



Children and Electronic Media

VOLUME 18 NUMBER 1 SPRING 2008

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The Future of Children seeks to translate high-level research into information that is useful to policymakers, practitioners, and the media.

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The Future of Children

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Introducing the Issue

Jeanne Brooks-Gunn and Elisabeth Hirschhorn Donahue

Media technology is an integral part of children's lives in the twenty-first century. The world of electronic media, however, is changing dramatically. Television, which dominated the media world through the mid-1990s, now competes in an arena crowded with cell phones, iPods, video games, instant messaging, interactive multi-player video games, virtual reality sites, Web social networks, and e-mail.

American children are exposed to all these media and more. The vast majority of children have access to multiple media. Virtually all have television and radio in their homes, and half have a television in their bedrooms. Most have Internet and video game access, and a significant portion has a cell phone and an iPod. The numbers joining social networking websites like Facebook and MySpace grow daily. Technological convergence, a hallmark of media use today, enables youth to access the same source from different, often portable, media platforms. Thanks to convergence, a teen can watch a television show on a computer long after the show has aired on

television and can use a cell phone to surf the Internet. Children, particularly adolescents, thus have almost constant access to media—often at times and in places where adult supervision is absent. As a result, America's young people spend more time using media than they do engaging in any single activity other than sleeping.

What do researchers know about how children and youth use electronic media and about how that use influences their lives? Is media technology a boon, one that leaves American children today better educated, more socially connected, and better informed than any previous generation of the nation's children? Or is it, as many voices warn, a hazard for vulnerable children—an endless source of advertising, portrayals of violence, and opportunities for dangerous encounters with strangers and possible exposure to pornography? The quantity and quality of research on these questions are uneven. Researchers have amassed a vast amount of solid information on older technologies, such as television and movies. But investigations of newer technologies and of the novel uses of existing technologies are far fewer in number and more

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Jeanne Brooks-Gunn is the Virginia and Leonard Marx Professor of Child Development and Education at Teachers College and the College of Physicians and Surgeons, Columbia University. Elisabeth Hirschhorn Donahue is associate editor of *The Future of Children* and a lecturer at Princeton University's Woodrow Wilson School of Public and International Affairs.

speculative in their findings. The pervasiveness of electronic media in the lives of children makes it important for policymakers, educators, parents, and advocates to know what researchers have discovered, as well as what questions remain unanswered.

This volume focuses on the most common forms of electronic media in use today and analyzes their influence on the well-being of children and adolescents. To address questions raised by the proliferation of new electronic media, we invited a panel of experts to review the best available evidence on whether and how exposure to different media forms is linked with such aspects of child well-being as school achievement, cognition, engagement in extracurricular activities, social interaction with peers and family, aggression, fear and anxiety, risky behaviors, and healthy lifestyle choices. Because how children fare in each of these areas is influenced by multiple forms of media and even by interactions between different media, we organized the volume by children's outcomes rather than by media platforms. We also asked the authors of the articles in the volume to consider evidence for children and adolescents separately and to examine whether media use differs for boys and girls and for more and less advantaged children. Finally, we asked the authors to pay special attention to the quality of the studies on which their conclusions are based. The studies range from state-of-the-art randomized design experiments, to carefully done observational studies, to suggestive but less conclusive associational studies. Our goal has been to separate the scientific evidence from unsubstantiated claims and rhetoric that the topic has often generated.

What We Have Learned

One of the central points of Marshall McLuhan's widely popular 1964 book, *Understanding Media*, was that the content of electronic

media, its "message," is simply beside the point—that in electronic media, unlike print media, "the medium is the message." This volume comes to a rather different conclusion. Content, it turns out, is critical to how media influence children. Key findings from each of the articles in the volume follow.

Children's Use of Electronic Media

How do children and youth access available media today, and how has their media use changed in the past twenty-five years? The first task in investigating the effects of electronic media is to examine what forms of media children and youth use and how and how often they use them. Donald Roberts, of Stanford University's Department of Communication, and Ulla Foehr, a media research consultant specializing in children and media use, lead off the volume by presenting data on media use and comparing current and past patterns of use. Where possible, they break down access and use trends by gender, age, and socioeconomic and racial differences.

One key finding is that children's simultaneous use of different media, or media multitasking, is at an all-time high. That is, youngsters routinely have more than one media source operating at a time. Such multitasking, the authors note, makes it important to distinguish between media *use* and media *exposure*. A child who uses a computer to instant message with friends, with a television on in the background, for example, is being exposed to two media. The rise of multitasking explains why time spent viewing television has remained static and has not been replaced with other media: children are simply adding other media uses to the time that the television is on.

The primary driver of this trend is the computer—what the authors call the "media multitasking station." But other media plat-

forms are following suit and are now able to perform multiple duties—a cell phone can be a television and Internet portal and radio all in one. The high prevalence of multitasking and the growth of new media technologies complicate the measurement of media use: traditional time-use surveys were not designed to measure two, three, or even more activities being conducted simultaneously. The authors argue that analysts must develop a new way of conceptualizing media exposure to capture accurately children's media use and exposure.

Learning, Attention, and Achievement

One of the central concerns of today's parents and teachers is how media technology affects children's cognitive development and academic achievement. Does media technology influence learning styles? Does leisure-time media use affect cognition and if so how? Can media technology be used effectively as a teaching tool in schools?

The impact of electronic media on children depends on the age of the child and the content of the media. Heather Kirkorian and Daniel Anderson, both of the University of Massachusetts–Amherst, and Ellen Wartella, of the University of California–Riverside, review research on young children. Infants and toddlers, they find, do not seem to learn easily from electronic media because they need direct experience and interaction with real people to develop cognitively. By age three, children can benefit from electronic media with educational content that uses specific strategies such as repeating an idea over and over, presenting images and sounds that capture attention, and using child rather than adult voices for the characters. However, more is not necessarily better; one study finds that achievement peaks at one to two hours of educational programming then declines with heavier use. Moreover, the aim of the vast majority of electronic media targeted at

preschoolers is not educational. The techniques these media use are intended to entertain rather than to teach.

Older children use multiple types of media in their homes. Moreover, media technology is increasingly being used in schools as a teaching tool. Marie Evans Schmidt, of the Center on Media and Child Health at Children's Hospital Boston, and Elizabeth Vandewater, of the University of Texas–Austin, examine links between media and learning, achievement, and attention in older children and adolescents. They conclude that content, if designed correctly, can enhance learning. Moreover, some evidence shows that certain media use, such as playing video games, can have positive effects, particularly in developing visual spatial skills. While analysts have found some links between heavy media exposure and poor school achievement, they have uncovered no clearly causal links. Nor have they found that media use causes attention deficit disorder, although there is a small link between heavy television viewing and non-clinical attention issues. Interestingly, although using media during leisure time may have benefits for children's learning and achievement, electronic technologies used in schools are not necessarily more effective than traditional teaching techniques. The results depend on how teachers use the technology and their own comfort level with the medium.

Emotional Development and Relationships with Parents and Peers

Increasingly of late, discussions about electronic media have focused on the social implications of the various technologies. Do electronic media have the potential to influence children's emotions and their relationships with others? Barbara Wilson, of the Department of Communication at the University of Illinois at Urbana–Champaign,

considers the evidence for children and concludes that programs designed to promote pro-social behavior do increase social capacities such as altruism, cooperation, and tolerance of others. On the flip side, the content of some entertainment and news programs can instill fear and anxiety in children. Between ages three and eight, children are usually more frightened by evil fantasy characters; older children, by contrast, are more affected by realistic scenes of injury and violence. Children who have a heavy media diet of violence are more likely to perceive the world as dangerous and to see aggression as more acceptable than those who view media violence less often.

For older children and youth, media technology is now integral to communication with peers and parents. Kaveri Subrahmanyam and Patricia Greenfield, of the Children's Digital Media Center, UCLA/CSULA, explore whether online communication has made youths more socially isolated, by curtailing time that they spend with friends "offline," or whether it has strengthened their social connections. The authors also investigate whether new media forms have opened up novel ways of communicating. Although the research effort in this area is just beginning, the authors believe that the positives outweigh the negatives. Children and youth use electronic media mainly to communicate with their offline friends. Contrary to popular perception, adolescents today primarily use these tools to enhance communication with people they know. They use the Internet less frequently now to communicate with strangers than was the case in the early years of the Internet. That said, some teens do communicate with strangers—in chat rooms, on bulletin boards, on multiplayer games—but such communication is not necessarily negative. The authors are careful to note that new communication tools do invite harassment and

offer a place for bullying. Predators are well aware that they can use the Internet to reach out to vulnerable teens. But the authors dispute the notion that new communication tools *cause* these problems. Rather, they posit that negative behavior is simply being transferred to a new stage—from offline to online. The key challenge for parents is to be aware of how their teens are using communication tools and to look for clues about inappropriate use.

Healthful and Unhealthful Behaviors: Links to Media

One ongoing concern in reports on electronic media in the popular press is that media technology has increased risky behaviors by teens. But although some risky behaviors may be on the rise, can we definitely say that media technology is the culprit? Soledad Liliana Escobar-Chaves, of the University of Texas Health Science Center at Houston School of Public Health, and Craig Anderson, of the Center for the Study of Violence at Iowa State University, find that some risky behaviors are strongly linked to media consumption, others are linked more tangentially, and still others require additional research before an answer can be given. For example, researchers have amassed clear evidence that media violence is a risk factor for aggressive behavior, though they note that there is much less evidence linking it to crime. Solid research demonstrates that advertising and product placement for cigarettes and alcohol, as well as exposure to movie characters' smoking and drinking, increase underage drinking and initiation of smoking. The authors report quite modest evidence of links between heavy media consumption and obesity. Finally, additional research is needed to know whether early sexual initiation is linked to media use.

Conversely, when a risky behavior decreases, as teenage pregnancy has in recent years,

can media technology claim credit? Douglas Evans, vice president for public health and environment at RTI International, maintains that media can enhance healthful behaviors through social marketing campaigns. He cites campaigns to prevent and control tobacco use, increase physical activity, improve nutrition, and promote condom use as examples of successful social marketing, which increasingly borrows techniques used by commercial marketers. Funding constraints complicate the task of social marketers in competing with commercial marketing, so social marketers need to work hard to create persuasive messages and reach out to community organizers to create social movements that mirror their marketing messages.

The Development of Consumers: Marketing to Children

Advertising, product placement, and product tie-ins are all part of electronic media and all are used to influence children's consumption of products. Do commercial media marketers influence child and youth behavior, and if so how and how much? If marketing has a big impact on child outcomes, what should policymakers and parents do about it? Sandra Calvert, of the Department of Psychology at Georgetown University, finds that marketing and advertising are indeed an influential and integral part of children's daily lives and, not surprisingly, that many of the products marketed to children are unhealthful. Furthermore, young children do not understand that advertisements are meant to persuade them to purchase goods; instead, they see commercials as helpful sources of information about products. Although older children and youth are more aware of the intent of advertising, they too are impressionable, particularly in the face of newer "stealth" marketing techniques, which subtly intertwine advertising with the program content. Despite these negative findings, Calvert concludes, the

government has historically done little to ameliorate the effects of marketing on children. And recent trends expanding First Amendment protection of commercial speech mean that government is not likely to strengthen regulation.

Where We Go From Here

The main lesson learned from this volume can be captured in one phrase: "content matters." That is, the message is the message. Rather than focusing on the type of technology children use or even how much time children spend with media, parents and policymakers need to focus on what is being offered to children on the various media platforms.

Regulating content, however, is extremely difficult. At the government level, First Amendment considerations and the increasing reality that many media forms are exempt from government oversight makes broad regulation of content close to impossible. At the community and school level, educators struggle to use media in positive ways while ensuring that technology is not used to cheat or bully. At the family level, it is easier for parents to tell their children, "one hour of media, that's it," than to wade through the content of the myriad media offerings and to compete with an industry that often cares more about commercial success than children's quality of life.

Implications for Policymakers

As Amy Jordan, of the Annenberg Public Policy Center at the University of Pennsylvania, notes in her article, which concludes the volume, policymakers face major challenges as they attempt to craft legislation that both respects the First Amendment protection of speech and provides parents with effective tools to regulate content within their homes. The result is media policy that is essentially a patchwork of industry self-regulation and

government rule-making that regulates some but not all types of media. As media evolve, the challenges will become greater. First, it is difficult to enact laws and regulations that keep pace with rapidly changing technology, much of which is increasingly outside the purview of government control. Second, as technological convergence becomes the norm, regulating a specific media form, such as requiring V-chips in televisions, becomes somewhat meaningless. The alternative—government regulation of media content rather than platform—is unpalatable to many given our country's valuation of free speech.

Even the powerful First Amendment, however, has sometimes been trumped by the government's need to protect its citizens—such as its prohibition on creating and advertising child pornography.¹ Regulations that clearly protect the public safety of vulnerable citizens—those, for example, that protect young children from cyber predators—may survive First Amendment challenges. Indeed, last May a group of attorneys general warned executives of MySpace that if the company did not take better precautions against the use of its social networking site by sex offenders, they would take legal action, resulting in increased protections for children and teens.² Several state legislatures are considering bills that would require such sites as MySpace and FaceBook to verify the ages of all users and obtain parental permission for minors.³ Still other states, such as North Carolina, have passed laws making it a felony for a person to solicit anyone on the Internet whom he or she believes to be a child.⁴ Aside from protecting children from serious harm, however, it is hard to imagine that the government can or will regulate media content—as demonstrated in 1997 when the Supreme Court struck down as too broad legislation that sought to protect minors from indecent and offensive material on the Internet.⁵

Although government's ability to regulate content may be weak, its ability to promote positive programming and media research is not. Government at all levels should fund the creation and evaluation of positive media initiatives such as public service campaigns to reduce risky behaviors and studies about educational programs that explore innovative uses of media. Government should support research into potential harms and benefits caused by media.⁶ It should also provide fund-

Government at all levels should fund the creation and evaluation of positive media initiatives such as public service campaigns to reduce risky behaviors and studies about educational programs that explore innovative uses of media.

ing to launch initiatives to ensure that schools teach students how to use technology in preparation for the twenty-first century world of work. Finally, although much of electronic media is outside the control of government, broadcast television and radio are still within its regulatory realm and government should continue to ensure that good educational programming is available to children.

Implications for Educators

Media use in the schools is a double-edged sword. On the one hand, media technology can be used as a powerful teaching tool; one important lesson from this volume is that, with the right content, educators can use electronic media to help children learn and to

shape their behaviors in positive directions. Moreover, the pervasiveness of media technology makes it crucial for students to learn how to use electronic media constructively. On the other hand, teachers must have tools to manage the private use of electronic media in schools, ranging from such innocuous interference with learning as text-messaging during class to more harmful uses such as bullying or cheating. School systems should implement research-based programs that use electronic media to enhance classroom curricula and create professional development programs that instruct teachers in the uses of new technologies.

Implications for Families

Parents will continue to be central to regulating their children's media diet in two ways. First, working with governmental and especially nongovernmental organizations, they can put pressure on industry to develop better content, create meaningful ratings systems, cut back on inappropriate advertising, and invent better products to help screen content. Second, they can educate themselves about good media use based on their children's developmental stages and monitor their children's use to ensure that they engage positive media in a healthful and constructive manner.

Because government will probably not intervene in the realm of media content, the most effective pressure on industry to produce positive media content will come from the court of public opinion made up of child advocates and, especially, families. For example, when FaceBook informed users about friends' recent purchases, an outcry by parents and advocates led the website to stop the practice, at least for the time being.⁷ When Webkinz, a popular site geared toward younger elementary school children, started advertising movies and promoting movie tie-in products, similar protests caused the site to remove the advertisements.⁸ Likewise, pressure on food companies led eleven major food and drink companies to agree to stop advertising unhealthful products to children under age twelve, and the children's television network Nickelodeon followed suit and agreed to keep their characters from appearing on most junk food packaging.⁹

As is evident from these successful public actions, the key is to shift the focus from the medium to the message. Government officials, community activists, child advocates, and families must put their energies into shaping content to make media technology a positive force in the lives of children and youth.

Endnotes

1. For court rulings on child pornography, see *New York v. Ferber* 458 U.S. 747 (1982), which held that states can prohibit the depiction of minors engaged in sexual conduct; *Osborne v. Ohio* 495 U.S. 103 (1990), where the court upheld a statute making it illegal to possess child pornography; 18 USC Secs. 2251–2252, which make it a federal crime to advertise and knowingly receive child pornography.
2. Brad Stone, “States Fault MySpace on Predator Issues,” *New York Times*, May 15, 2007 [www.nytimes.com/2007/05/15/technology/15myspace.html]; Anne Barnard, “MySpace Agrees to Lead Fight to Stop Sex Predators,” *New York Times*, January 15, 2008 [www.nytimes.com/2008/01/15/us/15myspace.html].
3. Jennifer Medina, “States Ponder Laws to Keep Web Predators from Children,” *New York Times*, May 6, 2007 [www.nytimes.com/2007/05/06/nyregion/06myspace.html]. See also the 1998 Children’s Online Privacy Protection Act (COPPA), which requires Internet sites directed at or used by children under age thirteen to get parental permission and keep information gathered confidential.
4. August 17, 2006, Press Release, “SBI Uses New Law to Stop On-Line Predators Says AG Cooper,” Roy Cooper, North Carolina Attorney General, North Carolina Department of Justice.
5. *Janet Reno v. American Civil Liberties Union*, 521 U.S. 844 (1997), which struck down on First Amendment grounds portions of the 1996 Communications Decency Act that sought to protect minors from harmful material on the Internet. Note that the sections that apply to obscene material, which does not enjoy First Amendment protection, survived.
6. See, for example, the Children and Media Research Advancement Act (CAMRA), introduced by Congress in 2005, which would establish a program on children and media at the National Institute of Child Health and Human Development (NICHD) to study the impact of electronic media on children’s development.
7. Louise Story, “Apologetic, Facebook Changes Ad Program,” *New York Times*, December 6, 2007 [www.nytimes.com/2007/12/06/technology/06facebook.html]; Louise Story and Brad Stone, “Facebook Retreats on Online Tracking,” *New York Times*, November 30, 2007 [www.nytimes.com/2007/11/30/technology/30facebook.html].
8. Louise Story, “Shift Away from Ad-Free Has a Price,” *New York Times*, December 13, 2007 [www.nytimes.com/2007/12/13/business/media/13adco.html?ref=technology].
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Trends in Media Use

Donald F. Roberts and Ulla G. Foehr

Summary

American youth are awash in media. They have television sets in their bedrooms, personal computers in their family rooms, and digital music players and cell phones in their backpacks. They spend more time with media than any single activity other than sleeping, with the average American eight- to eighteen-year-old reporting more than six hours of daily media use. The growing phenomenon of “media multitasking”—using several media concurrently—multiplies that figure to eight and a half hours of media exposure daily.

Donald Roberts and Ulla Foehr examine how both media use and media exposure vary with demographic factors such as age, race and ethnicity, and household socioeconomic status, and with psychosocial variables such as academic performance and personal adjustment. They note that media exposure begins early, increases until children begin school, drops off briefly, then climbs again to peak at almost eight hours daily among eleven- and twelve-year-olds. Television and video exposure is particularly high among African American youth. Media exposure is negatively related to indicators of socioeconomic status, but that relationship may be diminishing. Media exposure is positively related to risk-taking behaviors and is negatively related to personal adjustment and school performance. Roberts and Foehr also review evidence pointing to the existence of a digital divide—variations in access to personal computers and allied technologies by socioeconomic status and by race and ethnicity.

The authors also examine how the recent emergence of digital media such as personal computers, video game consoles, and portable music players, as well as the media multitasking phenomenon they facilitate, has increased young people’s exposure to media messages while leaving media use time largely unchanged. Newer media, they point out, are not displacing older media but are being used in concert with them. The authors note which young people are more or less likely to use several media concurrently and which media are more or less likely to be paired with various other media. They argue that one implication of such media multitasking is the need to reconceptualize “media exposure.”

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Donald F. Roberts, the Thomas More Storke Professor Emeritus in the Department of Communication at Stanford University, has spent more than thirty years conducting research and writing about youth and media. Ulla G. Foehr is a media research consultant specializing in children and media use behaviors.

America's youth are awash in electronic media. What began as a media stream half a century ago has become a torrent whose strength continues to increase. Before World War II, mass media available to young people consisted mainly of print (magazines, newspapers, and books), motion pictures (by then, "talkies" had appeared), and radio (by the end of the 1930s, U.S. households averaged slightly more than one radio set apiece). Following the war, television set distribution went from 0.5 percent of households in 1946 to 55 percent in 1956 and 87 percent in 1960.¹ The media flood was just getting started, however. As television's reach continued to grow—97 percent of U.S. homes had a TV set by 1974, and in 2001 the U.S. Census Bureau estimated that U.S. households averaged 2.4 TV sets apiece—new electronic media began to spring up. Personal computers emerged as consumer products near the end of the 1970s (the Apple II in 1977, the IBM-PC in 1981) and were named *Time* magazine's "person of the year" in 1982. Personal computers were swiftly embraced by families with children. These computers had penetrated almost a quarter of homes with children between the ages of three and seventeen years by 1989, 70 percent of such homes by 2001, and 75 percent by 2003. Similarly, the Internet, which became available to the general population in the early 1990s, was being used at home by 22 percent of three- to seventeen-year-olds in 1997 and by 63 percent in 2003.² Today, not only are American young people surrounded by media in their homes and schools, but the portability made possible by the increased miniaturization of digital media means that they can remain connected almost anywhere they wish to go. Laptop computers, cell phones, and handheld Internet devices are rapidly becoming basic equipment for today's teenagers.

Hand-in-hand with the growth in media available to young people has been a change in the content available to them. Today, a substantial part of the media industry is devoted to creating and distributing content specifically aimed at children and adolescents. Television has moved from family programming, to children's programs, to complete channels aimed at the youth market. The music industry relies on fourteen- to twenty-four-year-old consumers. Youth-oriented interactive games inhabit the TV screen, the computer screen, an array of handheld devices, and cyberspace. The Internet, originally designed as a communication network for the military and scientists, has morphed into the World Wide Web, with a seemingly endless array of destinations, many designed specifically for kids and many more open to, albeit not designed for, them. With so many media and so much content available, it is not surprising that young people devote much of their time to media.

But how much time? To which media? To what kinds of content? Under what conditions? The importance of these questions should not be underestimated. Without an accurate mapping of young people's media exposure, researchers can never fully understand whether and how media affect the lives of children and adolescents. Hundreds of studies examining media effects on children (many of which will be examined in other articles in this issue) are based on assumptions about exposure. For example, for children to learn from media content, whether the learning is intended (as with *Sesame Street*'s efforts to teach numbers and letters or Wikipedia's online explanations of just about anything) or incidental (as with children acquiring aggressive behaviors from a video game or materialistic values from an unending barrage of advertisements), they

must be exposed to specific kinds of content under specific conditions. Questions about whether new ways of structuring information influence young people's information processing skills begin with assumptions about how much time children spend with different forms of media. Likewise, questions about whether and how the time youth devote to media affects other areas in their lives, such as the time spent doing homework or participating in after-school activities, depend on accurate measures of that time. In short, almost any question about how media affect young people is predicated on assumptions about media exposure.

