

# KEY FACTS

Fall 2002

## Children and Video Games

Introduced in 1972, video games are played on several types of platforms: home consoles used with TV sets, computers, computers with access to the Internet, coin-operated arcade machines, and handheld devices including game systems, cell phones and Palm Pilots. Computer and video game sales in the United States are a \$6.35 billion industry, with estimates of \$16.9 billion by 2003.<sup>1</sup>

### Prevalence of Video Games

- According to a national survey conducted by the National Institute on Media and the Family (NIMF), 92% of children and adolescents ages 2-17 play video games.<sup>2</sup>
- More than two-thirds of all children ages 2-18 live in a home with a video game system.<sup>3</sup>
- A third of all children 2-18 have video game players in their bedrooms.<sup>4</sup> By comparison, half have a TV, 29% have a VCR and 16% have a computer in their room.<sup>5</sup>

### Amount of Time Spent Playing Video Games

- The major studies indicate that children ages 2-18 spend, on average, between 20-33 minutes a day playing video games.<sup>6</sup>
- The amount of time spent playing video games varies by age. On average, 2-7 year-olds spend 8 minutes a day, 8-13 year-olds spend 32 minutes a day, and 14-18 year-olds spend 20 minutes a day playing video games.<sup>7</sup>
- On any given day, 30% of all kids 2-18 will play a video game; those who *do* play spend an average of just over an hour (1:04) playing.<sup>8</sup>
- Boys spend substantially more time playing video games than do girls, regardless of age.<sup>9</sup> On any given day, 44% of boys report playing video games compared to 17% of girls.<sup>10</sup>

- “Tween” boys spend the most time playing video games. Between ages 8-13, boys’ game playing peaks at 47 minutes a day, on average. More than half (59%) of this age group report playing video games the previous day, and more than one-fifth (21%) play games more than an hour a day (compared to about 8% of all children ages 2 to 18).<sup>11</sup>
- Video game playing, even more than television watching, is an activity that kids tend to do alone: among 7th through 12th-graders, more than half (55%) play video games by themselves, about one-third (36%) play with siblings or peers, and only 2% play with their parents.<sup>12</sup>
- Ethnicity and income level are indicators of video game playing, particularly among older kids ages 8-18: African American and Hispanic youth play more video games than White youth, and kids from low and middle income communities spend more time playing video games than kids from high income areas.<sup>13</sup>

### Video Game Preferences

- Among 2-18 year olds, the three genres that dominate kids’ video game playing are action or combat (42%), sports (41%), and adventure (36%).<sup>14</sup>
- Among kids ages 8-18, boys are much more likely than girls to play action (51% v. 31%) and simulation (12% v. 3%) video games.<sup>15</sup>
- Some research has indicated that girls who like games with violent themes prefer fantasy or cartoon violence, whereas boys prefer realistic, human violence. General entertainment games in which the main action does not focus on fighting or destruction become more popular as children get older, especially among girls.<sup>16</sup>

### Video Game Content

*In 2001, the children’s advocacy group Children Now conducted a content analysis of a sample of*

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that year's top-selling video games.<sup>17</sup> According to their study:

#### *Violence*

- Nine out of ten (89%) of the top-selling video games contained violence; about half of all games contained serious violence, and 17% featured violence as the primary focus of the game.<sup>18</sup>

#### *Gender*

- Two-thirds of the characters were male (64%), and the other one-third were either nonhuman (19%) or female (17%). Males dominated as player-controlled characters (73%), and even nonhumans (15%) outnumbered female characters (12%) for players to control.<sup>19</sup>

#### *Ethnicity*

- About half of all human characters were White (56%); one-fifth were African American (22%), about one-tenth were Asian/Pacific Islanders (9%), and fewer were Latinos (2%), Native American and multiracial characters (.2% each).<sup>20</sup> Nearly 9 out of 10 heroes were White (87%). In the seven top-selling games the group studied that were specifically designed for children, all of the human characters were White.<sup>21</sup>

### **Effects of Video Games**

#### *Educational impact*

- Some researchers who study electronic gaming believe that it may provide the "training wheels" for computer literacy.<sup>22</sup> The design features of the most popular interactive games have been found to improve skills such as spatial visualization and visual attention.<sup>23</sup> There are indications that practicing spatial skills with video games can reduce differences in these skills among boys and girls.<sup>24</sup>
- According to one study, one in four kids (26%) acknowledges that their video game playing sometimes interferes with homework and academic performance.<sup>25</sup>

#### *Violence*

- Since the early 1980s, a body of research has been accumulating on the effects of playing violent electronic games. Early research findings on the first generation video games may have little relevance to understanding the effects of the newer, more realistic and graphic games.
- A number of studies have been conducted to determine the effects of playing violent games.

