits on Adolescent Hostility, Aggressive Behaviors and School Performances, *Journal of Adolescence* 27, 5-22.

and third-person shooter games, you're the one who decides whether to pull the trigger or not and whether to kill or not.[20] After conducting three very different kinds of studies (experimental, a cross-sectional correlational study, and a longitudinal study) the results confirmed that violent games contribute to violent behavior.

The relationship between media violence and real-life aggression is nearly as strong as the impact of cigarette smoking and lung cancer: not everyone who smokes will get lung cancer, and not everyone who views media violence will become aggressive themselves. However, the connection is significant.[21]

In an upcoming publication concerning children and violent video games, three complementary theoretical perspectives are discussed when contemplating the effects of playing video games.[22] The *General Aggression Model* and its offshoot the *General Learning Model* describe the basic learning processes and effects involved in both short-term and long-term effects of playing various types of games. The *Five Dimensions of Video Game Effects* perspective describes different aspects of video games and video game play that influence the specific effects likely to occur. The *Risk and Resilience* perspective

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[20] Anderson, C., Gentile, D., & Buckley, K., (2007), Violent Video Game Effects on Children and Adolescents, Theory, Research, and Public Policy.

[21] Strasburger, V., Jordan, A., and Donnerstein, E., (2010), Health Effects of Media on Children and Adolescents, *Pediatrics*.

[22] Anderson, C. A., Gentile, D. A., & Dill, K. E. (in press). Prosocial, Antisocial, and Other Effects of Recreational Video Games. Chapter to appear in D. G. Singer, & J. L. Singer (Eds), *Handbook of Children and the Media, 2nd Edition,* Thousand Oaks, CA: Sage.

describes the effects of video game play—prosocial, antisocial, and other—take place within a complex set of social and biological factors, each of which contribute to development of the individual's thoughts, feelings, and behaviors.

The main findings can be succinctly summarized: playing violent video games causes an increase in the likelihood of physically aggressive behavior, aggressive thinking, aggressive affect, physiological arousal, and desensitization/low empathy. It also decreases helpful or prosocial behavior. With the exception of physiological arousal (for which there are no cross-sectional or longitudinal studies), all of the outcome variables showed the same effects in experimental, cross-sectional, and longitudinal studies. The main effects occurred for both males and females, for participants from low-violence collectivistic type Eastern countries (*e.g.*, Japan), and from high-violence individualistic type Western countries (*e.g.*, USA, Europe).

Research also indicates that the aggression carried out by video game characters is usually portrayed as justified, retributional, necessary to complete the game, rewarded and followed by unrealistic consequences (Dietz, 1998; Dill et al., 2005; Haninger, Ryan, & Thompson, 2004; Lachlan, Smith, & Tamborini, 2005; Robinson et al., 2008; S. Smith, L., Lachlan, & Tamborini, 2003; S. L. Smith et al., 2004). The overall level and realism of violent depictions, use of guns and likelihood of being killed by a gun has risen substantially over time; additionally, female victims and police officer victims rose significantly across time (Miller, 2009).

Many researchers have begun studying the concept of video game "addiction" and most researchers

studying the pathological use of computer or video games have defined it similarly to how pathological gambling is defined – based on damage to family, social, school, occupational, and psychological functioning. The pace of studies has increased greatly in the past decade. In 2007, the American Medical Association released a report on the "addictive potential" of video games (AMA, 2007). The report concluded with a recommendation that the "AMA strongly encourage the consideration and inclusion of 'Internet/video game addiction' as a formal diagnostic disorder in the upcoming revision of the *Diagnostic and Statistical Manual of Mental Disorders*-IV" (p. 7).

The most comprehensive study to date in the US used a national sample of over 1,100 youth aged 8 to 18, in which 8.5% of video game players were classified as pathological (Gentile, 2009) demonstrates that it is not a trivial number of people who are suffering damage to their lives because of their game play.