With so many media and so much content available, it is not surprising that young people devote much of their time to media. But how much time? To which media? To what kinds of content? Under what conditions?

Questions about media use and exposure, however, are not easily answered. The first difficulty is measurement issues. There is good reason to question the accuracy both of older children's self-reports of media exposure and of parental estimates of the time younger children devote to media.³ Second, until recently, relatively few studies have been based on representative samples of U.S. youngsters, making it hard to generalize research findings to the broader population. Third, many studies, even many recent ones, focus primarily on a limited array of media, precluding examinations of "media use" as

opposed to "television use" or "computer use." Finally, each of these problems is compounded by ongoing changes in the media environment—changes not only in the form and substance of media content, but also and particularly in the speedy emergence and adoption by young people of a variety of new media. For example, cell phones, a relatively rare possession among U.S. adolescents five or six years ago, are rapidly becoming one of teenagers' favorite new media. In addition, changes in the media environment have made it necessary to differentiate between "media use" and "media exposure." Estimates of young people's overall media time that simply sum the amount of exposure to each individual medium are no longer valid, if they ever were. Media multitasking—the concurrent use of multiple media—has become the order of the day, one result of which is that youngsters report substantially more hours of being exposed to media content than hours of using media. Such disclaimers notwithstanding, recent research provides a reasonably clear snapshot of what remains, for better or worse, a moving target.

The following examination of U.S. young people's media use and exposure focuses on children and adolescents ranging in age from birth to eighteen years. We focus primarily on recent studies that have used large, representative samples and gathered information on the full array of media available to young people. For the most part, information concerning younger children (from birth to eight years) comes from three studies conducted under the auspices of the Kaiser Family Foundation and is based on parent reports.⁴ Information on older children (eight to eighteen years) comes primarily from two other Kaiser Family Foundation surveys of representative samples of school-aged children and was obtained through self-administered

Table 1. Household and Personal Media Ownership, by Age of Child

Percent

| Share of children of various ages whose households contain media | | | | | | | | |
|--|-------------|-----------|-----------|-----------|------------|------------|-------------|-------------|
| Type of medium | 0-6 years | 0-1 years | 2-3 years | 4-6 years | 8-18 years | 8-10 years | 11-14 years | 15-18 years |
| Television | 99 | n.a. | n.a. | n.a. | 99 | 98 | 100 | 99 |
| Video player | 93 | n.a. | n.a. | n.a. | 97 | 96 | 99 | 98 |
| Radio | n.a. | n.a. | n.a. | n.a. | 97 | 94 | 98 | 99 |
| Audio player | n.a. | n.a. | n.a. | n.a. | 98 | 95 | 99 | 100 |
| Video game player | 50 | n.a. | n.a. | n.a. | 83 | 84 | 84 | 81 |
| Computer | 78 | n.a. | n.a. | n.a. | 86 | 83 | 89 | 86 |
| Cable or satellite | n.a. | n.a. | n.a. | n.a. | 82 | 76 | 86 | 82 |
| Internet access | 69 | n.a. | n.a. | n.a. | 74 | 63 | 78 | 80 |
| Instant messaging program | n.a. | n.a. | n.a. | n.a. | 60 | 42 | 63 | 70 |

| Share of children of various ages whose bedrooms contain media | | | | | | | | |
|--|-------------|-----------|-----------|-----------|------------|------------|-------------|-------------|
| Type of medium | 0-6 years | 0-1 years | 2-3 years | 4-6 years | 8-18 years | 8-10 years | 11-14 years | 15-18 years |
| Television | 33 | 19 | 29 | 43 | 68 | 69 | 68 | 68 |
| Video player | 23 | 12 | 22 | 30 | 54 | 47 | 56 | 56 |
| Radio | n.a. | n.a. | n.a. | n.a. | 84 | 74 | 85 | 91 |
| Audio player | n.a. | n.a. | n.a. | n.a. | 86 | 75 | 89 | 92 |
| Video game | 10 | 2 | 5 | 18 | 49 | 52 | 52 | 41 |
| Computer | 5 | 3 | 3 | 7 | 31 | 23 | 31 | 37 |
| Cable or satellite | 17 | 10 | 12 | 23 | 37 | 32 | 38 | 40 |
| Internet access | 2 | 2 | 1 | 2 | 20 | 10 | 21 | 27 |
| Instant messaging program | n.a. | n.a. | n.a. | n.a. | 18 | 9 | 17 | 27 |

| Share of children of various ages with "their own" media | | | | | | | | |
|--|-------------|-----------|-----------|-----------|------------|------------|-------------|-------------|
| Type of medium | 0-6 years | 0-1 years | 2-3 years | 4-6 years | 8-18 years | 8-10 years | 11-14 years | 15-18 years |
| Cell phone | n.a. | n.a. | n.a. | n.a. | 39 | 21 | 36 | 56 |
| Portable audio player | n.a. | n.a. | n.a. | n.a. | 61 | 35 | 65 | 77 |
| PDMP (MP3) | n.a. | n.a. | n.a. | n.a. | 18 | 12 | 20 | 20 |
| Laptop computer | n.a. | n.a. | n.a. | n.a. | 12 | 13 | 11 | 15 |
| Handheld video game | n.a. | n.a. | n.a. | n.a. | 55 | 66 | 60 | 41 |
| Personal digital assistant | n.a. | n.a. | n.a. | n.a. | 11 | 9 | 14 | 8 |
| Handheld Internet device | n.a. | n.a. | n.a. | n.a. | 13 | 7 | 15 | 17 |

Sources: Information on young children from Victoria J. Rideout and Elizabeth Hamel, *The Media Family: Electronic Media in the Lives of Infants, Toddlers, Preschoolers, and their Parents* (Menlo Park, Calif.: Kaiser Family Foundation, 2006); information on older children from Donald F. Roberts, Ulla Foehr, and Victoria Rideout, *Generation M: Media in the Lives of 8-18-year-olds* (Menlo Park, Calif.: Kaiser Family Foundation, 2005). Data are missing for younger children in the first part of the table because subgroup analyses were not reported and, in the second and third part of the table, because particular questions were not asked of young children.

questionnaires completed in schools and, importantly, from associated time-use diaries completed by children at home.⁵ In this article we focus on electronic media: television, video players, audio media (radio, tape, and compact

disc players), video games (both console-based and handheld), computers, and, when possible, such new digital media as cell phones, personal digital media players (PDMPs), personal digital assistants, and handheld

Internet devices. Except where noted, exposure times refer to recreational or leisure media use—that is, exposure to media content not associated with school or homework or with any kind of employment.

Media in the Home

Although the United States continues to experience a “digital divide”—varying access to certain media, particularly computers and allied technologies, related to differences in socioeconomic status, race and ethnicity, and gender—most U.S. youth have access to most media most of the time. Television has penetrated 99 percent of all households with children, and more than 95 percent of those same households have video players, radios, and compact disc and tape audio players. Seventy-eight percent of households with young children (birth to six years) and 85 percent of those with eight- to eighteen-year-olds have personal computers, and 50 percent of households with younger children and 83 percent of those with older children have a video game console. Moreover, most children live with several of these media. The typical U.S. eight- to eighteen-year-old lives in a household equipped with three TV sets, three video players, three radios, three PDMPs (for example, an iPod or other MP3 device), two video game consoles, and a personal computer.⁶ As table 1 illustrates, saturation or near-saturation levels have been reached for all but the newest electronic media, and those are likely to follow much the same pattern. Indeed, the presence of youngsters in a household stimulates early adoption of the new electronic media. For example, the 73 percent computer penetration Nielsen found for all U.S. households in 2007 is substantially below the 85 percent penetration found three years earlier in homes with eight- to eighteen-year-olds. Similarly, Nielsen now reports PDMPs in 27 percent of all households,

but estimates that two-thirds of homes with twelve- to seventeen-year-olds already own or rent an MP3, iPod, or similar device.⁷

Personal Media

Personal media—that is, media that young people claim as their own—also affect access and exposure. The Kaiser data reveal that in 2004, 68 percent of U.S. eight- to eighteen-year-olds and 33 percent of children from birth to age six had a TV in their bedroom (19 percent of children under age one roomed with a TV set). Television is the most ubiquitous personal medium among children, but far from the only one. In 2003, 23 percent of children in the birth to six-year age range had a video player in their bedroom, 10 percent had a video game player, and 5 percent a personal computer. Not surprisingly, the proportions climb as children get older. For example, in excess of 80 percent of eight- to eighteen-year-olds report having their own radio and their own CD or tape player (92 percent claim some kind of music medium); 31 percent have a computer of their own, half have a video player, and 49 percent a video game console in their room. As new electronic media become more portable and more affordable, young people tend to number among the earlier adopters. In 2004, 61 percent of eight- to eighteen-year-olds claimed to own a portable CD or tape player, 55 percent a handheld video game, 18 percent a PDMP, 39 percent their own cell phone, and 13 percent some kind of handheld Internet device (Internet connectivity via cell phone was relatively rare at that time). Rapid diffusion of such media among youth is further attested to by estimates from 2005 that 45 percent of teens owned their own cell phone, up from 39 percent in 2004.⁸

Media Access in Schools

Not only do substantial numbers of young

people carry most forms of portable digital media to school with them, most schools in the United States are now “wired.” Although we have found no data pertaining to electronic media in preschools and day care centers,⁹ virtually all public schools have for several decades owned TV sets (the average number of TV sets per public school exceeded twelve by 1994). Recent U.S. Department of Education data indicate that 100 percent of U.S. public schools had Internet connectivity by 2003, that 93 percent of public school instructional rooms had access by 2003, and that 95 percent of schools with Internet access were using broadband (high-speed) connections in that same year.¹⁰ Theoretically, then, it appears that most youngsters have relatively easy access to all but the very newest electronic media.

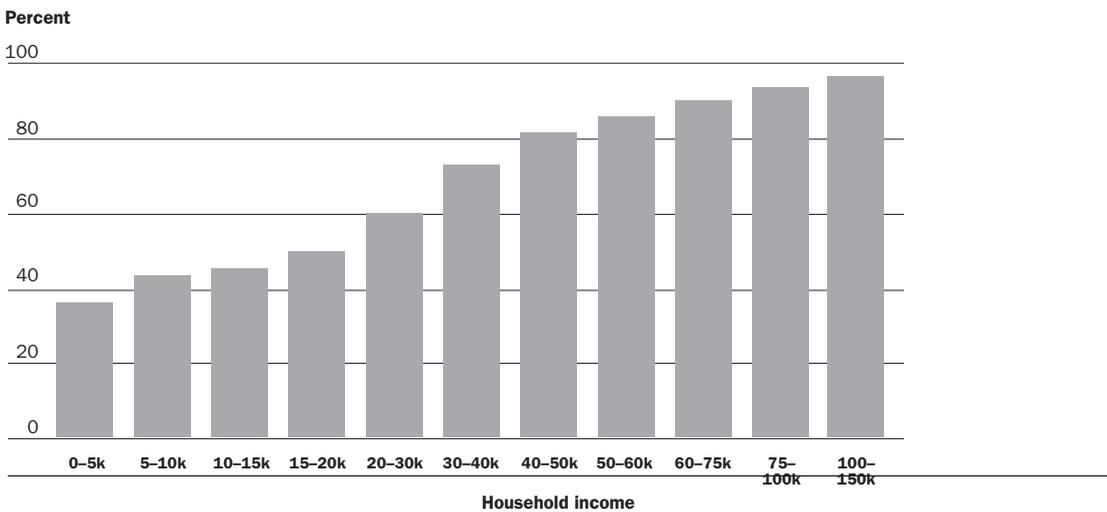
The Digital Divide

The term “digital divide” came into popular usage during the mid-1990s and originally referred to variations in access (in homes, schools, or other public locations) to personal computers and allied technologies, such as

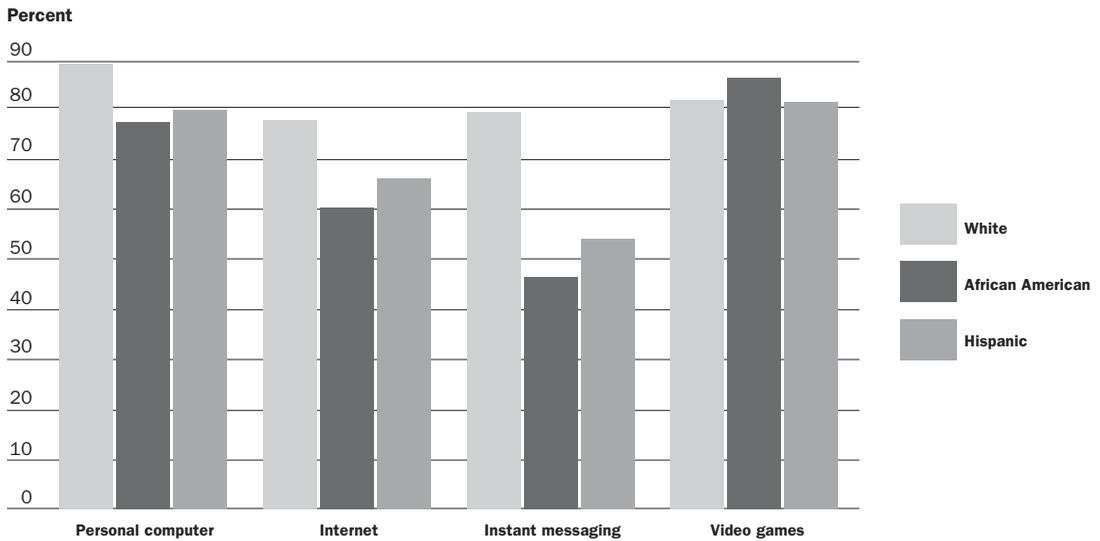
Internet connections, according to differences in socioeconomic status, race and ethnicity, gender, and geography (rural and urban location). More recently, as the gap in access to computers has narrowed somewhat, the term has also been applied both to broadband connectivity and to differences in technical support and in how members of different socioeconomic status or ethnic groups use the technology.

In spite of the rapid penetration of the newer electronic media into young people’s households, a digital divide persists—the likelihood of household computer ownership still varies as a function of socioeconomic status and race and ethnicity. For example, the U.S. Census Bureau’s Current Population Survey reports that the likelihood of three- to seventeen-year-olds living in homes with a personal computer is strongly related to household income. As figure 1 shows, fewer than 60 percent of homes with annual incomes under \$20,000 have computers, as against more than 90 percent of homes with annual earnings of \$60,000 or more. And although 93 percent

Figure 1. Share of Children Age 3–17 with Computers in Home, by Household Income



Source: U.S. Census Bureau, *Current Population Survey, 2003, Computer and Internet Use Supplement* (Department of Commerce, 2003).

Figure 2. Share of Households with Children 8–18 with Electronic Media, by Race and Ethnicity

Source: Donald F. Roberts, Ulla Foehr, and Victoria Rideout, *Generation M: Media in the Lives of 8- to 18-year-olds* (Menlo Park, Calif.: Kaiser Family Foundation, 2005).

of youngsters living in homes with an annual income of more than \$75,000 have access to the Internet, only 29 percent of those from homes with earnings under \$15,000 have Internet access.¹¹ Similarly, the Kaiser data indicate that in-home computer availability varies by both parental education and race and ethnicity. Ninety-one percent of eight- to eighteen-year-olds whose parents completed college have access to an in-home personal computer as compared with 84 percent of those whose parents attended but did not finish college and 82 percent of those whose parents completed no more than high school. Ownership of allied computer technologies such as Internet connections and instant messaging programs follows the same pattern, with more access in homes where parents completed college and less in homes where parents completed high school. Figure 2 illustrates differences of in-home computer availability as a function of race and ethnicity. A higher share of white (90 percent) than either African American (78 percent) or Hispanic

(80 percent) eight- to eighteen-year-olds live with personal computers, and the pattern is similar for Internet connections and instant messaging programs.¹²

Even though computers with Internet connectivity have become available in almost all public schools (with broadband connections not far behind), schools with the highest poverty concentrations have higher ratios of students to instructional computers (5:1 versus 4.1:1) and less access to computers outside regular school hours than do schools with the lowest poverty concentrations. Moreover, the likelihood of having a website that can make information available to parents and students is lower both in schools with high minority enrollments and in schools with the highest concentrations of poverty.¹³ Finally, children from higher-income households are more than twice as likely as those from the lowest-income households to use a home computer to complete school assignments (77 percent versus 29 percent) and are more than three

Table 2. Children’s Average Daily Exposure to Five Electronic Media, Total Media Exposure, and Total Media Use, by Age

| Research sample | Television | Videos and movies | Audio | Video games | Computer | Total media exposure | Total media use |
|-----------------------------------|------------|-------------------|-------|-------------|----------|----------------------|-----------------|
| Children 0–6 years (2005) | | | | | | | |
| Total sample | 0:59 | 0:24 | 0:48 | 0:06 | 0:07 | 2:24 | n.a. |
| 0–1 year | 0:34 | 0:13 | 0:57 | 0:00 | 0:01 | 1:45 | n.a. |
| 2–3 years | 1:11 | 0:32 | 0:50 | 0:03 | 0:05 | 2:41 | n.a. |
| 4–6 years | 1:02 | 0:25 | 0:41 | 0:10 | 0:10 | 2:28 | n.a. |
| Children 2–7 years (1999) | | | | | | | |
| Total sample | 1:59 | 0:31 | 0:45 | 0:08 | 0:07 | 3:30 | 2:56 |
| Children 8–18 years (2004) | | | | | | | |
| Total sample | 3:04 | 1:11 | 1:44 | 0:49 | 1:02 | 7:50 | 5:48 |
| 8–10 years | 3:17 | 1:24 | 0:59 | 1:05 | 0:37 | 7:21 | 5:22 |
| 11–14 years | 3:16 | 1:09 | 1:42 | 0:52 | 1:02 | 8:00 | 6:00 |
| 15–18 years | 2:36 | 1:05 | 2:24 | 0:33 | 1:22 | 7:59 | 5:59 |
| Children 8–18 years (1999) | | | | | | | |
| Total sample | 3:05 | 0:59 | 1:48 | 0:26 | 0:27 | 6:45 | 5:40 |

Source: Data on sample of children 0–6 years (2005) from Rideout and Hamel (see table 1); on sample 2–7 years (1999) from Donald F. Roberts and others, *Kids and Media at the New Millennium* (Menlo Park, Calif.: Kaiser Family Foundation, 1999); on sample 8–18 years (2004) from Roberts, Foehr, and Rideout, *Generation M* (see table 1); on sample 8–18 years (1999) from Roberts and others, *Kids and Media* (see above). Because time-use diaries were not obtained for the 2005 sample of young children, total media use estimates are not available for them.

times as likely to use a personal computer for word processing or desktop publishing.¹⁴

It seems, then, that although in terms of access to the technology the digital divide has narrowed substantially since the mid-1990s (particularly access within public schools), in terms of the potential benefits of computers and allied technologies for education and economic opportunity, there remains cause for concern.

Overall Media Exposure and Use

Although some early studies of children’s media exposure report time devoted to each of several different media, we have located no research published before 1999 that estimates young people’s “total media exposure” or that differentiates between media *exposure* and media *use*.¹⁵ Asking respondents, particularly children, to estimate their overall “media time” is almost pointless. The mean-

ing of “media” differs from person to person, the wide and increasing array of media to which the term refers makes the task even more difficult, and the fact that young people in particular engage in a great deal of media use as a secondary, even tertiary, activity—the TV may be on as a teenager washes the dishes and argues with a sibling while listening to a PDMP through ear-pods—further impairs recall. It is more accurate to ask youngsters to report time they spend with each individual medium (Yesterday, how much time did you spend using a computer? How much time did you watch TV?). Unfortunately, however, overall “media use” is not a straightforward summation of time exposed to each individual medium. To the extent that people “use” several media at the same time, playing a video game while listening to music, the sum of the two exposure estimates will be double the amount of time spent using media. That is, while engaged in one hour of

media use (playing a video game while listening to music) a youngster is exposed to two hours of media content (one hour of video game content, one of music content). The exposure-use distinction has become especially important as new media, particularly the personal computer, have increased the amount of concurrent media use as well as the rate of media multitasking among young people. In what follows, then, “media use” refers to the amount of time young people devote to all media (that is, person hours devoted to using media); “media exposure” refers to media content encountered by young people expressed in units of time (that is, hours of television exposure).¹⁶

Table 2 summarizes recent estimates of both media exposure and media use for samples of both younger and older children. Exposure to electronic media starts early and rises quickly. In 2005, children six years and younger averaged 2:24 (two hours and twenty-four minutes) daily exposure to media content. Data on concurrent media use were not collected for the birth to six-year-old samples. In 1999, however, parents reported that a national sample of two- to seven-year-olds experienced 3:30 of media exposure while engaged in 2:56 media use. Among older children and adolescents, in 2004, eight- to eighteen-year-olds reported an average of 7:50 of daily electronic media exposure, but packed all that content into just over 5:48 of media use. In other words, approximately 25 percent of the time that eight- to eighteen-year-olds were using media, they used two or more at once—a substantial increase in the proportion of time a similar sample used multiple media concurrently just five years earlier. In 1999, eight- to eighteen-year-olds engaged in media multitasking 17 percent of the time, fitting 6:45 exposure into 5:40 media use. Thus, although total media exposure

increased more than an hour across the five-year span, media use remained remarkably constant (5:40 vs. 5:48). Donald Roberts, Ulla Foehr, and Victoria Rideout conjecture that a ceiling for media *use* may have been reached, but that the explosion of new media has led to increased *exposure* because of increases in the proportion of media time that young people use several media concurrently.¹⁷

Table 2 provides little support for speculation that newer media, such as computers, the Internet, and video games, are displacing such older media as television. Not only does TV viewing consume almost triple the time given to the next closest media category, but also the next closest category consists of videos and movies—arguably simply another form of “television.” In other words, exposure to a “TV screen” in one form or another accounts for more than half of all young people’s electronic media exposure. Much the same pattern emerges in estimates of children’s media budgets based on calculating the share of total media time each individual youth devotes to each medium, then averaging those proportions. In 1999, eight- to eighteen-year-olds devoted 51 percent of their media time to TV and to videos and movies; in 2004 the proportion was 48 percent. Thus, as table 2 indicates, although total media exposure increased substantially from 1999 to 2004, the increment was due almost completely to increases in time with video games and computers—over the five years, daily video game time went from 0:26 to 0:49, and average daily computer time increased from 0:27 to 1:02.¹⁸ Moreover, the additional exposure was almost completely due to increased use of several media simultaneously, not to displacement of older media such as television. In short, total media exposure increased, media multitasking increased, total use remained relatively constant, and there is

little evidence that any medium—but especially television—is being displaced.¹⁹

We have located no estimates of the amount of time that young people spend using such new, portable media as cell phones or personal data assistants. However the Pew Internet and American Life Project reports that in 2005 two-thirds of all teenagers with cell phones (at that time 45 percent of all teens) used instant messaging (IM), with half of IM users exchanging such messages at least once daily.²⁰

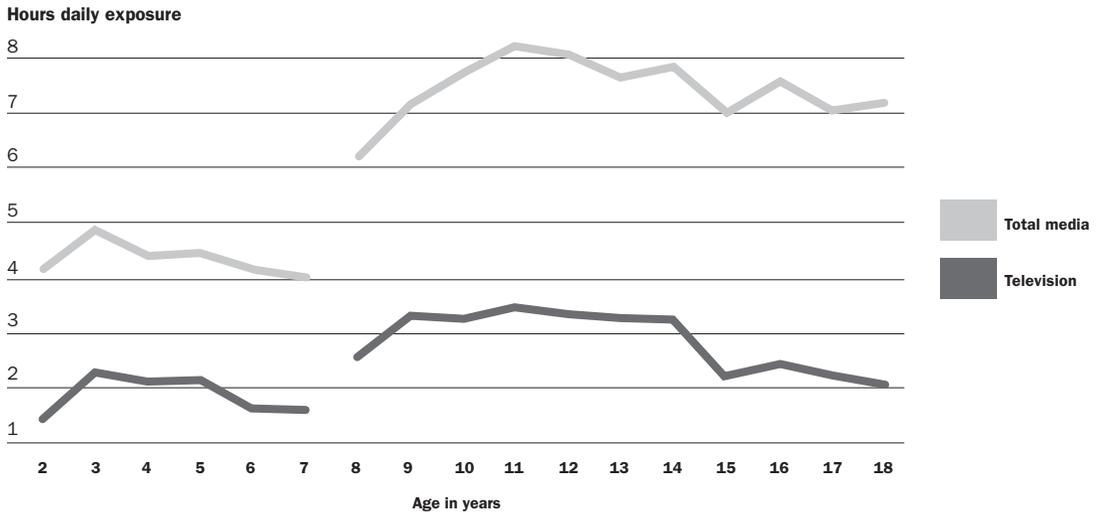
Age and Media Exposure

Exposure to each of the electronic media varies substantially according to a wide array of subgroup characteristics, and as table 2 indicates, age is one of the most important. Parent estimates of young children's exposure are less than half the total media exposure reported by older youths. There is little question that some of this difference is real.²¹ But a substantial part of the large difference between exposure levels reported for six- to seven-year-olds in the younger sample and for eight-year-olds in the older sample is likely due to differences in how data were gathered for the two age groups—that is, parent reports and self reports. Not only does a strong “social desirability” bias elicit conservative answers when parents are asked how much time their children devote to such activities as television viewing or video game playing, but the migration of media to children's bedrooms means that parents frequently do not know whether, when, or how much their children listen, view, or click.²² Nevertheless, with these caveats in mind, it seems clear that both television exposure and overall media exposure follow similar, age-related patterns.