According to one researcher who testified before the U.S. Senate, playing violent video games has been found to account for a 13% to 22% increase in adolescents' violent behavior.<sup>26</sup>

One study conducted by researchers at Stanford University School of Medicine found that reducing

time spent watching TV and playing video games to under seven hours a week decreased verbal aggression by 50% and physical aggression by 40% among 3rd and 4th-graders.<sup>27</sup>

Another study found that adolescents who, according to a standard psychological profile, are not "naturally aggressive," but who spend a lot of time playing violent video games were almost ten times more likely to be involved in fights than other "non-aggressive" adolescents who do not play violent games as much (38% v. 4%).<sup>28</sup>

- One way to look for trends in the scientific research is through a "meta-analysis," a statistical procedure used to combine the results of different research studies conducted on the same topic. A meta-analysis of 35 research studies that included over 4000 participants, about half (46%) of whom were under age 18, found that playing violent video games significantly increases physiological arousal and feelings of anger or hostility, and significantly decreases prosocial helping behavior.<sup>29</sup>
- Other perspectives in the violence debate are based on personal experience and observations rather than scientific research. Two diametrically opposed viewpoints capture the range of positions expressed on this issue. One advocates banning violent video games for children because he believes they teach kids to kill, while the other defends violent game play as essential for children's healthy development. An expert on the psychology of killing, Retired Lt. Col. Dave Grossman contends that the skills practiced while playing violent video games are based on the same techniques developed by the military to train soldiers to kill.<sup>30</sup> Comic book author Gerard Jones argues that for most children playing violent video games is harmless and allows them to explore their feelings, master their rage, and empower themselves against life's challenges.<sup>31</sup>
- Some experts believe that certain features of newer gaming technology may increase the risk that children will be negatively affected. As players master a game, the content changes with increasing levels of difficulty and may depict more violence. Technologically savvy players can customize certain computer games by inserting images of real people and places to enhance the realism. An example that brought public attention to violent game play was a version of Doom created by the Columbine shooters to resemble the actual shooting at Columbine High.<sup>32</sup>
- The American Academy of Pediatrics recommends that parents limit children's screen time -- TV, video, computer and video games -- to no more than two hours a day, keeping children's bedrooms "media free," and keeping violent video games out of homes where they may be observed or played by young children.<sup>33</sup>

## Video Game Ratings

Ratings systems have been developed to help parents identify the age-appropriateness of video game content.

- Top-selling video games played on home consoles and personal computers are rated by the Entertainment Software Rating Board (ESRB), as are games played on the Internet. The ESRB rating is age-based, with content descriptors for violence, blood and gore, language, lyrics, hate speech, nudity, sexual and suggestive themes, gambling, tobacco, and alcohol and drug use. The ESRB also has ratings for “edutainment” and informational games.<sup>34</sup>

ESRB Video and Computer Game Ratings
<b>Early Childhood (EC)</b> Suitable for ages 3 and older. Does not contain content that parents would find inappropriate.
<b>Everyone (E)</b> Suitable for ages 6 and older. May contain minimal violence, some comic mischief (for example, slapstick comedy), or some crude language.
<b>Teen (T)</b> Suitable for ages 13 and older. May contain violence, mild or strong language, and/or suggestive themes.
<b>Mature (M)</b> Suitable for ages 17 and older. May contain more intense violence or language than Teen category, and may include mature sexual themes.
<b>Adults Only (AO)</b> Suitable only for adults. May contain graphic sex and/or violence. Not intended to be sold or rented to anyone under the age of 18.