School Performance

Several studies have documented a negative relation between amount of time playing video games and school performance among children, adolescents, and college students (Anderson & Dill, 2000; Anderson *et al*., 2007; Chan & Rabinowitz, 2006; Chiu, Lee, & Huang, 2004; Cordes & Miller, 2000; Gentile, 2009; Gentile, Lynch, Linder, & Walsh, 2004; Harris & Williams, 1985; Roberts, Foehr, Rideout, & Brodie, 1999; Sharif & Sargent, 2006). The displacement hypothesis, that games displace time on other activities, is the most typical explanation for this relation. It could be argued, however, that the relation might be due to the children themselves, rather than to game time. It is highly

likely that children who perform more poorly at school are likely to spend more time playing games, where they may feel a sense of mastery that eludes them at school. Nevertheless, each hour a child spends playing entertainment games (in contrast to educational games, which have been demonstrated to have educational benefits) is an hour not spent on homework, reading, exploring, creating, or other things that might have more educational benefit. Some evidence has been found to support the displacement hypothesis. In one nationally representative US sample of 1,491 youth between 10 and 19, gamers spent 30% less time reading and 34% less time doing homework (Cummings & Vandewater, 2007). Therefore, even if poor school performance tends to cause increases in time playing video games, large amounts of video game play are likely to further hurt their school performance.

In short, the recent explosion in research on video game effects has greatly improved our understanding of how this medium affects its consumers. Several conclusions can be drawn without any reasonable doubt. First, there are many different effects of playing video games on the player. Some of these are short term, whereas others are long term. Second, the specific effects depend on a host of factors, including the content, structure, and context of the game. Third, the same game can have multiple effects on the same person, some of which may be generally beneficial whereas others may be detrimental. Fourth, playing violent video games is a causal risk factor for a host of detrimental effects in both the short and the long term, including increasing the likelihood of physically aggressive behavior.

Negative Effects On The Brain

Studies have shown evidence that exposure to violent video games reduces the player's use of some brain areas involved in higher order thought and impulse control.[23]

In addition to behavioral-psychological theories explaining the relationship between media violence exposure and aggressive behavior, recently attention has turned to neuro-psychological theories. These theories attempt to identify areas of brain functioning that may be affected by media violence exposure and that may underlie aggressive behavior.[24]

As recently as June 2010, another study of violent video game effects on frontal lobe activity was published wherein it was concluded that playing a violent video game for only 30 minutes immediately produced lower activity levels (compared to a nonviolent video game) in prefrontal regions thought to be involved in cognitive inhibition.[25] This study shows

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[23] Some researchers contend that video games may affect the brain in children in much the same way that medications like Ritalin and Adderall and Concerta do. Sax, L. (2007), Boys Adrift: The Five Factors Driving the Growing Epidemic of Unmotivated Boys and Underachieving Young Men, p.91. In *Everything Bad is Good For You*, (2005), it was noted that research on video games suggest that these games stimulate "a part of the brain called the nucleus accumbens" in much the same way that crack cocaine affects the same area." (pp. 34 and 39).

[24] Kronenberger, W., Mathews, V., Dunn, D., Wang, Y., Wood, E., Giauque, A., Larsen, J., Remsch, M., Lowe, M., Li, T., (2005) Media Violence Exposure and Executive Functioning in Aggressive and Contol Adolescents, Journal of Clinical Psychology, Vol. 61(6), pp. 725-737.

[25] Hummer, T., Wang, Y., Kronenberger, W., Mosier, K., Kalin, A., Dunn, D., Mathews., V., (2010) Short-term Violent Video

that playing a violent video game for 30 minutes causes a decrease in brain activity in a region of the frontal lobe that is known to be important in the ability to inhibit impulsive behavior. The study also suggested that that violent games may also impair emotional functioning when it noted that "an impaired role of DLPFC (dorsolateral prefrontal cortex) in inhibition, therefore, may yield impaired emotional functioning following violent video game play."

Other studies of the neurological underpinnings of aggressive behavior, for example, indicate that a neural circuit that includes parts of the frontal cortex, amygdale and temporal lobes is important in emotional regulation and violence. Research strongly suggests an underactivity of brain inhibitory mechanisms in the frontal cortex and striatum, coupled with hyperarousal of the amygdala and temporal lobe regions, is responsible for chronic, explosive and/or severe aggressive behavior.

Research clearly indicates that areas in the frontal lobe and amygdale may be activated by viewing violent television and playing violent video games.

With the use of functional magnetic resonance imaging (fMRI), research has shown a direct alteration in brain functioning from exposure to media violence.[26] Researchers found that teenagers who

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Game Play by Adolescents Alters Prefrontal Activity During Cognitive Inhibition, *Media Psychology,* 13:136-154.