Overall media exposure, pictured in figure 3, starts out low and increases fairly rapidly (to

just under five hours daily) until about the time children enter preschool or kindergarten. It drops off slightly for a brief period, then climbs to a peak of just over eight hours daily at around eleven to twelve years, followed by a gradual decline (to about seven hours daily) during later adolescence. This age-related, bi-modal pattern (that is, having two distinct peaks) of exposure was noted for television some years ago and, as is also illustrated in table 3, continues to hold for that medium. Indeed, we suspect the continuing dominance of television in children's media diet is largely responsible for the current pattern for overall media exposure.²³ The bi-modal pattern is generally explained as resulting from changes in children's available time—changes driven primarily by the demands of school and school-related activities. That is, among younger children, TV exposure (indeed, all media exposure) steadily increases during the first four or five years (paralleling increases in available time). At around four to six years, however, children begin school, and the more structured and to some extent television-free school environment means less time is available for media. As young children adapt to the demands of school and begin to have somewhat later bedtimes, TV viewing (and overall media exposure) climbs again. A few years later, however, the change from grade school to middle school brings with it new demands on time—longer school hours, homework, and organized after-school activities, such as sports, clubs, and jobs. The social demands of adolescence, coupled with increased mobility, also cut into media time; given a choice between hanging out with friends or watching TV, for example, a typical sixteen-year-old usually chooses the former.

Age-related exposure patterns, of course, depend on both the medium and the needs

Figure 3. Total Media Exposure and Television Exposure, by Age

Source: Donald F. Roberts and Ulla G. Foehr, *Kids and Media in America* (New York: Cambridge University Press, 2004).

and interests associated with different age categories. For example, among older youths, exposure to audio media, which is generally synonymous with music exposure, is positively and linearly related to age. As children grow older, they are exposed to more audio media. A similar positive link exists for age and computer time. Conversely, video game playing is negatively related to age. In the case of exposure to audio media, table 2 illustrates that music listening starts out relatively low (less than an hour daily at age eight), but climbs continually from that point, to more than three hours by age eighteen.²⁴ Such a positive relationship is not surprising. Popular music media (radio, recordings) have long ranked among adolescents' preferred media, and as digitization has made music media more portable, it has become much easier for teenagers to have music whenever they want, wherever they are. Computers follow a similar pattern, but for somewhat different reasons. Eight- through ten-year-olds report 0:37 daily of nonschool computer use; by eleven to fourteen years the average is

1:02, and among fifteen- to eighteen-year-olds average leisure-related computer time reaches 1:22. We suspect that several factors account for increased computer time among teens. As youngsters grow older they become more adept at using computers, particularly at navigating the Internet, and they find more and more sites relevant to their needs and interests. In addition, as computers take on the functions of most other media (young people use them to listen to music, watch movies and film clips, play interactive games, and read the newspaper), it is not surprising that adolescents devote more time to them. Perhaps most important, however, is the computer's emergence as a social networking device, a function that is particularly important to adolescents and to which they are increasingly devoting online attention. For example, in 2005, the Pew Internet and American Life Project reported that of the 87 percent of U.S. teens who used the Internet, more than half (55 percent) used online social networking sites, and that 55 percent had created a personal profile online.²⁵

As noted, video game exposure is negatively related to age. Eight- through ten-year-olds spend slightly more than an hour a day playing video games (both console-based and handheld combined), but video gaming declines with age to just over half an hour among fifteen- to eighteen-year-olds, a decrease that we suspect is largely accounted for by a steady increase in the number of older youths who play no video games on any given day.

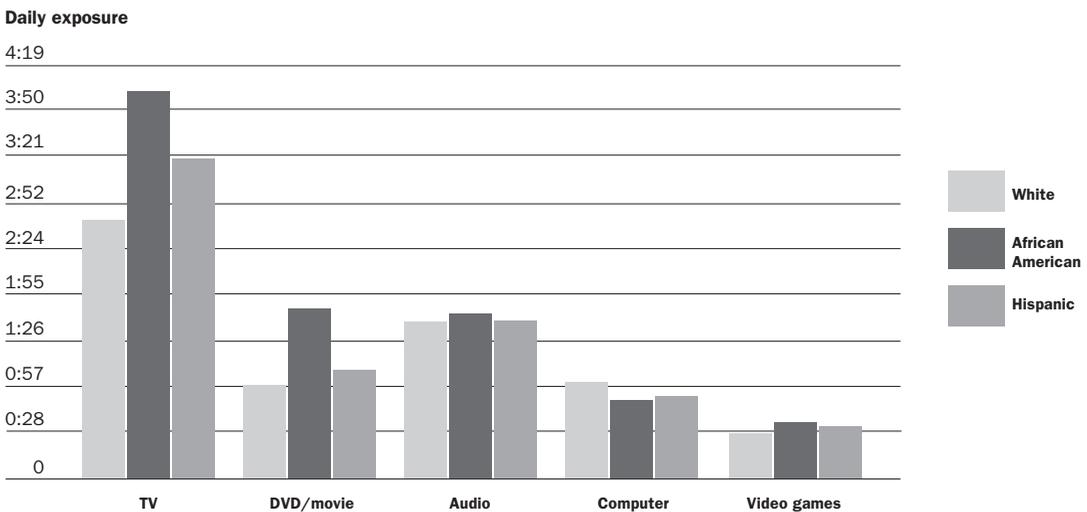
Race and Ethnicity and Media Exposure

Media exposure among young children, especially exposure to screen media such as television, videos, and movies, is related to race and ethnicity. Victoria Rideout and Elizabeth Hamel found that African American children from birth to age six spend significantly more time with television (1:18 daily) than do either Hispanic children (1:00) or white children (0:53).²⁶ This finding largely replicates a pattern found with a slightly older sample (two- to seven-year-olds) a few years earlier, when African American children

averaged 3:06 daily TV exposure, Hispanic children 2:55, and white children 2:29. With the exception of length of TV exposure, *young* African American and Hispanic children do not differ in their use of most other media. Young white children spend less time with videos, movies, and video games, and more time than African American children with computers.

Race and ethnicity are also related to similar differences in media exposure among older youths. African American and Hispanic youths report more overall media exposure than whites (total daily media exposure is 10:10, 8:52, and 7:58 for African Americans, Hispanics, and whites, respectively). And again, as illustrated in figure 4, exposure differs depending on the medium, with screen media (television, videos, and movies) accounting for most of the overall media exposure difference. African American youths spend more time with television (4:05) than do either Hispanic (3:23) or white youths (2:24), and when all screen media are com-

Figure 4. Daily Media Exposure among Children 8–18, by Race and Ethnicity



Source: Roberts, Foehr, and Rideout, *Generation M* (See figure 2).

bined, daily viewing averages 5:53 among African American eight- to eighteen-year-olds, 4:37 among Hispanics, and 3:47 among whites. A similar pattern exists for time devoted to playing interactive games: African American youngsters report the most game playing (0:40 daily), followed by Hispanic youngsters (0:34), then white youngsters (0:30). On the other hand, race and ethnicity are not related to exposure to audio media, and although a significantly higher share of white youths (57 percent) than either African American (44 percent) or Hispanic (47 percent) report using a computer on any given day, the three groups do not differ reliably in the amount of time they use computers. Apparently fewer minority youths use computers, but those who do use them for longer periods than do their white counterparts. These relationships between media use and race and ethnicity largely withstand controls for socioeconomic status. It seems then, that African American youths are particularly attracted to screen media, especially television, and that the use of such media accounts for the lion's share of the differences attributable to race and ethnicity.²⁷

Socioeconomic Status and Media Exposure

Reports of substantial differences in media exposure as a function of socioeconomic status are common, but recent research indicates that the picture may be changing. Earlier work found both parental education and household income to be negatively related to screen exposure in general and to television exposure in particular,²⁸ a pattern that has been repeated more recently for national samples of both younger and older youths.²⁹ For example, in 2005 children from birth to age six in households earning less than \$20,000 a year viewed 0:27 a day more television than children in households earning \$75,000 or more, a pattern repeated

for youth with high school graduate and college graduate parents. Similarly, the Kaiser Family Foundation's 1999 data indicated that two- to eighteen-year-olds from households earning more than \$40,000 annually reported significantly less exposure to television, to videos and movies, and to video games, than

Reports of substantial differences in media exposure as a function of socioeconomic status are common, but recent research indicates that the picture may be changing.

did their counterparts from households earning less than \$25,000, resulting (not surprisingly) in less overall media exposure. Children whose parents completed no more than high school were exposed to more screen media (especially television) and reported significantly more total media exposure than did their counterparts whose parents had attained higher levels of education.

Recently, however, the picture has become clouded. The Kaiser study found no relationship between household income and either screen media exposure or overall media exposure among eight- to eighteen-year-olds questioned in 2004.³⁰ Rather, there emerged what social scientists call a curvilinear relationship between level of parent education and both screen exposure and overall media exposure. Youths whose parents completed college reported the most media exposure, those whose parents had some college education reported the least exposure, and those whose parents completed no more than high school

fell in between (but nearer to the group that had completed college). Because the share of youngsters within each parental education category who used each of the media on any given day did not differ, it appears that although all young people watch screen media, those from the low- and high-education subgroups watch for longer periods on any given day.³¹

It is unclear why the power of socioeconomic variables to predict exposure to electronic media is waning—or, indeed, whether this one fairly recent finding will be replicated. Nevertheless, it is at least reasonable to speculate that American households have been so inundated by most media for so long that economic barriers to access are no longer a dominant issue; most low-income households have multiple TVs, video game players, and music media. Moreover, social attitudes toward the various media have become more accepting; for example, highly educated parents may not be as critical of media content as they once were. Both trends were noted for television almost two decades ago.³²

Gender and Media Exposure

Gender has not been shown to relate to differences in overall media exposure. However, boys and girls do report differing exposure

to various individual media, although these differences also depend on age. Rideout and Hamel report that among young children, boys spend more daily time than girls with video games (0:09 versus 0:02), computers (0:10 versus 0:06), and screen media overall (1:42 versus 1:30).³³ Among older youths, the relationship holds for interactive games (boys, 1:34; girls, 0:40), but there are no gender differences in computer time, though there are gender differences in *how* young people use computers. Older girls, on the other hand, report more daily exposure than boys to audio media (boys, 1:29; girls, 2:00). The overall result is no gender differences in total media exposure.³⁴

The “Household Media Environment” and Media Exposure

Earlier we noted an explosion in the array of personal and portable media available to today’s young people, ranging from PDMPs to cell phones with Internet access, as well as a migration of more “traditional” forms of media to children’s bedrooms. Each of these trends facilitates access to media, which in turn affects media exposure. Each trend may also indicate more positive family attitudes toward media and media use than was the case several decades ago. That is, parents who allow or facilitate putting television sets

Table 3. Daily Media Exposure of Children 8–18, by Household Media Environment

| Household media environment | Television | Videos and movies | Audio | Video games | Computer | Total |
|-------------------------------------|------------|-------------------|-------|-------------|----------|-------|
| Television in bedroom | 3:31 | 1:16 | 1:46 | 0:38 | 1:02 | 9:09 |
| No television in bedroom | 2:04 | 0:51 | 1:40 | 0:17 | 1:01 | 7:07 |
| Household rules about television | 2:18 | 1:07 | 1:30 | 0:18 | 0:50 | 7:07 |
| No household rules about television | 2:58 | 1:01 | 2:19 | 0:28 | 1:21 | 8:57 |
| High-television-orientation | 3:58 | 1:20 | 2:06 | 0:45 | 1:14 | 10:22 |
| Not high-television-orientation | 2:46 | 1:09 | 1:37 | 0:28 | 0:54 | 7:57 |

Source: Adapted from Roberts, Foehr, and Rideout, *Generation M* (see table 1).

or personal computers in their children's bedrooms, or who acquiesce to or assist their children's acquisition of portable digital media such as handheld video games or cell phones, are likely to hold more positive attitudes toward media and media exposure in general. These attitudes, in turn, may affect young people's media exposure.³⁵

Recent work comparing media exposure times of children and adolescents with and without a television set in their bedroom reveals that easy access substantially increases exposure, even among very young children. One study of children from birth to age six reports that those with a television set in their bedroom watch fifteen minutes more each day, and another pegs the associated increase at thirty minutes.³⁶ As table 3 illustrates, among eight- to eighteen-year-olds, the difference approaches an hour and a half; youths with no TV in their room report 2:04 daily viewing, while those with a TV claim 3:31 daily viewing. It is also important to note that the predictive power of a bedroom TV set is not limited to television exposure. Victoria Rideout, Elizabeth Vanderwater, and Ellen Wartella found that young children with bedroom TVs also spend more time playing video games, and Roberts, Foehr, and Rideout found that among older youths a bedroom TV predicts more video game playing and more video viewing, the result of which is two hours a day more overall media exposure (see table 3). Researchers find similar patterns of increased exposure when they compare older youths with and without a video game console in their bedroom and with and without a computer in their bedroom.³⁷

That the presence of each of these media—a TV, a video game console, a computer—in a young person's bedroom predicts exposure to several different media (hence to overall me-

dia exposure) suggests that something more than merely easy access is likely at play. That is, although a TV set in a child's bedroom certainly makes TV much easier to watch, its location in the bedroom also probably points to more positive or accepting attitudes toward media in general. Some support for this possibility comes from evidence that children in households where parents set rules about TV viewing are exposed less not only to television, but also to most electronic media (see table 3). Moreover, to the extent that parents try to enforce such media-related rules, the effect is even greater—in homes where the rules are enforced, media exposure is significantly lower.³⁸

Roberts, Foehr, and Rideout took the "household media environment" idea one step further by identifying "high-television-orientation" households. They classified children and adolescents from homes in which the television was usually on during meals, *and* was usually on during most of the day even when no one was watching, *and* in which parents made no attempt to control television viewing as being from high-television-orientation households and found that a full 25 percent of U.S. eight- to eighteen-year-olds lived in such households. As is clear in table 3, young people from high-television-orientation households report substantially higher exposure to each of the electronic media, resulting in more than two hours more daily total media exposure than reported by youth from households where the television does not assume such a central position. In other words, both easy household access to media and a positive household orientation toward media, especially television, operate to increase the time young people spend with media, hence the number of media messages they encounter.

Psycho-Social Predictors of Media Exposure

Researchers have examined several psychological variables related to young people's media use, including mental ability or academic performance, personal adjustment, and, more recently, sensation-seeking.

Researchers have long noted a negative link between television viewing and various indicators of children's intellectual abilities, a link fairly consistently supported with measures ranging from IQ and academic achievement test scores to school grades and, more

Young people who are less contented or less satisfied with various aspects of their lives tend to engage in higher levels of media exposure than do their more contented counterparts.

recently, to children's self-reported school grades.³⁹ The two Kaiser Family Foundation studies conducted with older youths find much the same pattern. That is, youngsters who reported earning the lowest grades in schools watch significantly more television than do those who earn higher grades.⁴⁰ The 1999 data also found a moderate negative relationship between self-reported school grades and most other electronic media exposure, resulting in a significant negative link between grades and total media exposure. Somewhat surprisingly, in the 2004 data the negative pattern for other media and for overall media exposure is quite weak; that is, self-reported grades are not strongly linked

with media exposure. Roberts and Foehr speculate that perhaps media have become such an integral part of most U.S. households that differences in exposure once related to academic performance are becoming attenuated.⁴¹ This possibility receives support from their finding that while there was no change from 1999 to 2004 in total media exposure reported by kids receiving "poor" or "fair" grades, among those who reported "good" grades overall, total media exposure increased by 0:43. That is, the difference in media exposure previously related to school grades was reduced to the point that it is no longer statistically significant. It seems, then, that although young people who achieve high grades continue to spend less time with media, the difference is not nearly as large as has been found in previous research.

Several early studies of children's television exposure found a negative link between amount of viewing and what researchers variously label as "personal adjustment," "social adjustment," or "contentedness."⁴² In both the United States and Great Britain, children who were least secure, who had difficulties making friends, or who experienced some kind of family conflict tended to be among the heaviest users of television. Indeed, the negative relationships were so robust that George Comstock argues that heavy media use became "recognized as a possible symptom of personal maladjustment."⁴³ The Kaiser Family Foundation studies, using an "index of personal contentedness," finds much the same pattern for eight to eighteen-year-olds, although with some changes from 1999 to 2004. In 1999, less contented youths reported significantly more exposure to all media except the computer and audio media; in 2004, the link remained negative but the differences were statistically significant only for audio media, video games, and overall

media exposure. In general, then, recent results dovetail fairly well with a substantial literature demonstrating that young people who are less contented or less satisfied with various aspects of their lives tend to engage in higher levels of media exposure than do their more contented counterparts.

The term sensation-seeking refers to individuals' need to seek stimulation. Reasoning that various kinds of media use, such as video game playing, provide high stimulation, Roberts, Foehr, and Rideout examined the relationship between seventh- to twelfth-grade students' media use and scores on a sensation-seeking measure. Although they did not find the expected link between sensation-seeking and video game exposure, they did find that compared with students classified as low or moderate sensation seekers, high sensation seekers reported significantly more television exposure, more use of audio media, and more total media exposure. Although the between-group differences for other types of media exposure were not reliable, high sensation seekers consistently reported higher levels of exposure than their low and moderate sensation-seeking counterparts.⁴⁴

Light vs. Heavy Media Exposure

As noted, the data summarized in table 2 provide scant support for the idea that time spent with new media is displacing time spent with older media. Rather, at least among older youths (eight to eighteen years), high exposure to one medium goes hand-in-hand with high exposure to most other media. Roberts, Foehr, and Rideout created groups of low, moderate, or high users of television, of computers, and of video games, classifying as heavy users the 20 percent of youths reporting more than five hours of daily TV exposure, the 16 percent reporting more than one hour a day of computer use, and

the 13 percent reporting more than one hour of video gaming. Conversely, light exposure was defined as one hour or less of TV daily (34 percent of kids), no use of a computer (45 percent), and no use of video games (58 percent). Youngsters classed as heavy users of each of these three media consistently reported higher levels of exposure to all other media. Heavy TV users reported about two hours more daily exposure to all other media (excluding TV) than moderate or light viewers—6:43, as against 4:31 and 3:57. For heavy computer users and heavy video game players, the difference in exposure to all other media ranged from three to four hours more daily. For heavy computer users, the time reported was 9:07, as against 6:39 for moderate users and 6:00 for light users. For heavy, moderate, and light video game users, the comparable figures were 10:58, 8:12, and 6:04. It is also worth noting that the pattern holds for each individual medium as well as for overall media exposure. For example, young people classed as heavy computer users spend more time watching TV, videos, and movies, more time listening to radio and to audio recordings, and more time playing video games than either light or moderate computer users spend with each of those specific media.

The total media exposure reported by each of the high-exposure groups is so high as to give one pause. For example, focusing on heavy users of television, if we add five hours of TV viewing (the criterion used to define heavy viewers) to the almost seven hours of "other" electronic media time they report, then heavy TV viewers are exposed to a minimum of just under twelve hours of media content daily. Similarly large numbers result when we conduct the same exercise for youngsters classed as heavy users of computers (a minimum of ten hours daily media exposure) or of video

games (twelve hours daily exposure). Such high total media exposure raises an obvious question: where could heavy users of TV, video games, or computers possibly find ten to twelve hours in their day to spend with media? A large part of the answer appears to reside in the media multitasking phenomenon—that is, the growing levels of concurrent media use among U.S. youths.

Media Multitasking

In a recent examination of media multitasking, Ulla Foehr provides insights not only about the level of concurrent media use, but also about who is and is not media multitasking and which media are more likely to be used concurrently with which other media.⁴⁵

Foehr notes that a large majority of young people—81 percent—report sharing at least some of their media time among two or more media concurrently. Wide variations, however, exist in how and how much young people media-multitask. When asked how often they use other media at the same time they watch TV, 29 percent of seventh- to twelfth-graders say “most of the time” and another 30 percent reply “some of the time.” Asked that question in relation to listening to music, 33 percent say “most of the time” and 30 percent, “some of the time”; in relation to using a computer, 33 percent reply “most of the time” and 29 percent, “some of the time.” In other words, for each of these three media, a solid majority of young Americans media-multitask at least some of the time, and from a quarter to a third report concurrent media use “most of the time.” Roughly one-fifth of eight- to eighteen-year-olds say that they typically do not engage in concurrent media use.

