ERIC Clearinghouse on Elementary and Early Childhood Education

University of Illinois • 51 Gerty Drive • Champaign, IL 61820-7469
(217) 333-1386 • (800) 583-4135 • ericeece@uiuc.edu

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Video Games: Research, Ratings, Recommendations

Bernard Cesarone

Video games have remained popular since their introduction in the United States in the 1970s. A trend toward increased violence and realism in electronic games in the 1980s and 1990s has prompted concern from parents and educators. This Digest reviews research on the demographics and effects of video game playing, discusses game rating systems, and offers recommendations for parents. For the purpose of this Digest, video games, or electronic games, include computer games, games on console systems, games in arcades, "edutainment" games, and virtual reality games.

Time Spent Playing Electronic Games

Buchman and Funk (1996) investigated the video game-playing habits of 900 children in grades 4 through 8. According to children's reports, their game playing at home steadily decreased from grades 4 through 8. For example, about 90% of fourth-graders reported playing 1 or more hours weekly compared to 75% of eighth-graders. For arcades, the trend was reversed. Some weekly arcade playing was reported by 50% of fourth-graders and 75% of eighth-graders. Consistent with earlier research, boys reported playing more video games per week than girls.

Two studies sought to determine 11- to 16-year-olds' game-playing habits. In a study by Fisher (1995), 25% of adolescents said they visited arcades at least once a week, and 18% at least three times per week. In a similar study by Phillips et al. (1995), 77% of children reported sometimes playing video games at home, and 24% reported playing every day. More than 60% of children reported that they played longer than they intended to play.

Gender Similarities and Differences

Girls' and boys' game-playing habits have been addressed by many studies, which have consistently found that boys play video games more than girls (Buchman & Funk, 1996).

To assess girls' and boys' game preferences, Funk and Buchman classified games into six content categories: (1) General Entertainment, (2) Educational, (3) Fantasy Violence, (4) Human Violence, (5) Nonviolent Sports, and (6) Sports Violence. Funk and Buchman (1994) found that sixth-grade girls and boys did not differ in the proportion of violent games they chose as favorites, but that boys were more likely than girls to choose sports violence games as favorites, and girls were more likely than boys to chose fantasy violence games as favorites. Buchman and Funk (1996) found that girls were more likely than boys to list educational games as favorites, but that for both boys and girls, there was a decreasing preference for educational games from fourth through eighth grade. Violent games remained consistently popular across grades for both boys and girls.

Funk and Buchman (1996a) studied fourth- and fifth-graders' responses to gender-related statements about video games. Most children agreed that "it's OK" for boys and girls to play video games. Among fifth-graders, boys were more likely than girls to agree that "it's OK" for boys to play video games "a lot," and that popular boys play video games. More girls than boys thought it possible for a girl to be popular and play a lot of video games. The researchers believe that girls perceived themselves to have peer approval for moderate amounts of game playing, suggesting that the socialization of boys and girls is becoming more similar.

Effects of Playing Violent Games

Calvert and Tan (1994) compared the effects of playing versus observing violent video games on young adults' arousal levels, hostile feelings, and aggressive thoughts. Results indicated that college students who had played a violent virtual reality game had a higher heart rate, reported more dizziness and nausea, and exhibited more aggressive thoughts in a posttest than those who had played a nonviolent game.

A study by Irwin and Gross (1995) sought to identify effects of playing an "aggressive" versus "nonaggressive" video game on second-grade boys identified as impulsive or reflective. Boys who had played the aggressive game, compared to those who had played the nonaggressive game, displayed more verbal and physical aggression to inanimate objects and playmates during a subsequent free play session. Moreover, these differences were not related to the boys' impulsive or reflective traits.

Kirsh (1997) also investigated the effects of playing a violent versus a nonviolent video game. After playing these games, third- and fourth-graders were asked questions about a hypothetical story. On three of six questions, the children who had played the violent game responded more negatively about the harmful actions of a story character whose intent was ambiguous than did the other children. These results suggest that playing violent video games may make children more likely to attribute hostile intentions to others.