[26] Mathews, V., Kronenberger, W., Dunn, D., Wang, Y., Lurito, J., Lowe, M., (2005) Media Violence Exposure and Frontal Lobe Activation Measured by Functional Magnetic Resonance Imaging in Aggressive and Nonaggressive Adolescents, Journal of Computer Assistedomography, Volume 29, Number 3, May/June 2005.

played a violent videogame exhibited increased activity in a part of the brain that governs emotional arousal and the same teenagers showed decreased activity in the parts of the brain involved in focus, inhibition and concentration.

Youth who play a lot of violent video games (but who have not been diagnosed with a behavioral disorder) show a similar pattern of brain activity when doing complex executive control tasks as youth who have been diagnosed with some type of aggression-related behavior disorder. This pattern is very different from control-group youth who do not play a lot of violent games (and who have not been diagnosed with a behavioral disorder).

Youth who play a lot of violent video games show a deficit in a specific type of executive control known as proactive control. Proactive control is seen as necessary to inhibit impulsive reactions. This difference shows up in the brain wave patterns as well as in behavioral reactions.[27]

Additionally, video game violence exposure and aggressive behavior to brain processes have been linked reflecting a desensitization in the aversive motivational system.[28] Repeated exposure to media violence reduces its psychological impact and eventually produced aggressive approach-related motiva-

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[27] Bailey, K., West, R., Anderson, C., (2009), A Negative Association Between Video Game Experience and Proactive Cognitive Control, *Psychophysiology*, Society for Psychophysiological Research, pp. 1-9.

[28] Bartholow, B., Bushman, B. Sestir, M., (2006), Chronic Violent Video Game Exposure and Desensitization to Violence: Behavioral and Event-Related Brain Potential Data, *Journal of Experimental Social Psychology*, 42, 532-539.

tional states theoretically leading to a stable increase in aggression.

Finally, in a functional magnetic resonance imaging study on players of the first-shooter game *Tactical Ops: Assault on Terror,* the violent portions of a video game activated the regions in the brain known to be active in fight-or-flight situations. In other words, the brain reacted to the fictional violence of a video game in much the same way as it reacts to real violence.[29]

In short, neuroscience research supports a critical link between perpetration of virtual violence with reduced activation of a neural mechanism known to be important for self-control and for evaluation of affect. These findings strongly suggest that focusing on the activity of prefrontal cortical structures important for executive control could provide important mediational links in the relationship between exposure to violent media and increased aggression.

4. Recent Studies and Researchers Continue to Find Harmful Effects To Minors From Playing Violent Video Games

In March 2010, leading researchers in the area of media violence from the United State and Japan worked together to conduct a meta-analytic procedure testing the effects of violent games on aggressive behavior, aggressive cognition, aggressive affect, physiological arousal, empathy/desensitization, and

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[29] Weber, R., Ritterfeld, U., Mathiak, K., (2006), Does Playing Violent Video Games Induce Aggression? Emperical Evidence of a Functional Magnetic Resonance Imaging Study, Media Psychology, 8, 39-60.

prosocial behavior.[30] In conducting their meta-analysis on the effects of video game violence, these researchers retrieved over 130 research reports which entailed scientific tests on over 130,000 participants. This study has been described as "probably about as exhaustive a sampling of the pre-2009 research literature as one could obtain and far more than that used in any other review of violent video game effects."[31]

This extensive meta-analysis of the effects of violent video games confirms what many theories predicted and what prior research about other violent mass media found: that violent video games stimulate aggression in the players in the short run and increase the risk for aggression behaviors by the players later in life. The effects occur for males and females and for children growing up in Eastern and Western cultures. Also, the effects were stronger for more violent than less violent outcomes.

From their overarching analysis, these researchers concluded that the scientific debate should move beyond the simple question whether violent video game play is a causal risk factor for behavior because: "scientific literature has effectively and clearly shown the answer to be 'yes.'"

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[30] Anderson, C., Ihori, N., Bushman, B., Rothstein, H., Shibuya, A., Swing ,E. Sakamoto, A., Saleem, M., (2010) , Violent Video Game Effects on Aggression, Empathy, and Prosocial Behavior in Eastern and Western Countries: A Meta-Analytic Review, *Psychological Bulletin*, March.

[31] Huesmann, L., (2010) Nailing the Coffin Shut on Doubts That Violent Video Games Stimulate Aggression Comment on Anderson, et al. ,*Psychological Bulletin*, Vol. 136, No-2,179-181.