Amount of media exposure strongly predicts media multitasking. Young people who report more exposure to media in general also

report more media multitasking. This is hardly surprising. Arguably the two activities can be conceived as two sides of the same coin. For example, when Roberts, Foehr, and Rideout classified seventh- through twelfth-graders as light, moderate, or heavy media multitaskers, they found that substantially greater shares of heavy media multitaskers were also classed as heavy users of each of the individual media.⁴⁶ Thus, for example, 25 percent of heavy TV viewers (more than five hours daily) but only 11 percent of light TV viewers (one hour or less daily) were heavy media multitaskers. Similarly, 33 percent of heavy computer users but only 8 percent of light computer users were heavy multitaskers. Clearly, although some young people are more likely than others to use several media concurrently and some media invite multitasking more than others, the use of several media at the same time is a growing phenomenon among U.S. youngsters—one deserving of more attention.

Correlates of Media Multitasking

Both opportunity and environment play an important role in concurrent media use. Young people from households where the television can be seen from the computer are more likely to be media multitaskers than are young people from households in which computer placement does not allow TV viewing. Not having a computer at all exerts a negative influence. Youth from homes with no computer are less likely to be media multitaskers, probably because the computer promotes media multitasking more than any other medium. Young people from high-television-orientation households (see table 3) are also more likely to use several media concurrently than are those from low-television-orientation households. In other words, children from homes in which the television is usually on, is on during dinner, and in which

Table 4. Share of All Time Devoted to a Given Medium Also Shared with Two or More Other Media

| Percent | |
|---------------------------|----|
| Television | 17 |
| Audio media | 33 |
| Reading | 35 |
| Video games | 41 |
| Other computer activities | 49 |
| Homework on the computer | 60 |
| Computer games | 67 |
| Instant messaging | 74 |
| Visiting websites | 74 |
| E-mailing | 83 |

Source: Ulla G. Foehr, *Media Multitasking among American Youth: Prevalence, Predictors, and Pairings* (Menlo Park, Calif.: Kaiser Family Foundation, 2006).

no rules govern TV use, are more likely to media-multitask. On a more psychological level, high sensation-seeking youngsters are more likely than their low sensation-seeking counterparts to be media multitaskers. Foehr reasons that because high sensation-seekers are averse to boredom and seek stimulating experiences, they are more likely “to keep multiple media ‘balls’ in the air at any one time.” Finally, gender is the single demographic variable that predicts media multitasking. Girls report more concurrent media exposure than boys. Although this finding might seem to confirm the stereotype of women as historically being multitaskers (that is, juggling several household tasks while caring for children), no research addresses whether females are any more proficient at multitasking when it comes to media use.

Media Pairings

Intuitively, it seems that some media should be more amenable to multitasking than others; most people sometimes read with music playing or the TV on in the background. Some media pairings also seem more reasonable

than others: listening to music and reading text on a computer screen seem to go together; listening to music and watching television or watching television and video gaming seem more in conflict. Foehr’s analysis of young people’s time-use diaries supports this line of reasoning, but not always in ways one might expect. Table 4 summarizes the share of total time spent with each individual medium (or in the case of the computer, on each different computer activity) that is also shared with any other medium.⁴⁷ Somewhat surprisingly, given how easy it seems to be to engage in “other activities” while viewing, television is the least shared medium. Only 17 percent of television time is shared with other media, while a third of time spent listening to music is shared with other media, and 41 percent of video game time is shared. Television time is highly likely to be shared with a variety of non-media activities, such as eating or doing household chores. Indeed, Foehr finds that non-media activities dominate as secondary activities when the media activity is watching TV or listening to music.

Although television ranks as the least likely medium to be multitasked in terms of proportion of total time shared with other media, it is important to note that television time so far exceeds time devoted to most other media that the 17 percent of TV time that is shared is substantial so that television’s importance in the multitasking mix should not be underestimated. Indeed, when each individual medium is examined in terms of the proportion of time it shares with each other medium, television ranks as *most likely* to be multitasked. That is, television is the medium most likely to be paired with music listening, reading, video gaming, and e-mailing and second most likely to be paired with each of the other computer activities. In other words, although when watching television a young person is least

likely to use several media concurrently, when a young person is media multitasking, television is the first or second most likely medium to be involved.

Table 4 also indicates that the computer is at the heart of the multitasking phenomenon. When all computer activities are lumped together to measure computer time, then the computer looks comparable to such media as music or print in terms of how much of its time is shared (just under half). But when each individual computer activity is examined separately, most of the time it is used is typically shared with other media (frequently with other computer activities). For example, the proportion of shared computer activity time ranges from 60 percent (doing homework on the computer) to 83 percent (sending e-mail). In other words, when young people use a computer, they are likely engaged in secondary activities, other media activities dominate as secondary activities, and another computer activity is most likely to be paired with the primary computer activity.

The computer truly appears to be a “media multitasking station.” Its capacity to offer multiple windows on multiple activities concurrently drives the phenomenon. And although we know of no empirical data addressing the question, we can’t help but wonder if the computer experience may not also fuel young people’s interest in and ability to engage in multiple information processing activities even beyond computer activities.

Some Implications

Clearly, the label “Media Generation” fits today’s young people. More than any past generation, they have access to a wide, and still expanding, array of media—in their homes, in their rooms, and, with the emergence of miniaturization, in their backpacks

and pockets. They devote more time to media than to any other single activity with the exception of sleep. Indeed, young Americans today are so immersed in media that they have become “media multitaskers.” Well over half report using multiple media concurrently “some” or “most” of the time, to the extent that in 2004, eight- to eighteen-year-olds reported media exposure levels (time spent with media content) more than 25 percent higher than media use levels (time spent with media)—5:48 of daily media *use* resulting in 7:50 of content *exposure*.

Arguably, then, the headline covering the findings from research on media exposure over the past ten years could be that concurrent use of multiple media has become the order of the day among young people. They frequently listen while they watch while they click and, sometimes at least, write.⁴⁸ This point is perhaps nowhere better illustrated than in the words of a seventeen-year-old boy quoted in a Pew Internet and American Life study of teenage life online: “I multitask every single second I am on-line. At this very moment, I am watching TV, checking my email every two minutes, reading a news-group about who shot JFK, burning some music to a CD and writing this message.”⁴⁹

Arguably, the emergence of digital media, their portability, and the kinds of convergence they have enabled are the driving force behind the media multitasking phenomenon. As high-speed connectivity has expanded the communication capabilities of computers, whether in the form of desktop PCs, laptops, or, more recently, mobile phones (which have rapidly morphed into pocket computers), content that three decades ago was delivered through distinctly different media can now be accessed through a single instrument. As the boy quoted above illustrates, for today’s young

people some form of digital instrument often serves as the gateway to both traditional and new forms of print media (newspapers, magazines, books, message boards, blogs, and chatrooms), audio media (both music and talk are streamed and downloaded), and audiovisual media (the latest mobile phone promotions trumpet anytime, anywhere access to

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motion pictures, television programs, and podcasts). And of course, each of these traditional “mass media” windows shares space concurrently with digital media’s enabling of new and extended interpersonal connections—e-mail, instant messaging, blogging, photo-sharing, or recording (some)one’s life on any of a number of social networking sites, such as MySpace and Facebook. Teenagers’ rapid adoption of these social functions not only attests to the importance to them of social contacts, but also seems to be changing adolescents (at least large numbers of them) from traditional media consumers into real-time media critics (it is not unusual for “Internet buddies” to carry on an instant messaging conversation about a TV program while watching from different locations) and media producers (of websites, fan fiction, YouTube clips, and more).⁵⁰

At the least, changes such as the convergence of media into one technology that facilitates concurrent access to multiple messages points to a need to rethink how “media exposure” is to be measured. Estimates of time devoted to radio, television, newspapers, or “the computer” no longer seem to capture young people’s media behavior; what were once conceived as separate activities seem no longer to function independently. New conceptualizations might take any of several forms. They could focus on the functions served by media exposure (diversion and pleasure, information seeking, social networking). They could look at the type of engagement different kinds of exposure elicits (active responding as with a video game; information-seeking as working on a homework assignment; content creation, as when constructing a MySpace page; less active processing, as when watching a situation comedy or music video). Or they could classify exposure in terms of any of several content classifications (for example, fiction versus nonfiction, reality versus fantasy, social versus nonsocial). Whatever form new conceptualizations of media exposure take, it seems clear that we can no longer limit analyses of media exposure just to classification by medium.

It is also important to keep in mind that the young people’s media behaviors described here summarize averages. Even when results are examined in terms of the variables, such as age, gender, race, and socioeconomic status, commonly used in research, the results are based on averages. The problem is that averages may conceal a great deal of variation. Indeed, there may be nothing more elusive than “the average American child,” whether in terms of media behavior or any other behavior. Although it is true that substantial numbers of young

people report using multiple media concurrently “most of the time,” it is also true that substantial numbers report that they “almost never” media multitask. Similarly, although 20 percent of youths report more than five hours of television viewing on any given day, and another 45 percent report from one to five hours, 35 percent watch less than one hour (with almost 20 percent not watching at all). And these kinds of findings hold even within the various demographic subgroups. For example, 31 percent of African American youth report more than five hours of daily television, but 16 percent report none at all. Indeed, as the discussion of the digital divide indicates, important differences remain in young people’s access to at least some kinds

of media. Our point is that even though media are central and ubiquitous in the lives of many young Americans, researchers have good reason to focus more attention on those who do not appear to be characterized by the “Media Generation” sobriquet.

That said, anything to which the lion’s share of U.S. youths devote more time than any other waking activity warrants continued scrutiny. That the media give American youngsters almost instantaneous access to more information than has ever been available to any previous generation—access that, by the teen years, is generally unsupervised—suggests that the scrutiny should be intense.

Endnotes

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4. Donald F. Roberts and others, *Kids and Media at the New Millennium* (Menlo Park, Calif.: Kaiser Family Foundation, 1999) and Roberts and Foehr, *Kids and Media in America* (see note 3), report data on two-through eight-year-olds gathered in 1999. Victoria J. Rideout, Elizabeth A. Vandewater, and Ellen A. Wartella, *Zero to Six: Electronic Media in the Lives of Infants, Toddlers, and Preschoolers* (Menlo Park, Calif.: Kaiser Family Foundation, 2003), reports data gathered on children from birth to age six in 2003; Victoria J. Rideout and Elizabeth Hamel, *The Media Family: Electronic Media in the Lives of Infants, Toddlers, Preschoolers, and their Parents* (Menlo Park, Calif.: Kaiser Family Foundation, 2006) reports data gathered on children from birth to age six in 2005.
5. Roberts and others, *Kids and Media at the New Millennium* (see note 4), and Roberts and Foehr, *Kids and Media in America* (see note 3), provide data on older youths gathered in 1999; Donald F. Roberts, Ulla Foehr, and Victoria Rideout, *Generation M: Media in the Lives of 8-18-year-olds* (Menlo Park, Calif.: Kaiser Family Foundation, 2005) reports data gathered in 2004. Inclusion of media-focused, time-use diaries is an important element of these studies because they enable estimates of the proportion of time youngsters use several media concurrently, an increasingly common media behavior among U.S. young people, raising an array of new issues and questions.
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 16. Although some recent studies have asked youngsters how often they use several media at once, the media use–media exposure distinction is possible only when research obtains measures of the amount of time youth use several media concurrently. Roberts and his colleagues (see note 5) accomplished this by collecting week-long time-use diaries asking youth to report all daily media activities for each half hour from 6 a.m. until midnight for seven days.
 17. Because Roberts, Foehr, and Rideout, *Generation M* (see note 5), included exposure to print media in their examination of young people's media use, their published estimates of total media use and exposure differ somewhat from those reported here, which include only electronic media.
 18. It should be noted, however, that exposure times for computers, video games, and "other" screen media are not strictly comparable from 1999 to 2004, because the latter questionnaire included items not covered in 1999 (for example, handheld video games, instant messaging, DVRs); Roberts, Foehr, and Rideout, *Generation M* (see note 5).
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 20. Lenhart, Madden, and Hitlin, *Teens and Technology* (see note 8).
 21. George Comstock, *Television and the American Child* (San Diego, Calif.: Academic Press, 1991), reviews a number of early studies of young children's television viewing that illustrate lower exposure among younger children.

22. Because data for younger and older children come from different data sources, results for the two age groupings have been kept separate in all tables and figures.
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25. Lenhart, Madden, and Hitlin, *Teens and Technology* (see note 8).
26. Rideout and Hamel, *The Media Family* (see note 4).
27. Roberts, Foehr, and Rideout, *Generation M* (see note 5); Roberts and others, *Kids and Media at the New Millennium* (see note 4). Also see A. F. Albarran and D. Umphrey, “An Examination of Television Motivations and Program Preferences by Hispanics, Blacks, and Whites,” *Journal of Broadcasting and Electronic Media* 37 (1993): 95–103; Aletha C. Houston and others, *Big World, Small Screen: The Role of Television in American Society* (University of Nebraska Press, 1992); J. P. Tangney and Seymour Feshbach, “Children’s Television Viewing Frequency: Individual Differences and Demographic Correlates,” *Personality and Social Psychology Bulletin* 14 (1988): 145–58.
28. Comstock, *Television and the American Child* (see note 21).
29. Roberts and others, *Kids and Media at the New Millennium* (see note 4); Roberts, Foehr, and Rideout, *Generation M* (see note 5); Comstock and Scharrer, *Television: What’s On, Who’s Watching, and What It Means* (see note 3).
30. Both Roberts and others, *Kids and Media* (see note 4) and Roberts, Foehr, and Rideout, *Generation M* (see note 5) used federal estimates of median community income for the zip code area of each participating school as their proxy for household income.
31. Roberts, Foehr, and Rideout, *Generation M* (see note 5).
32. Comstock and Scharrer, *Television: What’s On, Who’s Watching, and What It Means* (see note 3), reviews this trend.
33. Rideout and Hamel, *The Media Family* (see note 4).
34. Roberts, Foehr, and Rideout, *Generation M* (see note 5). Christenson and Roberts, *It's Not Only Rock and Roll* (see note 24), in their review of adolescents’ use of popular music, found that since the 1970s girls have consistently reported more exposure than boys to music media.
35. Such a scenario is supported by at least one recent study of young children’s parents. Rideout and Hamel, *The Media Family* (see note 4), found that not only do today’s parents see the media as important educa-

- tional tools, but they also report that they are more likely to witness their children imitating positive than negative behaviors observed in the media.
36. Rideout, Vanderwater, and Wartella, *Zero to Six* (see note 4); Rideout and Hamel, *The Media Family* (see note 4).
 37. Roberts, Foehr, and Rideout, *Generation M* (see note 5).
 38. Ibid.
 39. See, for example, Schramm, Lyle, and Parker, *Television in the Lives of our Children* (see note 15); Mark Fetler, "Television Viewing and Academic Achievement," *Journal of Communication* 34 (1987): 104–18. For extended reviews of the relationship between various measures of academic performance and television exposure see Comstock, *Television and the American Child* (see note 21); P. A. Williams and others, "The Impact of Leisure-Time Television on School Learning," *American Educational Research Journal* 19 (1982): 19–50.
 40. Although concern has been voiced that self-reported grades produce inflated estimates, the ordinal strength of the measure has received validation. Sanford M. Dornbusch and others, "The Relation of Parenting Style to Adolescent School Performance," *Child Development* 58 (1987): 1244–57, report a correlation of $r=.77$ between self-reported grades and actual grade point average.
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 42. See, for example, Hilde T. Himmelweit, A. N. Oppenheim, and Pamela Vince, *Television and the Child* (London: Oxford University Press, 1958); Eleanor E. Maccoby, "Why Do Children Watch Television?" *Public Opinion Quarterly* 18 (1954): 239–44; Schramm, Lyle, and Parker, *Television in the Lives of Our Children* (see note 15); J. P. Tangney, "Aspects of the Family and Children's Television Viewing Content Preferences," *Child Development* 59 (1988): 1070–79.
 43. Comstock, *Television and the American Child* (see note 21), p. 33.
 44. Roberts, Foehr, and Rideout, *Generation M* (see note 5).
 45. Ulla G. Foehr, *Media Multitasking among American Youth: Prevalence, Predictors, and Pairings* (Menlo Park, Calif.: Kaiser Family Foundation, 2006); also see Ulla G. Foehr, "Media Multitasking among American Youth: Prevalence, Predictors, and Pairings" (Unpublished Doctoral Dissertation, Stanford University, Stanford, Calif., 2006).
 46. Respondents were assigned as light, moderate, or heavy media multitaskers on the basis of responses to questions asking young people how often they used several media concurrently when using each of four specific media: television, print, audio, computers. Heavy media multitaskers were those who answered "most of the time" to three items and at least "some of the time" to a fourth; Roberts, Foehr, and Rideout, *Generation M* (see note 5).
 47. That is, the denominator in each of these calculations is the total of all time spent using a medium, whether as a primary or secondary activity; the numerator is the total amount of time spent with that medium that is also shared with any other medium.
 48. It should be noted that there is still debate over whether and the degree to which media multitasking occurs simultaneously or serially (albeit with extremely rapid serial switching). That is, how much processing of

information from distinct channels occurs at the same time and how much is the result of switching from one channel to another has not been resolved. The problem is compounded because “medium” is not co-extensive with “channel,” and both are independent of content. Television (a medium) includes at least two channels, visual and audio, and possibly a third (for example, when a character reads aloud printed material presented on the screen). Moreover, processing is influenced by content as well as channel (or medium). Thus, for example, while simultaneous processing might operate when watching and hearing a television character read printed material aloud, serial processing might be required when reading a magazine and concurrently watching an unrelated television program (or even listening to music). See, for example, D. E. Meyer and D. E. Kieras, “A Computational Theory of Executive Cognitive Processes and Multiple-Task Performance, Part I, Basic Mechanisms,” *Psychological Review* 104, no. 1 (1997): 3–65.

49. Amelia Lenhart, Lee Rainie, and Oliver Lewis, *Teenage Life Online: The Rise of the Instant-Messaging Generation and the Internet’s Impact on Friendships and Family Relationships* (Washington, D.C.: Pew Internet and American Life Project, 2001).
50. Amelia Lenhart and Mary Madden, *Teen Content Creators and Consumers* (Washington, D.C.: Pew Internet and American Life Project, 2005) report that over half of U.S. twelve- to seventeen-year-olds have created website content.

Media and Young Children's Learning

Heather L. Kirkorian, Ellen A. Wartella, and Daniel R. Anderson

Summary

Electronic media, particularly television, have long been criticized for their potential impact on children. One area for concern is how early media exposure influences cognitive development and academic achievement. Heather Kirkorian, Ellen Wartella, and Daniel Anderson summarize the relevant research and provide suggestions for maximizing the positive effects of media and minimizing the negative effects.

One focus of the authors is the seemingly unique effect of television on children under age two. Although research clearly demonstrates that well-designed, age-appropriate, educational television can be beneficial to children of preschool age, studies on infants and toddlers suggest that these young children may better understand and learn from real-life experiences than they do from video. Moreover, some research suggests that exposure to television during the first few years of life may be associated with poorer cognitive development.

With respect to children over two, the authors emphasize the importance of content in mediating the effect of television on cognitive skills and academic achievement. Early exposure to age-appropriate programs designed around an educational curriculum is associated with cognitive and academic enhancement, whereas exposure to pure entertainment, and violent content in particular, is associated with poorer cognitive development and lower academic achievement.

The authors point out that producers and parents can take steps to maximize the positive effects of media and minimize the negative effects. They note that research on children's television viewing can inform guidelines for producers of children's media to enhance learning. Parents can select well-designed, age-appropriate programs and view the programs with their children to maximize the positive effects of educational media.

The authors' aim is to inform policymakers, educators, parents, and others who work with young children about the impact of media, particularly television, on preschool children, and what society can do to maximize the benefits and minimize the costs.

www.futureofchildren.org

Heather Kirkorian is a postdoctoral research associate at the University of Massachusetts–Amherst. Ellen Wartella is a professor, executive vice chancellor, and provost at the University of California–Riverside. Daniel Anderson is a professor at the University of Massachusetts–Amherst.

Since television first appeared in the nation's living rooms in the middle of the twentieth century, observers have voiced recurrent concern over its impact on viewers, particularly children. In recent years, this concern has extended to other electronic screen media, including computers and video game consoles. Although researchers still have much to learn, they have provided information on the links between electronic media, especially television, and children's learning and cognitive skills. The message is clear: most (if not all) media effects must be considered in light of media content. With respect to development, what children watch is at least as important as, and probably more important than, how much they watch.

Until the 1980s, social science researchers had only an implicit theory of how viewers watched television.

In this article we review media research with an emphasis on cognitive skills and academic achievement in young children. We begin by arguing that by age three, children are active media users. We then discuss important aspects of child development that highlight the debate over whether children younger than two should be exposed to electronic media, emphasizing the apparent video deficit of infants and toddlers in which they learn better from real-life experiences than they do from video. Next we look at research on media effects in three areas: associations between media use and cognitive skills, particularly attention; experimental evidence for direct learning from educational media;

and associations between early media use and subsequent academic achievement. We close with some suggestions for both media producers and parents for enhancing and extending the potentially beneficial effects of electronic media use in children, particularly those who are of preschool age.