\*From Entertainment Software Rating Board, ESRB Video & Computer Game Ratings. [http://www.esrb.org/esrb\\_about.asp](http://www.esrb.org/esrb_about.asp)

- Internet gaming websites may also display an Internet Content Advisory Association (ICRA) label that indicates violence, sex, nudity, language, chat, gambling, tobacco, alcohol or drug use, discrimination or harm against people, and other material that might be detrimental to young people. ICRA is a voluntary self-rating system. Formerly the Recreational Software Advisory Council on the Internet (RSACi), this system allows blocking software or browsers to restrict access to sites it has rated.<sup>35</sup>

- Arcade games are labeled with a Parental Advisory Disclosure Message that features a color-coded “traffic light” system to alert parents to violence, language or sexual content. Green is suitable for all ages; yellow has mild animated or life-like violence; and red contains strong animated or life-like violence which results in bloodshed, serious injury or death to characters.<sup>36</sup>
- According to the Interactive Digital Software Association, nine out of ten of the top-selling video and computer games are rated “E”, appropriate for everyone ages six and older.<sup>37</sup>
- Two different samples of top-selling E-rated video games for home consoles found that violent play may be included and not labeled with appropriate content descriptors.<sup>38</sup> One sample found that more than three-quarters (79%) of E-rated games contain violence, almost half (49%) feature characters who use weapons, and more than one-quarter (28%) frequently use images of harm or injury.<sup>39</sup> Another content analysis of top-selling E-rated games revealed that two-thirds (64%) involved intentional violence, half (49%) depicted deaths from violence, and that players frequently (60%) are rewarded for injuring characters in order to advance in the game.<sup>40</sup> Both studies noted that games frequently did not contain an ESRB content rating for violence.<sup>41</sup>
- A study published in the journal *Pediatrics* found that a panel of parents often disagreed with ESRB-assigned ratings for video games. The parents found one-third (33%) of E-rated games to be either questionable or inappropriate for 3-7 year-olds and 13% unsuitable for 8-12 year-olds. More than half (57%) of T-rated games were deemed by parents to be objectionable for 13-17 year-olds.<sup>42</sup>