Regardless of research method, (experimental, correlational, or longitudinal) and regardless of cultures tested (East and West) the same effects are proven: exposure to violent video games is a causal risk factor for aggressive thoughts and behavior, and decreased empathy and prosocial behavior in youths. In fact, Dr. Anderson, one of three 2010 American Psychological Association Distinguished Scientist Lecturers, has stated that this recent meta-analysis on violent video games may be his last because of its "definitive findings." [32]

5. The Shortcomings of Purported "Research" Contesting the Scientific Studies Showing the Harmful Effects to Minors Playing Violent Video Games

The Video Software Dealers Association and the Entertainment Software Association will likely contest the science showing the harmful effects of violent video games on minors. Apart from the self-serving motive for such opposition, one need only consider a professional organization that clearly does not doubt the serious aggression-teaching abilities of violent video games—the United States Department of Defense. Both the U.S. Army and U.S. Marines have their own video games used to train soldiers as tactical "first-person shooters" leading teams in "close-quarters urban combat."[33] Many of these military combat training videos, such as *Full Spectrum*

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[32] Nauert, R., Senior News Editor, (March 2, 2010) Violent Video Games Can Make Kids Aggressive, *Psych Central*.

[33] Anderson, C., Gentile, G., Buckley, K., Violent Video Game Effects On Children and Adolescents: Theory, Research, and Public Policy (2007), p. 153-154.

Warrior and *First To Fight* have been adapted and placed on the commercial market for minors to play.

Also, alleged "scientific" studies may be suggested by Respondents to argue that there are no harmful effects from violent video game playing. These "findings" can be explained by small sample size, poor test conditions and chance. The simple response to these studies is the recent and clear findings of the meta-analysis comprising 130 studies of the effects of violent video games showing the like between violent video games and aggression.[34]

CONCLUSION

The scientific debate about whether exposure to media violence causes increases in aggressive behavior is over. All major types of research methodologies have been used, including experiments, cross-sectional correlational studies, longitudinal studies, intervention studies and meta-analyses. For each category exposure to media violence was significantly associated with increased aggressions or violence.[35] Likewise, the harmful effects on minors from playing violent video games are documented and not seriously contested.

Much research over several decades documents how witnessing violence and aggression leads to a range of negative outcomes for children. Negative outcomes result both from witnessing real violence

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[34] Anderson, C., (2010), Violent Video Games and Other Media Violence; *Pediatrics For Parents, March/April,* V. 26, Numbers 1 & 2

[35] Anderson, Gentile, Buckley, Violent Video Game Effects On Children and Adolescents: Theory, Research, and Public Policy (2007), page 04.

(*e.g.*, Osofsky, 1995) as well as from viewing media violence (Anderson *et al*., 2003; Gentile, 2003). The most recent comprehensive review of the media violence literature documents the ". . . unequivocal evidence that media violence increases the likelihood of aggressive and violent behavior in both immediate and long-term contexts" (Anderson *et al*., 2003, p. 81).

In the end, we need only to circle back from this rising ocean of research and return to simple commonsense. Society has a direct, rational and compelling reason in marginally restricting a minor's access to violent video games. Indeed, under the statute any parent remains completely free to provide any video game for their children.

Although this Court has never directly dealt with this precise issue, the Court's clear and understandable precedent in protecting children establishes that the lower court should be reversed and given the scientific findings by the community of mental health professions, the California statute upheld.

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APPENDIX

Statement on Video Game Violence

"Both the American Psychological Association (APA, 2005) and the American Academy of Pediatrics (AAP, 2009) have issued formal statements stating that scientific research on violent video games clearly shows that such games are causally related to later aggressive behavior in children and adolescents. Extensive research has been conducted over many years using all three major types of research designs (experimental, cross-sectional, and longitudinal). Numerous original empirical research studies have been conducted on children and adolescents. Overall, the research data conclude that exposure to violent video games causes an increase in the likelihood of aggressive behavior. The effects are both immediate and long term. Violent video games have measurable and statistically significant effects on both males and females. Theoretically important effects of violent video games have been confirmed by many empirical studies. The effects have been replicated by researchers in different settings and in numerous countries. The psychological processes underlying such effects are well understood and include: imitation, observational learning, priming of cognitive, emotional and behavioral scripts, physiological arousal, and emotional desensitization. These are general processes that underlie all types of social behavior, not just aggression and violence; they have been confirmed by countless studies outside of the media violence domain. In addition to causing an increase in the likelihood of aggressive behavior, violent video games have also been found to increase aggressive thinking, aggressive feelings, physiological desensitization to violence, and to decrease pro-social behavior."

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