Children as Active Media Users

Until the 1980s, social science researchers had only an implicit theory of how viewers watched television. Analysts regarded television viewing, particularly by young children, as being cognitively passive and under the control of salient attention-eliciting features of the medium such as fast movement and sound effects. Jerome Singer formalized this theory, proposing that the "busyness" of television leads to a sensory bombardment that produces a series of orienting responses that interferes with cognition and reflection. As a result, children cannot process television content and therefore cannot learn from it.¹ Others proposed similar views, arguing that programs such as *Sesame Street* provided nothing that could be truly educational.²

Aletha Huston and John Wright proposed a somewhat different theory of attention to television, positing that the features of television that drive children's attention may change as a child ages. Specifically, they claimed that in infancy, perceptually salient features of television such as movement and sound effects drive attention. With age and experience, however, children are less influenced by perceptual salience and are able to pay greater attention to informative features such as dialogue and narrative.³

Around the same time, Daniel Anderson and Elizabeth Lorch created a complementary model of children's attention to television, drawing on evidence that television viewing is

Table 1. Selected Popular Television Programs and DVD Series for Young Children

| TV programs | Description | Network |
|-------------------|--|---------------------|
| Barney & Friends | Evoking a preschool setting, Barney the dinosaur teaches songs and dances to young children. The show focuses heavily on pro-social themes of sharing, empathizing, helping others, and cooperating. | PBS |
| Blue's Clues | A human host encourages viewers at home to help solve a mystery with his dog friend, Blue. The show is often repetitive and encourages interactivity by asking viewers to find clues and solve puzzles. | Nickelodeon |
| Bob the Builder | Bob the Builder and his construction crew face building, renovation, and repair challenges. The series often focuses on identifying a problem and making a plan to solve the problem. | PBS |
| Dora the Explorer | Featuring a bilingual Latina girl as the lead, Dora and her friends go on quests and help others, encouraging viewers to help out through their own actions or by telling her what she needs to know. In addition to highlighting traditional educational content such as color and shapes, Dora teaches language by repeating words and phrases in English and Spanish. | PBS |
| Sesame Street | Combining puppetry, live action, and animation, this long-running series focuses on a wide range of topics including the alphabet, numbers, emotion management, conflict resolution, music, dance, and healthy lifestyles. | PBS |
| Teletubbies | Centering on four colorful characters, the Teletubbies speak in a baby-like language and learn through play. The Teletubbies have televisions in their stomachs that show clips of real children from around the world. This program is targeted at toddlers. | PBS |
| Thomas & Friends | Based on a book series, Thomas the Tank Engine and his engine friends learn to work hard and be cooperative with each other. | PBS |
| The Wiggles | Featuring a four-man singing group for children, episodes of The Wiggles include songs and skits focused on solving a problem. The Wiggles encourages children to sing songs and move their bodies to music. | Disney |
| DVD series | Description | Producer |
| Baby Einstein | Series content covers wide range of topics including music, art, language, poetry, and science. Targeted at children starting at one month. | Disney |
| Brainy Baby | Educational series highlighting range of subjects including alphabet, art, music, shapes, foreign languages, and right and left brain development. Targeted at children starting at nine months. | Brainy Baby Company |
| Sesame Beginnings | Features baby versions of the Muppets from Sesame Street. The focus is on encouraging interactions between child and caregivers. Targeted at children starting at six months. | Sesame Workshop |

based on active cognition. They argued that attention in children at least as young as two is guided in large part by program content. For example, preschool children pay more attention to normal video clips than to those that have been edited to make them incomprehensible, for example by using foreign dubs of the video clips or randomizing the order of shots within the clips.⁴ Moreover, preschool-age children pay more attention to children's programs than to commercials even though commercials are more densely packed with formal features.⁵ Children learn strategies for watching television by using their knowledge of formal features to guide atten-

tion.⁶ Finally, to understand typical programs that use standard video montage such as cuts, pans, and zooms, children engage in a variety of inferential activities while viewing.⁷

Developmental Considerations

Although children are active viewers of television by preschool age, research suggests that this may not be true of infants and toddlers. In this section we summarize research on attention to, comprehension of, and learning from video by children under two.

Attention to Electronic Media

Until recently, research on media effects

did not focus on infants and toddlers. Early studies reported that children younger than two paid little attention to television, perhaps because little television was produced for them.⁸ The early 1990s, however, saw a virtual explosion in the production of television

Research suggests that children do not comprehend the symbolic nature of television until they reach the preschool years.

programs and videos designed for infants and toddlers, and some research now suggests that infants and toddlers pay close attention to these videos.⁹ The increase in infant-directed media products has led to debate over whether infants and toddlers should be exposed to electronic media. (See table 1 for a description of some popular media products for young children.)

Although the underlying mechanisms driving attention to video appear to be the same in adults and infants as young as three months, some research has found differences in the ways in which younger and older viewers watch professionally produced video.¹⁰ For example, one study observed patterns of eye movements in one-year-olds, four-year-olds, and adults while they watched *Sesame Street* and found systematic differences between infants and older viewers. Infants' visual fixations, for example, were more variable and less sensitive to changes in content.¹¹ In another experiment, children aged six, twelve, eighteen, and twenty-four months watched normal and distorted segments of *Teletubbies*, a program designed for viewers in this age

range.¹² In one distorted video, shots were randomly ordered; in the other, utterances were reversed to produce backwards speech. The experiment found that although older children (eighteen and twenty-four months) looked for longer periods at the normal video segment than at the distorted segments, younger children (six and twelve months) did not appear to discriminate between the two. These findings suggest that children under eighteen months may not understand, and thus learn from, television in the same way as do older children. In particular, they may be inattentive to dialogue and may fail to integrate comprehension across successive shots in filmic montage.

Perception of Video

One area of cognitive development influencing children's ability to learn from television is the perception of video itself. Some research suggests that children do not begin to discriminate between television and real-life events until the early preschool years. For example, Leona Jaglom and Howard Gardner reported qualitative observations of three children from age two to five. They noted that at age two, the children recognized that the television world was contained within the television set but not until they reached age three or four did they realize that the television world could not affect them—that, for example, television characters could not enter their bedrooms. The authors concluded that sometime between ages two and three, children develop an understanding of the representational nature of video.¹³

In a similar vein, John Flavell and several colleagues conducted a series of experiments with preschool-age children to investigate the distinction they made between real objects and those represented on video. Younger children were less likely to correctly answer

questions regarding the uses of objects on television. For example, three- and four-year-old children saw a video image of a bowl of popcorn and were asked if the popcorn would fall out of the bowl when the television set was turned upside down. The four-year-olds recognized that televised images represent real objects while three-year-olds failed to discriminate between televised images and real objects, claiming that the popcorn would fall out of the bowl if the television was turned upside down.¹⁴

Other research focusing on children's ability to discriminate between televised programs and commercials has generally demonstrated that children younger than five cannot consistently make that distinction.¹⁵ Even when young children correctly label programs and commercials, they may still think that the commercial is part of or connected to the program.¹⁶ Moreover, although children may be able to identify commercials based on perceptual cues by age five, their ability to recognize the persuasive intent and inherent bias in advertising does not appear to develop until age seven or eight.¹⁷

Together this research suggests that children do not comprehend the symbolic nature of television until they reach the preschool years; evidence of comprehending and learning from television at younger ages than about two-and-a-half is meager. And it may take several more years before children are able to make more specific discriminations with respect to program content.

Learning from Electronic Media

Many infant-directed media products make explicit claims about their educational value; others, with titles such as *Baby Einstein*, keep their claims implicit. But analysts know little about the extent to which children two

years and younger learn from commercially produced television programs. Experiments on learning from video have repeatedly found that infants and toddlers learn better from real-life experiences than from video. This so-called video deficit disappears by about age three, when learning from video becomes robust.¹⁸

Support for the video deficit hypothesis comes from several lines of research. Studies of language learning have demonstrated that children aged two and older can learn vocabulary from television.¹⁹ Unlike older children, however, infants and toddlers are less likely to learn from video. One experiment found that children younger than two learned vocabulary better from real-life experiences than from equivalent video presentations.²⁰ Other experimental research demonstrates that television models are less effective than live ones in preserving discrimination of foreign phonemes (speech sounds) in infants.²¹

Additional support for the video deficit hypothesis comes from studies examining infants' and toddlers' ability to imitate specific actions, such as an adult demonstrating actions with a puppet. In an experiment comparing toddlers' imitation of live and mediated (that is, videotaped) models, Rachel Barr and Harlene Hayne reported that twelve-, fifteen-, and eighteen-month-olds were more likely to perform a behavior after viewing unmediated, live models than after viewing either the video model or no model. Only the oldest age group was more likely to perform the behavior after seeing the video model than the control group after seeing no modeled behavior.²² A more recent experiment made similar findings for children at twenty-four and thirty months.²³ It is clear that, unlike infants and toddlers, preschool-age children can readily imitate behaviors seen on video.²⁴

Another line of research relevant to infants' and toddlers' ability to transfer from video to real-world problems involves object-retrieval tasks. In these experiments, the child either sees a toy hidden in an adjacent room through a window or watches the toy being hidden on television. In a study of children aged two and two-and-a-half, Georgine Troseth and Judy DeLoache reported that both age groups were able to find the toy on every trial when the hiding event was seen through a window but less often when the event was watched on television, particularly for the younger participants.²⁵ Kelly Schmitt and Daniel Anderson reported similar findings with overall performance at chance levels (25 percent) for children aged two and about 50 percent for children aged two-and-a-half in the television task but nearly perfect at both ages for the window task. Three-year-olds did well on both tasks.²⁶ Marie Schmidt, Alisha Crawley-Davis, and Daniel Anderson attempted to minimize the influence of perceptual cues and simplify the task in two experiments. In the first, a sticker was hidden underneath a cutout on a felt-board that had the same dimensions as the television screen. In the second, an experimenter simply told the child, either live or on closed-circuit television, where the object was hidden. Performance of two-year-olds in both tasks was still at chance levels in the television conditions.²⁷ Georgine Troseth and Judy DeLoache attributed this deficit to a poor understanding of symbolic representations or to prior expectations about television as "unreal." Recent work by Troseth shows that if toddlers have interactive experiences with television—if, for example, they converse with an experimenter via closed-circuit video—the video deficit in the object-retrieval task can be overcome.²⁸

Overall, the bulk of the research supports a video deficit for learning by infants and

toddlers even though it can be overcome by an interactive relationship. Researchers have not yet demonstrated any learning, or lack of it, from commercial baby videos. One recent study evaluated the effect of a series of baby videos designed to foster parent-child interactions. Compared with parents who watched a comparison series (*Baby Einstein*), parents who watched videos from the *Sesame Beginnings* series showed more engaged interactions with their twelve- to twenty-one-month-old children if they had covieved the videos at home on multiple occasions.²⁹ Although there is as yet no evidence that babies learn anything from baby videos, apparently covieving parents can.

To our knowledge no research has yet examined computer and interactive game use in infants and toddlers, although these products are now being developed for children as young as six months of age and some parents report that their infants and toddlers use these media regularly. Based on a recent survey of parents, the Kaiser Family Foundation estimated that 61 percent of children under age two use screen media (television, videos, DVDs) on a typical day and 43 percent of infants and toddlers watch television every day.³⁰ Given a relative dearth of empirical research on infants and toddlers and a dispute over whether they even comprehend screen media, for the remainder of this article we will focus on educational media designed for preschoolers and older children. Research is urgently needed, however, to determine how media influence infants and toddlers.

Media Effects on Attention and Other Cognitive Skills

Among their other charges, critics have often accused television of being a negative influence on the development of children's cognitive skills. Much of the debate about the

effect of television on cognition concerns the development of attention. The most common hypothesis has been that frequent changes in scenes and content disrupt young children's ability to sustain attention.³¹ One reanalysis of longitudinal data collected during the 1980s found a small correlation between early television exposure at ages one and three years and subsequent symptoms of attention problems at age seven.³² Findings from studies since then have been mixed.³³

One possible mediating factor in the link between early television viewing and attention skills is program content. Most correlational studies do not measure the types of programs to which children are exposed, making it impossible to draw any conclusions regarding content effects. However, a recent correlational study suggested that content is an important mediator of the relation between exposure to television before age three and subsequent attentional problems. Specifically, early exposure to violent and non-educational entertainment programming was positively associated with later symptoms of attention deficit but exposure to educational television was not related to attentional problems.³⁴

One early study of the effects of television on behavior in preschoolers experimentally varied the type of content children viewed. The study compared preschoolers who were exposed to prosocial programs (*Mister Rogers' Neighborhood*), neutral films, and violent cartoons (*Batman*, *Superman*).³⁵ Children were observed first for a baseline period of three weeks, then for a four-week television viewing period, and finally for two weeks after the viewing period. Findings from this study suggest that the link between television viewing and children's attentional skills is mediated by content. Children who viewed the violent cartoons showed decreases in mea-

asures of self-regulation, whereas those who viewed the prosocial programs showed higher levels of task persistence, rule obedience, and tolerance of delay relative to baseline measures and to children in the neutral viewing condition. It is important to note that the three categories of programs likely differed not only in content but with respect to formal features such as format (animation versus live-action) and pace. It is difficult within the context of this study to isolate the links between content and self-regulatory skills, but the findings clearly indicate that television as a medium does not have an indiscriminate negative effect on attentional skills. In fact, several experiments have found that television can teach specific attention skills and strategies.³⁶

Educational television programs, those designed around a curriculum with a specific goal to communicate academic or social skills, teach their intended lessons.

Many allegations regarding the effect of television on children's attention skills focus on the fast pace of programs such as *Sesame Street*.³⁷ The only study to experimentally vary the pace of a television program observed preschoolers during tasks of perseverance after the children either viewed an edited version of *Sesame Street*, composed of either particularly fast-paced segments or particularly slow-paced segments, or read books with parents. Analysts found no group differences in measures of distractibility or impulsiveness following either reading or

television viewing.³⁸ This finding suggests that there is no immediate link between program pacing and attentional skills. Nonetheless, longitudinal research manipulating program content is needed to experimentally investigate the causal effect of television on attention in preschoolers.

Discussions of computer use and video games have been more optimistic, with the relevant research seeming to support a link between both and cognition. The research generally focuses on cognitive skills other than attention. One study, for instance, conducted an experiment with fifth graders to investigate the effects of video game experience on spatial skills in children. Subjects were randomly assigned to an experimental group that played a spatial game, such as navigating a marble along tracks through space, or a control group that played a computerized word game that was not spatial. Although the study found no between-group differences on pre-test measures of spatial skill, it found significantly higher post-test scores for the spatial video game group than for the control group.³⁹ Similar results have been reported by others.⁴⁰

Overall, the research suggests that electronic media might have an effect on attention skills. Television, especially when viewed by children younger than age two, may have a negative effect on attention development, though the evidence is relatively weak. Concern over television exposure before age two has been echoed in research on cognitive development more generally.⁴¹ Content appears to be an important mediator, and specific television content has been linked to attention skills. Studies of interactive media have found that video game play may enhance spatial cognition, but research is lacking on other cognitive skills, particularly attention development.

Learning from Educational Media

Educational television programs, those designed around a curriculum with a specific goal to communicate academic or social skills, teach their intended lessons. But because most research assessing the effectiveness of educational curricula is proprietary or not published in archival sources, most program evaluations go unseen by the general public. Nevertheless, reviews of this research demonstrate the effectiveness, both short-term and long-term, of curriculum-based

Preschoolers who view Sesame Street have higher levels of school readiness than those who do not.

programming for children in areas as diverse as literacy, mathematics, science, and social skills.⁴² Academics have also published research evaluating the effectiveness of educational programs. We present examples of both correlational and experimental evaluative studies.

Blue's Clues is a television program focusing on social and cognitive problem-solving skills in preschoolers. In a two-year program evaluation, Jennings Bryant and others followed preschoolers who were regular viewers of the show and preschoolers who were not because the program did not air in their town of residence. The two groups of children did not differ on measures of problem solving and flexible thinking at the start of the study. At the end of the two-year observation period, however, regular viewers of *Blue's Clues* outperformed their non-viewing peers in many measures and were more successful and systematic in their problem solutions.

Solving the problems required careful planning, a trait frequently modeled and described in the program.⁴³ In an experimental study, preschool-age children were randomly assigned to watch one episode of *Blue's Clues*, or the same episode five times, or one episode of a different program. Not surprisingly, children who viewed the *Blue's Clues* program showed better comprehension of the specific information presented in the show, and children who watched the program five times showed better comprehension than those who saw it only once. Moreover, *Blue's Clues* viewers scored higher than non-viewers on problem-solving tasks different from those directly presented in the program, particularly when they viewed the program repeatedly.⁴⁴ Together these studies demonstrate immediate and potentially long-lasting effects of *Blue's Clues* on problem-solving skills, especially for regular viewers of the program.

Some television programs designed for young children focus on a variety of academic and social skills to help prepare children for entering school. One such program is *Sesame Street*, which has been by far the most studied children's program, probably because of Sesame Workshop's commitment to research, the program's longevity and popularity, and its long history of both criticism and praise. Correlational research demonstrates a positive association between early exposure to *Sesame Street* and school readiness.⁴⁵ That is, after analysts statistically control for a range of other factors known to affect school readiness, they find that preschoolers who view *Sesame Street* have higher levels of school readiness than those who do not. Nationally, there is some evidence for an increase in school readiness among preschoolers in recent years.⁴⁶ One plausible explanation for this trend may be increased early exposure to television, particularly educational programs for young children,

though as yet evidence is insufficient to draw solid conclusions. Although media may have contributed to the trend, many other explanations, such as increases in preschool enrollment, also are plausible.⁴⁷

Other forms of electronic media also have been used for education. For instance, some professionally produced, curriculum-based Internet websites for preschoolers are associated with television shows such as *Sesame Street* or *Dora the Explorer*, though no public domain research is available on the effect of these websites. Researchers have conducted studies on the use of educational software at home. For example, one experiment reported significant gains in the effectiveness of educational software when children were allowed to use the software at home as well as in school.⁴⁸ Similar benefits have been reported by other researchers.⁴⁹

To summarize, it is clear that children can learn from educational media. Television programs designed with a specific goal to teach academic or social skills can be effective with potentially long-lasting effects. Although scarce, research on interactive media software suggests similar results. We turn now to a discussion of associations between overall media use in early childhood and subsequent measures of overall achievement.

Early Media Use and Academic Achievement

Among the most common criticisms of children's media use is that it displaces other activities believed to be more beneficial such as outdoor play, homework, and leisure reading. Historically, however, television viewing has largely displaced other entertainment media such as comic books, radio, and cinema.⁵⁰ For the most part, television viewing does not appear to displace more educationally valu-

able activities, except perhaps in the case of children and youth with extraordinarily high television exposure or of early school-age children learning to read, typically in first and second grade.⁵¹ Potential displacement effects of relatively new, interactive media are less clear because users can access multiple media platforms simultaneously, using a computer, for example, while watching television.⁵²

Many studies of the effect of television viewing on academic achievement examine correlations between some measure of television exposure and some contemporaneous measure of achievement.⁵³ In these studies, correlations are often negative, indicating greater achievement with lower exposure to television, but the associations are also often quite small. Moreover, findings of correlational studies can be difficult to interpret. It may be that television viewing lowers academic achievement, but it is equally plausible that academically challenged children are more drawn to television as a leisure-time activity. Moreover, some third variable that has not been accounted for may explain both television exposure and achievement. In the case of television viewing, for example, children from lower-income homes tend to watch more television and also to score lower on measures of academic achievement than do their higher-income counterparts.⁵⁴ In this example, both television exposure and academic achievement may be the result of family income. In fact, when correlational studies take into account other important factors, they often fail to find significant associations between television exposure and academic achievement in children.

Detailed analyses of the relation between television exposure and academic achievement suggest that this relation is not straightforward. For example, a meta-analysis of twenty-three studies reported that the aver-

age correlation between total viewing time and academic achievement was only $-.05$, a tiny association. More accurately described, the relation was what social scientists call curvilinear. That is, in moderation (one to two hours a day), television viewing was positively associated with academic achievement, but higher rates of television viewing were associated with decreasing achievement.⁵⁵ Other studies have found a similar pattern.⁵⁶

One important factor in the association between television viewing and academic achievement may be the age of the viewer. The optimal amount of television exposure may vary with age, possibly as a function of the types of programs viewed at different ages.⁵⁷ Few studies have directly investigated the association between achievement and television viewing in infants and toddlers. In one study, however, viewing before age three was negatively related to later academic achievement whereas viewing at three years and beyond was positively related to subsequent achievement.⁵⁸

It is also important to note that most of the studies mentioned thus far did not distinguish between the types of content viewed. The lack of a straightforward association between television exposure and academic achievement may be at least partially mediated by the content of the programs viewed. For instance, although one study reported a generally curvilinear relation with highest achievement for children watching one to two hours a day, these moderate viewers were also more likely to report watching educational programming whereas heavier viewers were more likely to report entertainment viewing.⁵⁹ Indeed, several more recent studies have found that achievement is linked to early exposure to specifically educational television programming.

One of the most extensive studies of this kind reported that viewing educational programming at age five was positively associated with high school grades in English, math, and science. Early exposure to educational programming was also positively linked with a host of other factors such as leisure time reading and involvement in extracurricular activities.⁶⁰ In another longitudinal study, the effect of television exposure between six and thirty months of age depended on the content viewed. For example, early exposure to programs such as *Blue's Clues* and *Dora the Explorer* was positively linked with subsequent vocabulary and expressive language whereas viewing *Teletubbies* was negatively linked with performance on these measures.⁶¹ On its face, these findings contradict results indicating little language learning from video in children under two. It is possible, however, that the findings are attributable not to learning from programs but rather to self-selection such that children who have well-developing language skills prefer to watch different programs than their more slowly developing peers. Given the correlational nature of this study, it is impossible to know for certain what produced these findings.

Although watching educational programs can have academic and social benefits, watching other types of content can have drastically different results. For instance, longitudinal correlational research has demonstrated a negative association between early exposure to violent video content and academic achievement.⁶²

Not all non-educational television programs have explicitly negative content such as violence, but research on the links between academic achievement and general entertainment content is less clear. Although children can learn spontaneously from entertainment

content, some longitudinal studies report negative associations between academic achievement and viewing entertainment (as opposed to educational) media.⁶³ Specific information learned spontaneously from viewing entertainment does not appear to have the same cumulative long-term benefit as viewing curriculum-based educational programming.

Educational programs are positively associated with overall measures of achievement and with potentially long-lasting effects, while purely entertainment content, particularly violent content, is negatively associated with academic achievement.

With respect to interactive media such as video games and the Internet, findings are mixed, almost entirely correlational (allowing no conclusive cause-effect associations), and seldom conducted with young children. Although one study reported a negative association between video game use and academic achievement in adolescents, others report a positive association between achievement and computer and Internet use at home.⁶⁴ Though these few studies may suggest that video games are negatively linked with achievement whereas computers and Internet are positively linked with achievement, additional research is needed to systematically investigate this potential difference in outcome.

To summarize, when studies control for important confounding variables such as income and parent education, they often fail to find significant linear relations between television viewing and subsequent achievement. In fact, the association appears to be curvilinear, with achievement increasing to a peak at low levels of television viewing (one to two hours a day), and then declining with heavier viewing. That

To maximize the cognitive resources available to children to process educational content, one study suggests that producers integrate narrative and educational content as much as possible.

said, the most important mediator appears to be content of the programs viewed. Educational programs are positively associated with overall measures of achievement and with potentially long-lasting effects, while purely entertainment content, particularly violent content, is negatively associated with academic achievement. Age may also be an important mediator. Too few studies have been conducted with interactive media such as video games and computers to examine content effects systematically. Nonetheless, as noted in the previous section, software with an educational curriculum can have a positive influence on learning.

Production Techniques to Maximize Educational Benefits of Electronic Media

Producers of children's educational media can do several things to maximize the poten-

tial benefits to children. In this section we briefly discuss a few important mediators of the effectiveness of educational media.