- 1) Interactive Digital Software Association, *Quick Facts about Video Game Consoles and Software* (2001), <<http://www.idsa.com/consolefacts.html>> (12 September 2002).
- 2) National Institute on Media and the Family, *Sixth Annual Video and Computer Report Card* (2001), <<http://www.mediaandthefamily.org/research/vgrc/2001-2.shtml>> (12 September 2002).
- 3) The Kaiser Family Foundation, *Kids & Media @ the New Millennium: A Comprehensive National Analysis of Children's Media Use* (Menlo Park, CA: Kaiser Family Foundation, 1999), 9; The Annenberg Public Policy Center, *Media in the Home: The Fifth Annual Survey of Parents and Children* (Philadelphia: Annenberg Public Policy Center, 2000), 9. Age categories were slightly different for the two samples; Kaiser found that 70% of children ages 2-18 lived in homes with at least one video game player, whereas Annenberg found that 68% of families with children ages 2-17 owned video game systems.
- 4) Kaiser Family Foundation, 13; Annenberg Public Policy Center, 17; Interactive Digital Software Association.
- 5) Kaiser Family Foundation, 11.
- 6) Conducted in Spring 2000, Annenberg Public Policy Center's survey of more than 1200 parents of 2-17 year-olds found that kids spend an average of about 33 minutes a day playing video games (19). Conducted in Fall 1998, Kaiser Family Foundation's survey of more than 2,000 8-18 year-olds and 1,000 parents of 2-7 year-olds found that children spend an average of about 20 minutes a day playing video games (42).
- 7) Kaiser Family Foundation, 20.
- 8) *Ibid.*, 42.
- 9) *Ibid.*, 20; Annenberg Public Policy Center, 22.
- 10) Kaiser Family Foundation, 42.
- 11) *Ibid.*
- 12) *Ibid.*, 64.
- 13) *Ibid.*, 22-23, 41-43. The same pattern was found based on family income levels, Annenberg Public Policy Center, 20.
- 14) Kaiser Family Foundation, 50.
- 15) *Ibid.*, 50.
- 16) Debra Buchman and Jeanne Funk, "Video and Computer Games in the '90s: Children's Time Commitment and Game Preferences," *Children Today* 24:1 (1996): 12-15,31.
- 17) Children Now, *Fair Play: Violence, Gender and Race in Video Games* (Oakland, CA: Children Now, 2001).
- 18) *Ibid.*, 6.
- 19) *Ibid.*, 12-14.
- 20) These numbers do not add up to 100% because ethnic origin was not identifiable for 11% of the characters.
- 21) *Ibid.*, 20-22.
- 22) Kaveri Subrahmanyam, Robert Kraut, Patricia Greenfield, and Elisheva Gross, "The Impact of Home Computer Use on Children's Activities and Development," *The Future of Children: Children and Computer Technology* 10:2 (The David and Lucile Packard Foundation, Fall/Winter 2000): 123-144.
- 23) Kaveri Subrahmanyam, Robert Kraut, Patricia Greenfield, Elisheva Gross, "New Forms of Electronic Media," in *Handbook of Children and the Family*, eds. D. Singer and J. Singer (Thousand Oaks, CA: Sage, 2001), 73-99.
- 24) Kaveri Subrahmanyam and Patricia Greenfield, "Effect of Video Game Practice of Spatial Skills in Girls and Boys," *Journal of Applied Development Psychology* 15:1(1994): 13-32.
- 25) Paul Lynch et al., "The Effects of Violent Video Game Habits on Adolescent Aggressive Attitudes and Behaviors," paper presented at the Biennial Conference of the Society for Research in Children Development, Minneapolis, April 2001; National Institute on Media and the Family, 2001.
- 26) Craig Anderson, "Violent Video Games Increase Aggression and Violence," U.S. Senate Testimony, Hearing on *The Impact of Interactive Violence on Children*, Committee on Commerce, Science and Transportation, 106th Congress, 1st Session, March 21, 2000, <<http://www.psychology.iastate.edu/faculty/caa/abstracts/2000-2004/00Senate.html>> (12 September 2002).
- 27) Tom Robinson et al., "Effects of Reducing Children's Television and Video Game Use on Aggressive Behavior," *Archives of Pediatric Adolescent Medicine* 155:1 (2001): 17-23.
- 28) Lynch et al.
- 29) Craig Anderson and Brad Bushman, "Effects of Violent Video Games on Aggressive Behavior, Aggressive Cognition, Aggressive Affect, Physiological Arousal, and Prosocial Behavior: A Meta-Analytic Review of the Scientific Literature," *Psychological Science* 12:5 (September 2001): 353-359. A further meta-analysis conducted on a subsample of these studies that comprised children age 18 and under supported these findings; see Craig Anderson, "Video Games and Aggression," in *Kids' Stuff: Sex, Violence, Vulgarity and Hate in the Popular Culture*, eds. D. Ravitch and J. Viteritti (Baltimore, Md: Johns Hopkins University Press, in press).
- 30) Lt. Col. Dave Grossman and Gloria DeGaetano, *Stop Teaching Our Kids to Kill* (NY: Crown, 1999).
- 31) Gerald Jones, *Killing Monsters* (NY: Basic Books, 2002).
- 32) Subrahmanyam et al., 2001, 85.
- 33) American Academy of Pediatrics, *Media Violence Policy Statement* (November, 2001), <<http://www.aap.org/policy/re0109.html>> (12 September 2002).
- 34) Entertainment Software Rating Board, *ESRB Video & Computer Game Ratings*; <[http://www.esrb.org/esrb\\_about.asp](http://www.esrb.org/esrb_about.asp)> (12 September 2002).
- 35) Internet Content Rating Association, <<http://www.icra.org>> (12 September 2002).
- 36) American Amusement Machine Association, *Guide to Coin-Operated Video Game*, <<http://www.coin-op.org/pas4.htm>> (12 September 2002).
- 37) Interactive Digital Software Association, *Video Games & Youth Violence: Examining the Facts* (2001), <<http://www.idsa.com/pressroom.html>> (12 September 2002).
- 38) Children Now, 9; Kimberly Thompson and Kevin Haninger, "Violence in E-Rated Video Games," *JAMA* 286:5 (August 2001): 591-598.
- 39) Children Now, 9.
- 40) Thompson and Haninger.
- 41) Children Now, 9; Thompson and Haninger.
- 42) David Walsh and Douglas Gentile, "A Validity Test of Movie, Television, and Video-Game Ratings," *Pediatrics* 107 (2001): 1302-1308.

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