Based on a review of video game research in the 1980s and 1990s, Funk, Germann, and Buchman (1997) state that there is insufficient laboratory research to support strong causal statements about the effects of playing violent video games on children's aggression. They note, however, that in studies that use behavioral observation to measure aggression, trends suggest some increases in aggression after children play or watch violent games. However, these trends are not so clear in studies that use other measures of aggression (e.g., measuring children's willingness to help or hurt another child).

Other Effects

Funk and Buchman (1994) administered to sixth-graders a perceived self-competence profile and a questionnaire about their game-playing habits and preferences. Results indicated that for boys, but not for girls, a stronger preference for each of three types of violent games was associated with lower self-competence scores in one or more developmentally important areas, including academic, interpersonal, and behavioral skills. In another study, Funk and Buchman (1996b) examined the effect of playing violent video games on adolescents' self-concepts. Again, a questionnaire identified seventh- and eighth-graders' game-playing habits, and a self-confidence profile was administered. Results indicated that for girls, but not for boys, more time spent playing video games was associated with lower self-concept scores.

Funk, Germann, and Buchman (1997) identify other positive and negative effects and some additional uses of video games. Video game related seizures (VGRS) and musculoskeletal injuries are rare occurrences that typically disappear with abstention from further game playing. Increased cardiovascular activity associated with game playing may occur and can be detrimental for individuals with undiagnosed cardiovascular problems or beneficial for individuals who are otherwise sedentary. Playing video games may also facilitate language development in autistic children and can be used in play therapy for inhibited children.

Ratings

The Video Game Rating Act of 1994 established a commission to promulgate a video game rating system unless the video game industry itself established a voluntary system within 1 year. At least two ratings systems were established in response to this legislation. The Recreational Software Advisory Council (RSAC), a nonprofit organization, developed a content-based system. Ratings are derived from manufacturers' responses to a complex questionnaire. For each product, a score of 0 (lowest) to 4 (highest) is provided for categories of violence, nudity/sex, and language.

The Entertainment Software Rating Board (ESRB) produced a rating system in which game products are rated by independent raters. The ratings include five age-based categories (Everyone, Early Childhood, Teen, Mature, Adults Only) plus content descriptors.

Of course, rating systems are valuable only if they are used. Fallas (1996) surveyed parents who had purchased at least one console video game over the past year for their children ages 6 through 20. Only 34% of parents were familiar with the ESRB rating system, although 80% said a rating system was needed. Those parents with the youngest children were most aware of and most often used the ESRB rating system.

Recommendations

Many parents attempt to manage their children's television-viewing habits. Parents can similarly manage their children's electronic game-playing experiences (Funk & Buchman, 1994) when they:

- know the content and procedures of their children's games;
- read the literature that accompanies video game products;
- discuss game content with their children;
- pay attention to video game rating systems;
- observe their children playing the games and periodically play their children's games;
- establish explicit game-playing guidelines, including limiting their children's game-playing time;
- educate their children about the differences between media and real-life violence; and
- for arcade game playing, assure that there is adult supervision.

Because research on the effects of playing electronic games is not definitive, further studies are necessary. Meanwhile, professionals can work to educate the public about rating systems, about issues related to violence and children's development, and about the importance of parental supervision of their children's media experiences.

For More Information

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References identified with an ED (ERIC document), EJ (ERIC journal), or PS number are cited in the ERIC database. Most documents are available in ERIC microfiche collections at more than 1,000 locations worldwide and can be ordered through EDRS: (800) 443-ERIC. Journal articles are available from the original journal, interlibrary loan services, or article reproduction clearinghouses such as: UnCover (800) 787-7979, UMI (800) 732-0616, or ISI (800) 523-1850.

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