Attention

Children cannot learn from educational messages to which they do not pay attention. Moreover, viewers learn more from television programs when they can pay sustained, unbroken attention.⁶⁵ Researchers have identified several means of maximizing children's attention to a program, some having to do with program content, others with formal features such as camera techniques and sound effects. As noted, one way to increase attention to a program is to maximize comprehensibility of the content, a topic we discuss in the next section.⁶⁶

At least by the preschool years, children use formal features of media—those characteristics that can be described with minimal reference to content—to guide attention. For example, cuts between shots, camera pans, and sound effects are considered to be formal features. One study found that formal features differ in the extent to which they elicit, maintain, terminate, and suppress preschool children's looks at the television. For example, child voices are likely to elicit looks from inattentive viewers whereas adult male voices are likely to suppress looks. The authors of the study interpreted their findings as demonstrating learned associations between formal features and types of content.⁶⁷ Children, for instance, often associate child voices with child-directed programming and adult male voices with content for adults. The attention-directing effect of formal features may thus change with age and experience, consistent with Huston and Wright's theory.⁶⁸ Such theories generate some interest in understanding how infants and toddlers respond to formal

features, though the only such study to date concluded that infants, toddlers, and older children responded similarly to a few visual formal features.⁶⁹ That is, the same features appear to elicit and maintain attention in all young viewers from infancy at least through the preschool years. Although viewers of all ages respond to formal features, Huston and Wright's theory predicts that content becomes increasingly important with age and formal features consequently less important except insofar as they are used to help process content. Moreover, the finding that attention in children under age two is driven partly by formal features does not necessarily mean that they comprehend video. It is more likely that such young children respond automatically to the saliency and unfamiliarity of formal features.

Comprehension

Just as children cannot understand an educational message to which they do not pay attention, they cannot learn from content that they do not understand. Shalom Fisch proposed what he called the capacity model of children's comprehension of television programs based on the limited cognitive resources people have available for processing information at any given moment.⁷⁰ Fisch makes a distinction between a program's narrative content—its story—and its educational content—its informative messages—and emphasizes the potential competition between the two types of content for the cognitive resources needed to process the program. To maximize the cognitive resources available to children to process educational content, Fisch suggests that producers integrate narrative and educational content as much as possible, making the educational message a central part of the ongoing story. For example, characters may have to solve a particular problem before advancing to the

next chapter in the story. In this way, narrative and educational content can capitalize on the same resources rather than compete for them. Although Fisch's presentation of the capacity model focused on educational television in particular, it can easily be applied to educational, interactive media as well.

Repetition

One reason why media can be such a powerful educational tool is that content can be easily and cheaply repeated. Literal repetition of episodes can enhance comprehension and subsequent learning. We have already noted the experimental study comparing preschoolers who watched one episode of *Blue's Clues* with those who watched the same episode once a day on five consecutive days. In that study, attention to the episode remained high and relatively constant over the course of five presentations while comprehension for program content increased with repeated exposure to the episode. Children also increasingly interacted with the content (in terms of audience participation) as the episode was repeated.⁷¹ Similar benefits of literal repetition have been reported in other studies.⁷² Moreover, the *Blue's Clues* experiment found that transfer of learning from the specific examples presented in the program to different problems with similar solutions increased as a function of program repetition.

Viewer Characteristics

Some studies of media effects suggest that a variety of viewer characteristics, including but not limited to intelligence, socioeconomic status, and gender, can mediate the effects of media on learning and academic achievement. To the extent that producers of children's media can take these characteristics into account during program design and production, they may enhance educational value. For example,

several correlational studies suggest that the negative impact of heavy television viewing on academic achievement may be stronger for girls or for individuals with higher intelligence.⁷³ Other studies suggest that television viewing may have differential effects on children from different socioeconomic groups. Specifically, television viewing is associated with higher achievement in children from lower-income homes and lower achievement in children from higher-income homes.⁷⁴ A longitudinal study that separately analyzed different content types found that the positive association between exposure to educational programs at age five and later achievement was significantly stronger for boys while the negative association between violent content and later achievement was stronger for girls. The authors interpreted this finding in the context of socialization. For example, because socialization of girls generally places more emphasis on academics, early exposure to educational programs may help boys become relatively more prepared for school.⁷⁵ Although these studies are often correlational and rarely conducted for the express purpose of investigating individual differences such as race or gender, they highlight some possible mediators of the effects of media on children.

Transfer of Learning

Direct learning of specific information from educational media is certainly useful, but a goal of most (if not all) educational initiatives is to empower children to apply what they have learned to real-life problems. Thus children must transfer to the real world what they learn from the media context (for example a television program set in a fantasy environment). Researchers now know relatively little about transfer of learning in young children, particularly with respect to television and interactive media, though some evidence suggests that even preschoolers can

transfer video information to real-life problems.⁷⁶ In a discussion of ideal conditions for transfer from television based on transfer of learning and analogical reasoning in children more generally, Fisch argues that transfer can be maximized not only by repeating the educational messages in the course of the episode but also by varying the contexts surrounding each presentation. He suggests that presenting the same lesson, such as a specific problem-solving strategy, several times using different types of examples can increase the flexibility of a child's mental representation of that strategy, thus enhancing the child's ability to accurately select and apply it in different real-life situations.⁷⁷

Parent Coviewing and Mediation

Just as media producers can increase the educational value of electronic media, so parents and other caregivers can also play an important role in increasing the effectiveness of educational media. Coviewing adults, for example, can enhance the effectiveness of educational programming by drawing attention to the most important aspects of the program and by extending lessons presented in the program. Some studies suggest that coviewing with a parent or other adult may increase a child's learning from educational television, particularly when the coviewer actively mediates by explicitly drawing attention to the program and by asking and answering questions.⁷⁸ Although some studies fail to find a benefit of adult coviewing or mediation, to our knowledge no evidence suggests a negative link between such parent involvement and learning from television. With respect to interactive media, findings are mixed. Although learning from educational software may be enhanced when an adult provides feedback or extends the lessons, it seems that children still need to be free to control the interactive experience themselves to maintain

interest in the activity.⁷⁹ Taken together, adult coviewing and mediation are most likely to have a positive effect on learning from educational media.

Educational Media in Schools

Although most research on electronic media focuses on use at home, some initiatives are evaluating the use of educational media in the classroom. Efforts have been made to create school curricula that integrate educational television programs, and a massive set of evaluations of such initiatives is now under way.⁸⁰ Ready to Learn, a public broadcasting initiative to enhance school readiness through educational television programs and online resources, offered workshops for parents and educators showing how to extend lessons from television programs through practice and repetition. A five-year evaluation of Ready to Learn found a modest but positive link between the workshops and the time adults spent coviewing PBS programs and reading books that extended lessons in the programs.⁸¹ Although analysts found no evidence that children's language and cognitive abilities benefited from the coviewing, the findings nevertheless hold some promise. The apparent benefits of adult mediation may provide a new area for extending the lessons of educational media.

Conclusions

Many studies have linked media use with cognitive skill development and academic achievement, with most thorough studies strongly suggesting that content is the most important mediating factor in that relation. Although the finding is particularly true for television, it is likely to be important for interactive media as well. There is strong evidence that children older than two learn from educational media, and there is moderate evidence that exposure to educational

television during the preschool years is positively linked with various measures of academic achievement even ten years later. Moderate evidence also suggests that early exposure to purely entertainment content, and media violence in particular, is negatively associated with cognitive skills and academic achievement. Research findings regarding the benefits associated with exposure to high-quality, age-appropriate, educational media offer producers of child-directed media an important opportunity to capitalize on the time that children older than two spend using these media. In fact, both producers and parents can take steps to maximize the positive effects of media and minimize negative ones. Research should guide the production of programs that foster learning and transfer. Moderate evidence suggests that parents can also maximize the benefits of media by selecting age-appropriate, educational programs and coviewing with their children.

Our review of media effects research is based largely on studies of young children of preschool age and older. Substantially less research is available on media exposure in children younger than two, and what little there is strongly suggests that learning from media by infants and toddlers may be different than it is for older children. Children under two suffer from a video deficit such that they learn substantially less from video than from comparable real-life experiences. Moreover, weak but nonetheless worrying evidence suggests a negative association between exposure to television younger than age two and later cognitive development. Given the dramatic increase in media now being produced for infants and toddlers, it has become particularly important to understand the effect of media during the first few years of life.

Taken together, the research indicates that electronic media are powerful influences on the lives of contemporary children. With advances in technology such as larger screens that provide images in high definition, three-dimensional surround sound, and greater possibilities for interaction, the power of media will likely only increase for the foresee-

able future. The influences can be both for good and for ill. Researchers are beginning to understand which aspects of media should be reduced and which enhanced, but further research is required. Ultimately, however, the question is whether society has the ability and will to enhance the positive aspects of media and reduce the negative.

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Media and Attention, Cognition, and School Achievement

Marie Evans Schmidt and Elizabeth A. Vandewater

Summary

Marie Evans Schmidt and Elizabeth Vandewater review research on links between various types of electronic media and the cognitive skills of school-aged children and adolescents. One central finding of studies to date, they say, is that the content delivered by electronic media is far more influential than the media themselves.

Most studies, they point out, find a small negative link between the total hours a child spends viewing TV and that child's academic achievement. But when researchers take into account characteristics of the child, such as IQ or socioeconomic status, this link typically disappears. Content appears to be crucial. Viewing educational TV is linked positively with academic achievement; viewing entertainment TV is linked negatively with achievement.

When it comes to particular cognitive skills, say the authors, researchers have found that electronic media, particularly video games, can enhance visual spatial skills, such as visual tracking, mental rotation, and target localization. Gaming may also improve problem-solving skills.

Researchers have yet to understand fully the issue of transfer of learning from electronic media. Studies suggest that, under some circumstances, young people are able to transfer what they learn from electronic media to other applications, but analysts are uncertain how such transfer occurs.

In response to growing public concern about possible links between electronic media use and attention problems in children and adolescents, say the authors, researchers have found evidence for small positive links between heavy electronic media use and mild attention problems among young people but have found only inconsistent evidence so far for a link between attention deficit hyperactivity disorder and media use.

The authors point out that although video games, interactive websites, and multimedia software programs appear to offer a variety of possible benefits for learning, there is as yet little empirical evidence to suggest that such media are more effective than other forms of instruction.

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Marie Evans Schmidt is a research associate at the Center on Media and Child Health at Children's Hospital Boston. Elizabeth A. Vandewater is an associate professor in the Department of Human Development and Family Sciences at the University of Texas-Austin.

Like their elders, America's youth have an almost dizzying assortment of entertainment technology from which to choose.¹ Children and adolescents, however, are a special media audience, in part because they are developmentally vulnerable and in part because they are among the earliest adopters and heaviest users of entertainment technology.² Adolescents in particular have widely adopted the use of digital media for daily life activities. Indeed, the stereotypical view of many Americans is that teenagers spend their lives immersed in electronic media. While adolescents are doing homework on the computer, with a word-processing program open for text, they are surfing the Internet. Simultaneously they are instant messaging with friends about events at school, about who likes whom, who "dissed" whom, or what a pain the homework assignment is. Meanwhile, television is on in the background, and they are listening to music on their iPods. At least some evidence confirms this picture, as Donald Roberts and Ulla Foehr describe in their article in this volume.

Though concerns about the influence of media and technology on American youth are many and varied, especially prominent are fears that they impair cognitive development and academic achievement. Critics of television have long blamed the medium for various ills, including declines in standardized test scores, mental inactivity, and reduced attention and concentration.³ Video games, computers, and the Internet have drawn similar charges.⁴

In this article, we examine empirical evidence regarding the links between television and other electronic media, on the one hand, and learning and cognitive development in children and adolescents, on the other. We

review research findings, in turn, on achievement, language and symbol systems, visual and spatial skills, problem-solving skills, attention, and, finally, hypertext. Some areas have generated a fair amount of theory and research; others, very little. Interestingly, evidence that contradicts or supports existing assumptions has often had little effect on proclamations, policy, and punditry on this topic. Everyone, it seems, has an opinion about how electronic media influence children's learning. Our goal is to summarize what is known—and what is not—about how these media shape adolescents' cognitive development, as well as to identify those areas in urgent need of additional empirical research.

Electronic Media and Achievement

Researchers investigating the influence of media have found modest negative links, or none at all, between the total time children spend viewing television and their school achievement. A review of twenty-three studies, varying across several measures, found an overall weak negative association (median = $-.06$) between television viewing and achievement.⁵ Moderate TV viewing—one to ten hours a week—was positively associated with achievement (compared with no television at all), whereas heavier viewing—more than eleven hours a week—was negatively linked with achievement ($-.09$).⁶ Numerous correlational studies, with large samples, have found similar small negative effects of total time spent watching TV on achievement.⁷

Many studies have found what social scientists call curvilinear relations between hours of TV viewed and achievement. In other words, up to a certain threshold number of hours viewed, TV viewing is linked positively with achievement; above that threshold the link becomes negative. A meta-analysis of more

than 1 million students by Micha Razel suggests that the optimal number of hours of TV viewed daily decreases as children get older; for a nine-year-old two hours a day is optimal, whereas for a seventeen-year-old it is half an hour.⁸

Research that takes into account relevant characteristics of the children under study, such as their IQ and socioeconomic status, typically finds no significant link between hours of TV viewing and achievement.⁹ IQ, in particular, plays a large role in the association between TV watching and achievement; students with lower IQ scores, for example, watch more television, on average.¹⁰

The amount of time spent viewing television also appears to influence achievement for children from different socioeconomic backgrounds in different ways. Watching a lot of television is negatively linked with achievement for advantaged children.¹¹ But TV viewing is positively associated (or not associated at all) with achievement for disadvantaged children or those with limited proficiency in English.¹² George Comstock and Haejung Paik interpret these findings as meaning that television viewing and academic achievement are negatively associated when TV displaces cognitively enriching experiences, but positively associated when it *provides* such experiences.¹³

When researchers examine the relative importance of media content and total time spent with media, they find that content matters more. For example, empirical evidence strongly supports the notion that high-quality educational programming has positive benefits for children's academic skills, academic engagement, and attitudes toward learning.¹⁴ The evidence is particularly strong for preschoolers, as described in the article in this

volume by Heather Kirkorian, Ellen Wartella, and Daniel Anderson.

It does not seem that time spent with media greatly displaces time spent reading or doing homework, largely because American youth spend so little time doing either.¹⁵ When TV first became available, TV viewing replaced "functionally similar" activities, such as listening to the radio, reading comic books, and going to a movie.¹⁶

Studies have not consistently found that time spent watching television, in general, reduces adolescents' time spent in school-related activities. Most cross-sectional correlational studies, for instance, have not found a significant link between television viewing and less reading.¹⁷ A few studies of the influence of TV on young children, however, suggest that TV viewing may hinder the acquisition of reading skills over time.¹⁸ In a recent longitudinal study in Germany, Marco Ennemoser and Wolfgang Schneider found negative associations between total TV viewed by children at age six and reading achievement at age nine, even when controlling for IQ, socioeconomic status, and prior reading ability.¹⁹ Importantly, the negative association was between achievement and entertainment viewing; educational TV viewing was generally linked positively with reading achievement. This finding is consistent with other research that suggests that TV's effects on reading are largely dependent on the content viewed.²⁰ For instance, Anderson and his colleagues found that educational TV viewing at age five positively predicted book reading in adolescence in a prospective longitudinal cohort.²¹

Electronic Media and Language and Symbol Systems

Some researchers have evaluated whether learning from television, which engages both

the auditory and the visual systems, is more or less efficient than learning through either symbol system alone. Several studies have compared viewer comprehension of a combined audiovisual presentation with comprehension of either an audio or visual version alone. Most reveal an advantage for the audiovisual presentation; subjects recall more of what they hear and see together than what they see or hear only.²²

One study found benefits of video gaming for visual attention, including greater attentional capacity, quicker attention deployment, and faster processing.

Electronic Media, Attention, and Visual Spatial Skills

According to Gavriel Salomon, different media forms recruit, and develop, different cognitive processes. His seminal book, *Interaction of Media, Cognition, and Learning*, provides evidence for this premise. He demonstrates that repeated exposure to cinematic codes presented on film, such as the zoom technique, leads children to internalize these codes. In one experiment, eighth graders who watched a film that used repeated zooms achieved higher scores on a search task that required them to find details in a complex display. In fact, for eighth graders who earned low scores on a pre-test of the search task, viewing the film improved scores more than practicing the search task itself. Similarly, students who watched a film depicting the unfolding of a three-dimensional object significantly improved their scores on a test requiring identification of unfolded objects.²³

Salomon's research also provides evidence that educational programs can enhance particular cognitive abilities. When *Sesame Street* was first introduced to Israel, school-aged children who watched the program improved on tests of attention and inference making. In a later experiment, second graders who watched the program for eight days in school performed better on measures of select cognitive skills than a control group who watched adventure or nature films.²⁴

Daniel Anderson and Patricia Collins note, however, in a review of the effects of TV on cognitive development, that the benefits revealed by Salomon's studies are short-term, small, and specific to educational programs or instructional films.²⁵ Further, because Salomon's work suggests that internalization requires repeat, heavy exposure to particular media content, it is unclear to what extent cognitive skills would be enhanced in typical TV viewing environments.

Few studies have examined the links between television and spatial skills, and those that have are inconclusive.²⁶ Analysts have conducted far more research on video games. These studies suggest that video games may positively affect a variety of visual spatial skills. Adult video game players, for example, have better hand-eye coordination than non-players.²⁷ In one experimental study, spending fifteen minutes playing an Atari video game improved adults' performance (fifty milliseconds relative to controls) on a simple reaction time test.²⁸ Children's previous video game experience has also been associated with shorter reaction times on color and shape discrimination and stimulus anticipation tasks.²⁹

Several studies suggest that video game play may enhance spatial reasoning skills in

youth.³⁰ In one experiment, Patricia McClurg and Christine Chaille found that playing select computer games for five minutes, twice a week, for six weeks improved fifth, seventh, and ninth graders' performance on a paper and pencil mental-rotation task in which students view a three-dimensional target shape in one orientation and must indicate whether another shape is different or the same in a different orientation. In fact, fifth graders who had received the video game training scored higher than ninth graders who had not played the video games.³¹

Richard De Lisi and Jennifer Wolford found positive effects on spatial skills of playing the video game *Tetris*, which requires mental rotation. After eleven thirty-minute sessions of playing *Tetris*, third graders showed improved scores on a paper-and-pencil test of mental-rotation skills. Before the video game training, children in the control group, who played a game that required no mental rotation, and children in the experimental group earned similar scores; after training, the students who had played *Tetris* scored significantly higher than the control group. Only the experimental group received significantly higher scores on the test after training.³²

A series of experiments by Shawn Green and Daphne Bevelier reveal that video game play yields improvements in several aspects of visual attention. Experienced adult gamers are able to track more items in an array of dynamic distractor items, to locate more quickly a briefly appearing target, and to process more efficiently an ongoing stream of information.³³

In a recent analysis, Matthew Dye and Bevelier examined the relative visual attention skills of child gamers and non-gamers. Similar to the adult studies, the study found

benefits of gaming for visual attention, including greater attentional capacity, quicker attention deployment, and faster processing.³⁴

Not all video game training studies, however, have found improved spatial skills among players.³⁵ In one study, adults trained on *Tetris* did not increase their mental-rotation scores more than controls, although advanced *Tetris* players did have superior mental-rotation skills, relative to *Tetris* novices. This finding, however, could be attributable to what social scientists call selection: individuals with superior mental rotation skills are more likely to play games like *Tetris*. A video game training experiment with seventh graders did not reveal improvements in spatial visualization, even though the same experiment improved spatial visualization skills in adults.³⁶

Kaveri Subrahmanyam and Patricia Greenfield point out that the content of the game influences whether, and what, visual spatial skills are learned. In an experiment, fifth graders who played *Marble Madness*, a game that requires a player to guide a marble through a grid, increased their dynamic spatial skills significantly, as tested on a computer test battery; students who played a fill-in-the-blank word game showed no improvement on spatial skills. Children whose spatial skills were the lowest on a pre-test improved the most with video game practice.³⁷

Electronic Media and Problem-Solving Skills

Video game play may also enhance problem-solving skills.³⁸ Postulating that video games provide informal training in inductive discovery, Greenfield and several colleagues administered questionnaires to college undergraduates during various stages of *Evolution* play. They documented a process of inductive discovery: as play went on, players induced

the rules and strategies inherent to the game. A demonstration and teaching session, as provided for some study participants in a comparison group, had no effect on the final skill levels for either novices or skilled players.³⁹

One growing popular concern is whether electronic media use is associated with attention deficit hyperactivity disorder (ADHD).

The long-term positive benefits of electronic media depend, in large part, on whether children can learn abstract knowledge or problem-solving skills and transfer them to new situations. Although children, at various ages, can learn specific facts from television, little research has specifically investigated whether they can transfer that learning, and, if so, how. Evaluations of educational television shows have provided mixed evidence for transfer.⁴⁰ For instance, an evaluation of *CRO*, a program for six- to eleven-year-olds that focuses on science and technology, found that children understood the educational content of an episode about airplanes and flight. They could not, however, transfer underlying principles learned from the program (for example, about the dynamics of flight) to problems with a different set of stimuli (for example, a new set of model airplanes).⁴¹ Another study, of *Sesame Street*, found that five- and six-year-old children could not transfer a problem-solving strategy to a new problem, even though they could replicate the strategy with a problem similar to the one they saw on the show.⁴² Slightly more promising findings have come from studies of the

math series *Square One TV*. In one study, some of the children transferred problem-solving skills learned from the program to new problems, though transfer performance was worse than performance on recall and comprehension measures.⁴³ In another study, viewing *Square One TV* in schools for six weeks led to improved performance for fifth graders on math problems not shown on TV.⁴⁴

Although evaluations of specific programs have failed to provide consistent evidence of transfer of learning, it is yet plausible that transfer occurs.⁴⁵ For example, studies have demonstrated transfer effects, such as those found for *Square One TV*, with preschoolers and school-age children.⁴⁶ Further, Anderson and several colleagues have demonstrated long-term positive effects of viewing *Sesame Street*; children who watched the program at age five received higher grades in the math, English, and science courses they later took in college.⁴⁷ Such findings strongly suggest that some form of transfer of learning occurs; the specific mechanisms that underlie such effects, however, have yet to be described.

Shalom Fisch, in his capacity model, contends that transfer from television is possible, as long as four conditions are met: the child must understand the content of the program, must create an abstract mental representation of that content (separate from its specific context on TV), must remember the content and see its relation to the new problem, and must apply the remembered content to the new problem. A breakdown in any of these areas can impede transfer of learning. The likelihood of transfer also depends on the age of the viewer (older viewers transfer more effectively) and the content of the specific program. Transfer is more effective if the educational content is embedded in the narrative. But if it is embedded too deeply, the child

may have difficulty generating an abstract representation of the content.⁴⁸ Fisch therefore recommends program repetition, as well as repetition of the same content in multiple contexts, to increase the likelihood of transfer of learning. Although Fisch's theory is based on established research and theory about transfer of learning, it is relatively new and still largely untested with respect to television.

As with television, very little research has empirically tested whether video games facilitate transfer of learning. In one experiment, Hitendra Pillay found that playing computer games improved fourteen- to sixteen-year-old students' performance on computer-based educational tasks.⁴⁹ Students in the experimental groups played a puzzle or adventure computer game and were subsequently tested on an interactive multimedia problem-solving program. Students who played the adventure game performed better on the problem-solving task. Pillay views these findings as consistent with the research on transfer; the adventure game was more similar to the problem-solving task and therefore facilitated transfer of learning. Playing entertainment games, Pillay also suggests, may develop users' structural knowledge, allowing them to learn effectively from other computer applications.

Electronic Media and Attention

One growing popular concern is whether electronic media use is associated with attention deficit hyperactivity disorder (ADHD). Children warrant diagnosis of ADHD if they exhibit inattention, hyperactivity, or impulsivity that significantly impairs social or academic functioning for at least six months.⁵⁰ According to parents, television viewing captures the attention of children with ADHD for extended periods of time and is one of the few activities capable of doing so.⁵¹

Given the widespread speculation about links between electronic media use and ADHD, it is surprising how little researchers know about the subject.⁵² Correlational work suggests a possible link, albeit a small one; the work does not answer the question of whether children with ADHD simply use electronic media differently than children without ADHD. The evidence for a link between ADHD and electronic media use is thus, at this stage, inconsistent.

To date, only a few studies have compared media use in children with a confirmed clinical diagnosis of ADHD and media use in children without ADHD. Richard Milich and Elizabeth Lorch found no significant differences in time spent watching television or in types of TV content viewed among boys, aged seven to twelve, with and without ADHD.⁵³

More recently, Ignacio David Acevado-Polakovich and several colleagues, in a cross-sectional study, found greater TV viewing among school-aged children with a diagnosis of ADHD. But the link disappeared when the authors specifically controlled for the mother's education level (lower in children with ADHD) and whether the child had a TV in his or her bedroom. School-aged children with ADHD were two times more likely to have a TV in their bedroom; thus, they potentially had greater access to TV, which could account for their heavier TV use. However, children with ADHD who did not have television sets in their bedrooms did watch more TV than children without ADHD who had no television in their bedrooms. Children with ADHD also were significantly more involved with TV, as measured by parental report.⁵⁴

Acevado-Polakovich and colleagues conclude that any link that may exist between television viewing and ADHD is complex. School-aged

children with ADHD may be more involved with TV because it may serve as a substitute for social interaction, and children with ADHD are more likely to experience peer rejection. Further, the authors found that children with ADHD are more likely to watch TV with an adult, perhaps in part

Some studies rely on computer game tasks for laboratory tests of children with ADHD, because they are thought to promote the best possible test performance in this population.

because, by parental report, TV viewing is a comparatively low-conflict, low-stress activity for them to do with their children. All these factors could account for increased TV viewing among children with ADHD.⁵⁵

Analysts have also conducted research on attention problems, as distinct from clinical disorders. Jeffrey Johnson and several colleagues, in a prospective longitudinal study, found a weak to moderate association (odds ratio = 1.44) between television viewing at age fourteen and attention problems (as assessed by the Diagnostic Interview Schedule for Children) at age sixteen. This link remained when the authors controlled for relevant child and family variables, including parent income and education, presence of childhood neglect, and learning or attention difficulties at baseline. Youth who watched three or more hours of television a day were at greatest risk for subsequent attention problems. Notably, the authors did not find

evidence that attention problems at age fourteen predicted subsequent television viewing at sixteen years of age.⁵⁶

A few cross-sectional studies have also examined the link between attention problems and television viewing. One study found that TV viewing and attention problems, as assessed by the Child Behavior Checklist (CBCL), were related ($r = .20$) among second- and third-grade children in Turkey. Children who watched TV less than two hours a day scored lower on the attention problems subscale of the CBCL than children who watched TV two or more hours a day.⁵⁷

Another study found a positive link between fourth- and fifth-grade students' television viewing and teacher ratings of attention problems and impulsivity, as assessed by the Attention and Hyperactivity subscales of the ADD-H Comprehensive Teachers Rating Scale ($r = -.4$). The study, however, found no link between TV viewing and parent ratings of attention problems or impulsivity, a laboratory measure of attention (the Stroop Color and Word Test), or classroom observation. Further, the type of program viewed was not differentially linked with attention outcomes. Television viewing predicted less classroom attention during independent work periods.⁵⁸

Very few studies have examined links between electronic media other than TV and attention. One cross-sectional study surveyed seventy-two adolescents (time use) and their parents to assess ADHD, as indicated by the Conner's Parent Rating Scale (CPRS), and found a significant association between playing video games for more than one hour each day and an increase in scores on the inattention and ADHD portions of the CPRS. There was no association between time spent watching television or using the Internet

and ADHD symptoms. Because the authors did not test for the direction of the link, it is plausible that adolescents with ADHD simply spend more time playing video games.⁵⁹

Interestingly, video games may provide optimal learning conditions for children with ADHD. Some studies rely on computer game tasks for laboratory tests of children with ADHD, because they are thought to promote the best possible test performance in this population.⁶⁰ Why is this so? In particular, video games offer immediate feedback, which is highly motivating for children with ADHD. External rewards are almost continuous during game play, but especially just before and contingent to any of the child's responses to the game.⁶¹ Also, video games increase activation and arousal, which may improve task performance. Matthias Koepp and several colleagues have demonstrated that video games effectively stimulate the neural reward system by causing the brain to release dopamine, which is associated with learning and positive reinforcement.⁶²

Electronic Media and Engagement of Attention

Researchers have, in fact, explored what design features allow electronic media to hold attention for long periods of time. They use the term engagement to reflect the degree of intensity associated with an episode of attention.⁶³ Engagement is also used to denote a *phase* of attention. Each episode of attention is made up of three phases—initiation, engagement, and termination.⁶⁴ Holly Ruff and Mary Rothbart explain that engagement, the intermediate phase, follows either an orienting reaction or a voluntary intention to attend to a stimulus or event.⁶⁵

During the initiation phase, attention is “captured” by salient or novel events in the

environment through the three- to five-second orienting response.⁶⁶ Engagement results if “pre-attentive” processes determine some value in the information detected by the orienting response, and it allows the child to stay focused on an event.⁶⁷

Engagement during television viewing is typically variable. Dan Anderson and several colleagues first proposed the phenomenon of attentional inertia based on observations of children watching television. They found that a child who looks at television is more likely to continue looking if he has been looking for some time. Conditional survival probability plots revealed that the probability of a child looking away peaks at about one second then progressively declines with each successive three-second period that he continues looking, until it levels off at about fifteen seconds.⁶⁸ When viewers look at television, most look away after a short time (less than three to five seconds), a finding that applies equally to infants as young as six months, preschoolers, and adults.⁶⁹ Thus, at all ages, when the viewer first looks at a television program, the probability that she will look away is high; as she continues to look, however, the probability of looking away dramatically declines.

Inertial engagement, which is only one form of engagement, is thought to be the “cognitive glue” that holds sustained attention together across breaks in TV content, such as cuts, edits, or commercials, external distractions, or when TV content becomes temporarily incomprehensible.

Dan Anderson and Elizabeth Lorch found that inertial engagement kept preschoolers looking at *Sesame Street* when content changed. A child who had been looking at *Sesame Street* for a sustained period before that change was more likely to continue

looking afterward.⁷⁰ The same phenomenon was found for adults viewing prime-time television and commercials.⁷¹ Anderson and Lorch hypothesized that initially a person watching television continues viewing based on whether the content is understandable; however, once the viewer has been looking for about fifteen seconds, the attention becomes generalized to the medium of television, which makes the viewer resistant to distraction.⁷² Anderson and several colleagues found that three- and five-year-old children were less likely to turn toward a distractor (a slide preceded by a beep off to the side of the TV screen) if they had been looking at the television for fifteen seconds or longer.⁷³

Engagement with television varies according to whether the content is comprehensible. It also appears to vary as a function of the relevance of particular content to the overall narrative of the television program. Five- to eight-year-old children were slower to respond to a secondary task (button pressing in response to a tone) during viewing of content deemed central rather than incidental to the narrative.⁷⁴

Elizabeth Lorch and Victoria Castle also found that five-year-olds responded more slowly to a secondary task during normal segments than during language-distorted segments of *Sesame Street*, suggesting that engagement is deeper when content is understandable. When content is difficult to understand, “breakdowns” in attention may free up capacity for the secondary task.⁷⁵

Researchers have used measures that assess engagement to examine how the formal features of television—cuts, sudden camera changes, movement, sound effects—affect attention to television viewing.⁷⁶ In a study of adults’ television viewing, Byron Reeves and

several colleagues found electroencephalogram (EEG) decreases in alpha waves (usually associated with increased cognitive activity) that were time-locked to the presence of formal features, such as scene changes.⁷⁷ A team of researchers using the secondary task reaction time (STRT) procedure found slower reaction times during commercials that were simple overall (globally simple messages). *Local* complexity (presence of formal features), however, also produced slower reaction times.⁷⁸ Thus, it appears that formal features temporarily “engage” attention, although whether the engagement is sustained is likely a function of comprehensibility.

Video games typically provide interesting sensory stimuli, which recruit attention. However, attention is likely sustained by other features of games, one of which is fantasy.⁷⁹ When playing computer games, the user enters an imaginary world, where he or she is free to participate in a variety of situations, without real-world consequences.⁸⁰ Fantasy may enhance learning by stimulating children’s interest.⁸¹ It also may focus attention and increase engagement.⁸² Games in which the fantasy is directly tied to the content may be more motivating.⁸³

Games also may increase motivation by providing clearly defined goals.⁸⁴ Clear, specific goals are related to improved performance.⁸⁵ When a learner sets clear goals, he can evaluate whether he has met them. When his performance does not attain his goal, the learner is motivated to close the gap between goal and performance, thus leading to greater effort.⁸⁶ Fran Blumberg asked second and fifth graders about the game features that captured their attention and about the strategies they used after playing a video game for ten minutes. As expected, older children and more frequent players performed better on the

game. Second graders were more likely to talk about their feelings about the game, whereas fifth graders emphasized their specific goals and standards for play. Concern for standards was associated positively with performance, whereas concern for feelings was associated negatively with game performance.⁸⁷

In sum, despite the increasing use of video games in education, analysts know little about what exactly children learn from gaming, primarily because of a lack of rigorous research on learning outcomes.

Challenge is another feature of engaging video games. The optimal game provides a set goal structure but leaves players uncertain about whether they can achieve it. Video games also offer players the opportunity to control elements of the experience. Education research that is not specific to video games suggests that giving learners control increases motivation and learning.⁸⁸

Some research has also examined whether video games can promote “flow,” which Mihaly Csikszentmihalyi characterizes as a state in which a person loses herself in a deeply pleasurable activity.⁸⁹ Richard Bowman, in an analysis of *Pac-Man* play, depicts video games as powerful because they can induce a flow experience in players.⁹⁰ Games that foster flow experiences share several characteristics. Players’ skills typically fit the difficulty level of the game.⁹¹ The game should have levels of increasing difficulty, so it can keep pace with players’ growing

skill levels. In addition to well-defined goals, games should provide immediate, relevant feedback.⁹² In a study of children’s flow experiences while playing video games, Yavuz Inal and Kursat Calgitay administered a “flow scale” to children aged seven to nine. According to children’s self report, games with varying levels of difficulty promoted the flow experience; challenge, in fact, was the greatest contributor to flow state.⁹³

Games can, ideally, provide an inquiry-based learning experience, whereby learners approach new material through trial and error, in a safe space. Games offer learners the opportunity to try again and again, receiving feedback, all while experimenting with different strategies. Newer multi-user games allow learners to work collaboratively or as a team and thus to also practice social skills.

At present, there is scant evidence, however, to establish definitively the effectiveness of games in educating, largely because few empirical studies have been conducted. In 2005, Harold O’Neil, Richard Wainess, and Eva Baker conducted a thorough review of studies of the educational potential of games. Of the thousands of articles published between 1990 and 2005, only nineteen contained qualitative or quantitative data. Overall, the authors do not find evidence that games have particular benefits for learning, and they speculate that games alone (without instructional support) are not sufficient as learning tools. They further contend that games that fail to teach fail because they lack effective instructional design.⁹⁴

In sum, despite the increasing use of video games in education, analysts know little about what exactly children learn from gaming, primarily because of a lack of rigorous research on learning outcomes.⁹⁵

Gavriel Salomon and Tamar Almog further contend that technology should ultimately serve pedagogy, insofar as it is a tool for facilitating learning. The technology is simply the means to enact the pedagogy. The pedagogical philosophy embedded in the technology will determine what is learned. Psychology and educational technology research should thus inform software design to maximize learning outcomes.⁹⁶

Learning from Hypertext

Hypertexts—dynamic texts, such as a website or multimedia software program, presented on a computer in a nonlinear fashion—offer a number of advantageous possibilities for learning. Hypertexts are interactive, allowing users to take in information at their own pace in the way they are most likely to derive meaning from it.⁹⁷ Hypertexts are open-ended; they allow readers to choose the information they want to retrieve and the order in which they want to retrieve it.⁹⁸ In fact, readers build their own text as they navigate through the information presented.⁹⁹ Typically, hypertexts recruit and sustain high levels of attention.¹⁰⁰

With hypertexts, readers must create the structure of the text based on their own knowledge, whereas in traditional texts, readers use the existing structure of the text to make inferences that enhance comprehension.¹⁰¹ Hypertexts thus require additional cognitive skills, as readers are responsible for determining what information they need to further increase their understanding of the topic and how to access it.¹⁰² Research has focused on comprehension and control of hypertext.

Several studies have assessed learning from hypertexts.¹⁰³ In a review of all quantitative studies of hypermedia and learning outcomes

published between 1990 and 1996, Andrew Dillon and Ralph Gabbard found no overall comprehension advantages for hypermedia (even across a variety of comprehension measures) over paper presentations.¹⁰⁴ However, hypermedia did offer significant advantages for particular tasks, such as visual categorization and discrimination and searches through large amounts of information.¹⁰⁵

Readers' prior knowledge of a topic likely affects their comprehension of hypertexts. In one study with adults, prior knowledge improved recall from the text and also influenced how users navigated through the reading environment.¹⁰⁶ Readers lacking prior knowledge may have difficulty navigating the hypertext, as they may find it hard to find the information they need.

Interest in content has been associated with easier, more efficient navigation through the text, whereas interest in dynamic text features, such as sound effects and video, has been associated with less comprehension.¹⁰⁷

Increased control may offer advantages for some hypertext users. However, the benefits of increased control may vary with the ability of the user. Complexity may, in fact, hinder performance in students by confusing them.¹⁰⁸ Some studies report a user preference for hypertexts offering control, even though learning may not be improved.¹⁰⁹

Almost all studies of hypertext navigation have focused on adults. Kimberly Lawless and several colleagues, however, studied children's navigational strategies through hypertext. Fourth-, fifth-, and sixth-grade children completed a domain knowledge pre-assessment, individual and situational interest pre-surveys, and post-tests of recall. In addition, the computer recorded the path

navigated by each user. Based on the data, the study identified distinct navigational profiles, similar to those for adults. Most students, the “knowledge seekers,” focused on the information portions of the hypertext. A smaller group of students, the “feature seekers,” spent most of their time exploring features, such as animation and movies. A third group of students, “apathetic hypertext users,” spent little overall time with the hypertext. The most knowledgeable students were more likely to be the apathetic users; the least knowledgeable, the feature seekers. The knowledge seekers fell in between. The authors concluded that prior knowledge affects navigational strategy, in that it may enhance interest in content.¹¹⁰

Research on learning from hypertext is limited, especially with regard to children. Dillon and Gabbard point out that the research suffers from a host of methodological flaws, limiting the conclusions that can be drawn. They argue for greater focus on the design variables responsible for different learning outcomes, as well as how those design variables interact with individual differences in users.¹¹¹

Media and the Family

More than half (53 percent) of eight- to eighteen-year-olds have reported that their parents set no rules about watching TV. Among those who reported having rules, only 20 percent indicated that those rules are enforced “most of the time.”¹¹² More specifically, among seventh to twelfth graders, only 13–14 percent have parental rules limiting how much television they watch each day; only 17 percent have rules limiting the time they spend playing video games each day. Although parents are slightly more likely to set rules regarding computer use, only 23 percent of seventh to twelfth graders have parental rules limiting the time they spend

or the types of activities they pursue on the computer. The most common rule (one that applies to 36 percent of these adolescents) is that they cannot watch TV until they finish their homework or chores.¹¹³

Research on parental monitoring of media use has had mixed findings. The share of parents who actively supervise their children’s media use varies from study to study.¹¹⁴ However, research over the past forty years suggests that less than half of parents enforced TV viewing limits or regularly discussed TV content with their children, whatever their ages.¹¹⁵

Children whose parents set television viewing rules watch forty fewer minutes of television each day than children whose parents set no rules.¹¹⁶ Another effective form of parental involvement is active mediation. When parents watch TV with their children and talk about the content viewed, children demonstrate improved comprehension of content and TV production techniques.¹¹⁷

Various technologies have been developed to help parents monitor their children’s electronic media use. Parents can, for instance, control children’s exposure to media content by selecting videotapes for their children. However, research suggests that children typically watch videos that are similar to what they watch on broadcast television.¹¹⁸ Video recorders, for the most part, do not appear to have substantially changed how families monitor television. Research has not yet been conducted on the Digital Video Recorder (DVR), which also has the potential to influence children’s TV viewing. The V-chip, which was designed to enhance parental control, has not been used by most parents.¹¹⁹ Parents have, however, been more proactive about limiting access to Internet content than limiting access to TV. Amanda

Lenhart reports that more than half of households with teenagers use Internet filtering software.¹²⁰

Few studies have examined parental regulation of video game play. Peter Nikken and Jeroen Jansz report that parents use the same forms of mediation, including restrictive, active, and covieing, for computer gaming as for television viewing. With video game play, however, parents are most likely to use restrictive mediation, or rules; they are least likely to use covieing, the strategy that they use most often for television viewing.¹²¹

Media in Schools

Increasingly, electronic media, particularly the interactive technologies afforded by computers, have been adopted in school settings in America. *Channel One*, an in-school news program first introduced in 1990, rapidly became part of the school curriculum. Its use for delivery of non-educational messages such as televised food advertising has been noted and roundly criticized.¹²² According to the National Center for Education Statistics, 35 percent of public schools in the United States had access to the Internet in 1994; nine years later, that figure had risen to 100 percent. The share of instructional rooms in public schools connected to the Internet has also increased dramatically. In 1994, only 3 percent of instructional rooms had computers with Internet access; by 2005, that figure had soared to 94 percent.¹²³

Interestingly, though both educators and parents tend to view television with suspicion and have doubts about its use as an educational tool, they view computers almost uniformly (and unquestioningly) as conferring educational benefits on children and youth. The reasons are twofold. First, the interactive nature of computers, whereby children

can control both the content and the speed of information presented, is widely assumed to enhance learning. Second, part of the appeal of computers is the widespread recognition that they are essential to future educational or business endeavors. Thus, familiarity and facility with computer technologies is viewed as a crucial skill for successful entry into the adult world. Though both of these views make intuitive sense, little empirical research supports either.

Educators, in particular, have been quick to jump on the “interactive technology” bandwagon. Scores of programs use computer technologies to enhance or aid learning in basic reading skills, math, and science. Few of these programs, however, have been tested for efficacy against more traditional, teacher-based strategies. It has simply been assumed that interactivity enhances learning; little solid empirical research based on randomized controlled designs has addressed the subject.

In a recent review of research, the Institute of Education Sciences What Works Clearing House found that using interactive technologies advances learning no more than traditional teaching techniques.¹²⁴ What matters are the ways in which teachers choose to use, present, and teach with the technology—choices that are in large part dictated by their own comfort and familiarity with the technologies. This finding, of course, makes perfect sense. It suggests that children’s use of technology (and its possible educational advantages) is only as good as the instruction they receive in how to use it. Though in some ways the insight may seem obvious, it is important to emphasize it because of the widespread assumption that the technology alone, regardless of how it is used, will enhance learning.

Conclusions

Over the past half-century, the advent of each new electronic medium or technology has been both celebrated and viewed with alarm, often simultaneously. Television, cable television, video games, computers, the Internet, cell phones, and iPods have each been regarded with dismay and sometimes downright panic by adults concerned with learning and education. It might be worth noting that the growing popularity of the novel as a new writing form in the mid-nineteenth century was viewed with similar alarm. The general notion then was that novels would ruin young minds. Today, however, novels are widely respected, are the subject of serious study by young people, and are believed to foster imagination, creativity, and independent thought. More often than not, both dismay about the problems and excitement about the opportunities presented by electronic media and technology focus on characteristics of the medium itself, such as visual displays, interactivity, and the like. The assumption is that time spent with media or technology, regardless of content or quality, is central to the way they shape youthful learning and academic skills. As Marshall McLuhan famously said, “The medium is the message.”

But the influence of electronic media and technology on youthful learning and cognitive

development cannot be so neatly summarized. It turns out that content matters. High-quality educational television programs seem to have positive effects for children’s learning, academic skills, and academic engagement. The significance of content probably explains why examinations of the links between total amount of viewing and achievement are not particularly useful (and indeed have resulted in very few links being demonstrated). The centrality of content has even begun to emerge in examinations of television and attention problems. In a 2007 study, Frederick Zimmerman and Dimitri Christakis report finding links between high doses of entertainment television before the age of three and attention problems five years later. Educational TV viewing, in contrast, was not associated with subsequent attention problems.¹²⁵ Fundamentally, the implication is quite straightforward: not surprisingly, children learn the things we teach them.

This simple point, however, keeps getting lost amidst the furor over electronic media and children’s learning. The empirical evidence suggests that electronic media are no different from any other teaching tool—good for some things, bad for others. The work ahead is to discover the nuances of this truth—in essence, what is beneficial, for whom it is beneficial, and when it is beneficial.

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Media and Children's Aggression, Fear, and Altruism

Barbara J. Wilson

Summary

Noting that the social and emotional experiences of American children today often heavily involve electronic media, Barbara Wilson takes a close look at how exposure to screen media affects children's well-being and development. She concludes that media influence on children depends more on the type of content that children find attractive than on the sheer amount of time they spend in front of the screen.

Wilson begins by reviewing evidence on the link between media and children's emotions. She points out that children can learn about the nature and causes of different emotions from watching the emotional experiences of media characters and that they often experience empathy with those characters. Although research on the long-term effects of media exposure on children's emotional skill development is limited, a good deal of evidence shows that media exposure can contribute to children's fears and anxieties. Both fictional and news programming can cause lasting emotional upset, though the themes that upset children differ according to a child's age.

Wilson also explores how media exposure affects children's social development. Strong evidence shows that violent television programming contributes to children's aggressive behavior. And a growing body of work indicates that playing violent video games can have the same harmful effect. Yet if children spend time with educational programs and situation comedies targeted to youth, media exposure can have more prosocial effects by increasing children's altruism, cooperation, and even tolerance for others. Wilson also shows that children's susceptibility to media influence can vary according to their gender, their age, how realistic they perceive the media to be, and how much they identify with characters and people on the screen. She concludes with guidelines to help parents enhance the positive effects of the media while minimizing the risks associated with certain types of content.

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Barbara J. Wilson is the Paul C. Friedland Professorial Scholar and head of the Department of Communication at the University of Illinois at Urbana-Champaign. She is grateful to Kristin Drogos for her research assistance and to Craig Anderson and other participants at the Future of Children conference for their insightful comments.

Children today live in a world where many of their experiences are mediated by screen technologies. Small children are likely to feel some of their first fears as they watch a scary movie or television program, feel some of their earliest non-familial attachments as they view a favorite media character, and even experience the beginnings of emotional empathy as they follow the adventures of a well-liked media protagonist. Because American children spend so much time with the media, much of their social life takes place while they sit in front of a television or a computer screen or concentrate on an iPod or a cell phone. In fact, children under the age of six spend more time watching television than they do playing outdoors.¹ Historically, the United States has reached a point where most of children's social experiences no longer consist of face-to-face interactions with other people.

Children develop their emotional and social capabilities through a complex process. To participate effectively in their culture, they must acquire the norms, rules, and values that will enable them to form connections and function in families, peer groups, and the broader society. They learn about emotions and about relationships from parents, friends, teachers, and siblings. They also bring their own personalities, temperaments, and cognitive abilities to each social situation. Electronic media too play a role in children's socialization. Television programs, movies, and even the Internet provide children with a window into popular culture. Children can come to appreciate norms and standards of conduct by watching social actors in fictional stories and can even experience emotional and social situations in a vicarious way through the media.

In this article I review the research evidence regarding how electronic media influence children's emotional and social well-being. I begin by exploring the role the media can play in children's affective or emotional development. I show how children can learn about the nature and function of emotions from the media, and I summarize research on how electronic media contribute to the development of empathy in children. Next, I address the questions of whether the media can elevate children's fears and anxieties. Moving away from emotions, I then explore the effect of media on children's social development. In particular, I examine how repeated exposure to electronic media can influence children's moral development. I also review evidence about how the media can affect children's tendency to behave in a prosocial manner with others and also their tendency to act aggressively in social situations. I then sum up the positive and negative effects of exposure to media on children's well-being, commenting on considerations that make youth susceptible to media's influence and on ways they can be shielded from harmful effects. I conclude by discussing the important role parents can play in their children's media experiences.

Two themes emerge in this review. First, electronic media can have both positive and negative effects on children's development. It is thus simplistic to argue that the media are detrimental or valuable to children. Much of the effect depends on the content to which children are exposed. Some media messages can teach children positive, prosocial lessons, while others can lead children to be fearful or even to behave antisocially. What children are watching onscreen makes a crucial difference, perhaps even more than how much time they spend in front of that screen. Second, not all children are influenced by the media in the

same way. A child's age or developmental level makes a difference, for example. In some situations, younger children are more susceptible to media influence than older children are. But older children and teens are certainly not immune. In fact, media content that is complex or highly abstract is likely to affect only those with more sophisticated cognitive skills who can comprehend the message. A child's gender, race, temperament, and home life also come into play. Throughout this article, I will highlight which groups or types of children are more susceptible to media's influence on emotional and social development.

Media and Emotional Development

Children need emotional skills to form relationships with others. Indeed, the capacity to recognize and interpret emotions in others is a fundamental building block of social competence.² Developmental psychologists and media scholars alike have argued that screen media play a crucial role in children's emotional development.³ Yet few studies address this larger issue, in part because researchers have given so much empirical attention instead to media's impact on maladaptive or antisocial behaviors.

Learning about Emotions

One of the first skills of emotional competence is the ability to recognize emotions in others. Research indicates that preschoolers are able to identify and differentiate basic emotions such as happiness, sadness, and fear experienced by television characters.⁴ Very young children, however, struggle to recognize more complex emotions. They tend to remember emotions experienced by people better than those experienced by Muppets or animated characters, and they do not necessarily focus on emotions of the characters when retelling the narrative of a television

program.⁵ By the time they reach age eight, however, children, especially girls, are more likely to mention characters' affective states when retelling a televised story.⁶ Older children also begin to understand television characters' more complex emotions, such as jealousy.⁷ Like their younger counterparts, older children's recall of affect is higher if they perceive the program as realistic.⁸

Developmental psychologists and media scholars alike have argued that screen media play a crucial role in children's emotional development.

But do emotional portrayals teach children about emotions? Surprisingly little evidence on this subject exists. One early study found that regular viewing of *Sesame Street* helped preschoolers learn to recognize emotions and emotional situations, though the preschoolers learned more about traditional school-based content than they did about emotional content.⁹ In recent years, *Sesame Street* has incorporated emotions and emotional coping into its curricular goals. Several storylines during the 1980s, for example, focused on birth, death, and marriage. In 2001, a series of episodes focused on a hurricane that hit New York City and destroyed Big Bird's home. Big Bird and his friends spent considerable time dealing with this emotional issue and rebuilding his nest. Later that year, *Sesame Street* tried to help preschoolers cope with the September 11 terrorist attacks on New York and Washington by featuring a story about a grease fire in Hooper's Store, which required the help of brave firefighters to save people. Scholars have conducted no

grammatic research, however, to ascertain the long-term effects of watching such content on preschoolers' emotional development.

Researchers have found that older children can learn about emotions from television content. In a series of studies, Sandra Calvert and Jennifer Kotler explored how second through sixth graders' acquired different types of information from their favorite programs.¹⁰ Samples of children recruited from schools across the country were invited to visit a specially designed website to report on what they had learned from particular television episodes they had recently viewed. The researchers found that children do remember lessons and that they can clearly articulate them. When asked about programs rated as educational/informative (E/I), children reported learning socio-emotional lessons more often than informational or cognitive lessons. In other words, the educational programs taught them more about emotions, such as overcoming fears and labeling different feelings, and about interpersonal skills, such as respect, sharing, and loyalty, than about science, history, or culture. Girls learned more from these programs than boys did. This gender difference was attributed to the fact that girls reported liking such programs more and feeling more involved while viewing them. Finally, children learned more of these socio-emotional lessons from their favorite educational (E/I rated) than from their favorite entertainment-based programs. Because the researchers did not disentangle emotional from social lessons, it is difficult to ascertain which is more prominently featured in E/I programming and, in turn, in children's subsequent memories. Nor did the study assess whether this learning persisted over time and more crucially, whether the lessons carried over into real life in some way.

One piece of experimental evidence—research involving a randomly assigned control group—demonstrates that children can transfer to real life the emotional lessons they learn from TV.¹¹ In the study, elementary school children from two age groups (kindergarten through second grade and third through fifth grade) watched a popular family sitcom whose main plot featured one of two negative emotions: the fear felt by a young character about earthquakes or the anger felt by a young character who fell while trying to learn how to ride a bicycle. Half the children in the study (the control group) watched the main plot only, and half watched a version where the main plot was accompanied by a humorous subplot. The presence of the subplot interfered with the ability of younger children to understand the emotional event in the main plot, but not with the ability of older children. This finding is consistent with other researchers' insights into developmental differences in children's ability to draw inferences across scenes that are disconnected in time.¹²

When asked about programs rated as educational/informative (E/I), children reported learning socio-emotional lessons more often than informational or cognitive lessons.

No matter what their age, children who viewed the humorous subplot tended to minimize the seriousness of the negative emotion. It may be, then, that the humor in situation comedies impairs children's ability to learn about negative emotional issues from such

content. The humorous subplot also affected the children's perceptions of emotion in real life. Children who viewed the earthquake episode with the humorous subplot judged earthquakes in real life as less severe than did those who viewed the episode without the subplot. This pattern was particularly strong among those who perceived the family sitcom as highly realistic.

The study demonstrates that a single exposure to a television episode can alter children's ideas about emotions in real life and is consistent with the idea that media portrayals can influence a child's mental representation, or schema, for emotional events. (A schema is an organized structure of knowledge about a topic or event that is stored in memory and helps a person assimilate new information.¹³) Scholars have theorized that people's schemata for emotions include information about expressive cues, situational causes, and rules about how to display each emotion.¹⁴ Research indicates that children use schemata to help them interpret what they encounter in the media.¹⁵ In turn, media content can contribute to a child's schemata. As an example of this interplay, one study found that children who perceived television as highly realistic had mental schemata for real-world occupations such as nursing and policing that were similar to TV portrayals of such jobs.¹⁶

In summary, there is surprisingly little evidence that electronic media affect emotional development. Early work demonstrates that regular viewing of *Sesame Street* can help preschoolers develop a fuller understanding of emotions and their causes. More recent research indicates that elementary school children, especially girls, can learn social-emotional lessons from television. The type of content viewed makes a difference. Programs rated as E/I teach emotional lessons more

effectively than do entertainment-based programs. Some experimental evidence suggests that children can transfer what they learn from emotional portrayals on television to their beliefs about emotional events in real life. This type of learning is greatest among those who perceive television as highly realistic. Once again, the content of the program matters. In one experiment, the simple insertion of a humorous subplot distorted children's perceptions of a negative emotional event in a program and also caused children to minimize the seriousness of a similar event in real life. No research as yet addresses the long-term consequences of repeated exposure to electronic media on emotional development. It may be that children who are heavy viewers of, say, situation comedies develop a distorted perception of emotional problems as trivial and easily solved in thirty minutes or less. On the other hand, regular viewers of E/I programs may learn more about the intricacies of different types of emotional experiences because such portrayals are not routinely clouded in humor. Longitudinal studies—those that follow a cohort of individuals over a long period—are required to fully explore these issues.

Emotional Empathy

Learning to feel empathy or share emotions with others is part of what makes children effective social agents. Empathic children are more sensitive to others and are more likely to engage in socially desirable behavior in groups.¹⁷ Empathy is typically construed as a developmentally acquired skill, dependent on a child's ability to recognize what emotion the other person is feeling and to role-take, or imagine the self in that person's place.¹⁸ Infants often respond to the crying of other babies by crying themselves.¹⁹ But this emotional contagion is different from empathy, though it may be a precursor to it.

Although children clearly share experiences with media characters, few researchers have studied this phenomenon. One early experiment confirms that empathy is a developmental skill.²⁰ In the study, children from two age groups (three through five and nine through eleven) watched a movie clip of either a threatening stimulus or a character's fear in response to a threatening stimulus that was not shown directly. Younger children were less physiologically aroused and less frightened by the character's fear than by the fear-provoking stimulus. The older children, however, responded emotionally to both versions of the movie. The preschoolers did not lack empathy because they failed to recognize the nature of the character's emotion—the vast majority did recognize the character's fear. But they were less likely than the older children to engage in role-taking with the character, a skill that other studies have found to emerge around age eight and increase during the elementary school years.²¹

Besides their developmental stage, other characteristics of children seem to encourage empathy with media portrayals. Children, for example, are more likely to share the emotions of a same-sex than an opposite-sex character.²² They are also more likely to experience empathy if they perceive the media content as realistic.²³

To summarize, a few experimental studies show that children engage in emotional sharing with well-liked characters. Because empathy requires the ability to identify others' emotions and to role-take, older children are more likely to share the emotional experiences of on-screen characters than younger children are. Once again, content matters. Children are more likely to experience empathy with plot lines and characters that they perceive as realistic. They are also more

likely to share the emotions of characters similar to themselves, presumably because it is easier to role-take with such characters. Thus, movies or television programs that feature younger characters in emotional situations that are familiar and seem authentic should produce the strongest empathy in youth. But all of these insights are derived from short-term studies. No longitudinal studies of children's media exposure over time address its effect on empathy. Nevertheless, a recent survey of adults' lifetime media habits is suggestive. In the study, adults reported on their exposure to various types of fiction (romance, suspense novels, thrillers, science fiction, fantasy, domestic and foreign fiction) and nonfiction (science, political commentary, business, philosophy, psychology, self-help) print media.²⁴ They also filled out a questionnaire measuring social skills and various facets of empathy, including perspective-taking. Even after controlling for age, IQ, and English fluency, researchers found that readers who were more exposed to narrative fiction were more empathic and had higher general social abilities. Furthermore, readers of more fiction became more deeply absorbed in stories. In contrast, readers who were more exposed to nonfiction were less empathic. In order to untangle definitively whether empathic people seek out fiction, or whether fictional stories help teach empathy, or whether both are true, researchers will have to track children's media habits over time.

Media, Fear, and Anxiety

Children can not only witness and share emotions experienced by media characters, but also respond directly to emotionally charged events depicted in the media. Much of the research on the media's capacity to evoke children's emotions has focused narrowly on its ability to arouse their fears and anxieties. Recent movies such as *Monster*

House, *Corpse Bride*, and *Harry Potter and the Order of the Phoenix* are just a few examples of horror-filled content that is targeted to children. Classic Disney films such as *Bambi*, *Snow White*, and *The Lion King* can also be upsetting to very young children. Even programs not designed to be scary sometimes cause fear among younger age groups. *The Incredible Hulk*, for example, a television series featuring a large, green-skinned creature that helps people, was so frightening to preschoolers that *Mister Rogers' Neighborhood* screened a special segment to explain the Hulk's motives and make-up to young viewers.

Research shows that most preschoolers and elementary school children have experienced short-term fright reactions to the media.²⁵ Furthermore, many of these children report that they regret having seen a particular scary program or movie.²⁶ In one nationally representative survey, 62 percent of parents of two- to seventeen-year-olds agreed that their children had "sometimes become scared that something they saw in a movie or on TV might happen to them."²⁷ The more pressing question concerns the long-term ramifications of such emotional reactions.

Long-Term Fears and Phobias

Evidence is growing that the fear induced in children by the media is sometimes severe and long-lasting. A survey of more than 2,000 elementary and middle school children revealed that heavy television viewing was associated with self-reported symptoms of anxiety, depression, and post-traumatic stress.²⁸ Watching more than six hours of television a day put children at greater risk for scoring in the clinical range of these trauma symptoms. A survey of nearly 500 parents of elementary school children found that the children who watched television just

before bedtime had greater difficulty falling asleep, were more anxious at bedtime, and had higher rates of nightmares.²⁹ It is difficult to draw firm causal conclusions from these studies, which simply correlate television watching and anxiety, but it seems more likely that heavy watching would trigger fearfulness than that skittish children would seek out television before bedtime.

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Using a different approach, Kristen Harrison and Joanne Cantor interviewed a sample of 150 college students at two universities about their memories of intense fears related to the media.³⁰ A full 90 percent of the students were able to describe in detail a movie or television program that had frightened them in a lasting way. Although most had seen the show during childhood or adolescence, 26 percent reported still experiencing "residual anxiety" as an adult. When questioned about long-term effects, more than half of the sample (52 percent) reported disturbances in sleep or eating after seeing the TV show or movie. In addition, 36 percent said they avoided real-life situations similar to the events depicted in the media, 22 percent reported being mentally preoccupied or obsessed with the frightening content, and 17 percent said they avoided similar movies or television programs. The researchers also found that the younger the child was at the time of the exposure, the longer the fear lasted.

The media content that upsets children varies by age. Preschoolers and younger elementary school children (two to seven years of age) are most frightened by characters and events that look or sound scary.³¹ Creatures such as ghosts, witches, and monsters are likely to provoke fear in younger children; even characters that are benign but visually grotesque, such as E.T., can be upsetting to a preschooler, much to the surprise of many parents. This pattern is consistent with younger children's perceptual dependence, their tendency to fixate on visual and auditory cues rather than more conceptual information such as the motives of a character.³² Older elementary school children (eight to twelve years of age) are frightened more by scenes involving injury, violence, and personal harm.³³ Older children also are more responsive than younger children are to events in the media that seem realistic or could happen in real life.³⁴ This heightened responsiveness is consistent with their more mature understanding of the distinction between fantasy and reality.³⁵ Several studies have found, for example, that older children or tweens (age eight to twelve) are more frightened by television news than are younger children.³⁶

Catastrophic news events, in particular, have raised concerns among many parents in recent years. Round-the-clock coverage of child abductions, war, terrorism, and even hurricanes has made it difficult to shield young children from graphic news stories. Indeed, the content of television news has become more violent and graphic over time.³⁷

Several studies have found that exposure to news increases children's fear and anxiety. One study examined sixth graders suffering from post-traumatic stress disorder two years after the Oklahoma City bombing.³⁸ The disorder is characterized by intense fear, helplessness,

horror, and disorganized or agitated behavior. The children in the study lived 100 miles away from the event, had no direct exposure to it, and knew no one affected by the bombing. Yet almost 20 percent reported that the event continued to cause them to have difficulty functioning at school or at home, or both, two years later. Moreover, children who had watched, listened to, or read more news about the bombing reported greater symptoms of post-traumatic stress.

According to cultivation theory, people who watch a great deal of television will come to perceive the real world as being consistent with what they see on the screen.

Researchers have reported similar findings in the wake of the September 11 terrorist attacks. One nationally representative survey of parents found that 35 percent of American children experienced one or more stress symptoms, such as difficulty falling asleep or trouble concentrating, after the attacks and that 47 percent were worried about their own safety or the safety of loved ones.³⁹ Children who watched more TV coverage of the attacks had significantly greater stress symptoms.

In general, children's fear reactions to the news are intensified if they live in close geographic proximity to the tragedy.⁴⁰ Fear is also greater among children who closely identify with the victims of tragic events.⁴¹ Finally, older elementary school children tend to be more frightened by these types of news stories than do younger children.⁴² Older children feel heightened fear partly

because they watch more news than young children do.⁴³ They are also more likely to be able to comprehend news stories, which often contain abstract terminology, such as terrorism and abduction, and fewer visuals than fictional, entertainment media content does.⁴⁴ But as with fictional content, developmental differences help explain which types of news stories children find frightening. Although children under the age of eight are less likely to be scared of the news, when they are, it is most often in response to stories with graphic and intense visual images, such as natural disasters and accidents.⁴⁵ Older children are more likely to be upset by stories involving crime and violence.⁴⁶

To summarize, a moderate amount of evidence links media exposure, both to fictional content and to the news, with children's fears and anxieties. Cross-sectional snapshot-in-time studies indicate that most children have experienced fright, sometimes intense and enduring, in response to media content. Experimental studies corroborate that the types of content that upset children vary as a function of age. Children under eight are most often frightened by fantasy portrayals that involve gruesome or ugly-looking characters. Children older than eight are more upset by realistic portrayals, including the news, involving personal injury and violence. Fear reactions differ by gender as well. Girls tend to experience more fear from media than boys do, especially as they get older.⁴⁷ But gender differences are more pronounced for self-reported fear than for physical measures of fear, such as facial expressions. Thus, gender differences may reflect socialization differences among girls and boys.

Longitudinal evidence also links media and fear. Heavy exposure to major catastrophes in the news is associated with intense fear and

even post-traumatic stress in children. But although most of the longitudinal evidence pertains to news events, one recent study suggests that television viewing in general may be linked to children's fear. Jeffrey Johnson and several colleagues followed the television viewing habits and sleep problems of a cohort of adolescents at age fourteen, sixteen, and twenty-two.⁴⁸ Those who watched three or more hours of television daily at age fourteen were significantly more likely than lighter viewers to have trouble falling asleep and to wake frequently at night at ages sixteen and twenty-two. The link held true even after researchers controlled for previous sleep problems, psychiatric disorders, and parental education, income, and neglect. And the link ran only one way: sleep problems in the early years did not predict greater television viewing in later years. The study, however, did not assess *what* the teens were watching on television. Clearly, more longitudinal studies are needed on how exposure to different types of fictional and nonfictional media content affects children's fears and worries.

Cultivating a Fear of Victimization

Media can also contribute to long-term fear through cultivation—its influence on people's conceptions of social reality. According to cultivation theory, people who watch a great deal of television will come to perceive the real world as being consistent with what they see on the screen.⁴⁹ Cultivation theory has been applied to many types of reality beliefs, but much of the focus has been on perceptions about violence.

Researchers' preoccupation with violence is partly owing to the prevalence of aggression in American media. Large-scale studies of television programming, for example, have documented that nearly two out of three programs contain some physical violence.⁵⁰

Moreover, a typical hour of television features an average of six different violent exchanges between perpetrators and victims. The extent of violence in programs targeted to children is even higher; 70 percent of children's shows contain violence, with an average of fourteen violent interchanges an hour.⁵¹

How does all this violence affect people's perceptions of reality? Studies have found that frequent viewers of television, no matter what their age, see the world as a more dangerous place and are more frightened of being a victim of violence than infrequent viewers are.⁵² Most of the evidence is correlational, but a few experiments using control groups show that repeated exposure to television violence increases people's fear of victimization.⁵³ Combining all the evidence, Michael Morgan and James Shanahan conducted a meta-analysis of published studies on cultivation that combined all the individual studies to get an aggregate numerical effect size. According to scientific convention, an effect size of 0.10 is considered small, 0.30 is medium, and 0.50 is large.⁵⁴ Morgan and Shanahan found that television had a small but statistically significant effect on people's perceptions of violence ($r = .10$).⁵⁵ The effect was slightly larger for adults than for children, but because fewer studies involved younger age groups, this finding may not be reliable.

Early cultivation research focused on the sheer number of hours that people watch television, based on the assumption that violent content is formulaic and pervasive regardless of what is viewed. More recently, scholars have begun looking at particular types of genres, especially the news.⁵⁶ In one study, elementary school children who frequently watched the news believed there were more murders in a nearby city than did infrequent viewers, even when researchers

controlled for grade level, gender, exposure to fictional media violence, and overall TV viewing.⁵⁷ Another survey found that children and teens who were heavy viewers of the news were more frightened by high-profile child kidnapping stories such as the Elizabeth Smart case than were light viewers of the news.⁵⁸ Heavy viewers of the news were also personally more worried about being abducted than light viewers were, even after researchers controlled for the child's age and gender as well as for parental news viewing and parental fear of abduction. Children's fear of kidnapping was not related to overall television exposure, only to news viewing.

Kidnapping is one news topic that the media tend to sensationalize. Since the late 1990s, the number of stories about child kidnapping in the news has been on the rise.⁵⁹ Yet kidnapping constitutes less than 2 percent of all violent crimes in the United States targeted at children under the age of eighteen.⁶⁰ Moreover, children are far more likely to be abducted by someone they know than by a stranger. In 1997, for example, 40 percent of juvenile kidnappings were perpetrated by a family member, 27 percent by an acquaintance, and 24 percent by a stranger.⁶¹ A very small fraction of abductions are what the FBI calls "stereotypical" kidnapping cases involving a child taken overnight and transported over some distance to be kept or killed.

Despite these statistics, there has been a rash of stories in the news about stranger kidnappings. Dramatic programs such as NBC's *Kidnapped* and USA's *America's Most Wanted* also focus on abduction. These fictional and nonfictional stories may attract viewers, but they can also fuel an exaggerated fear of violence in young children.

To summarize, researchers have found modest evidence that electronic media can

influence children's perceptions of how dangerous the world is. This effect is particularly evident among children who watch a great deal of news programming. Most of the evidence, however, is correlational, not causal, and is a snapshot of its subjects at one time. To date, no longitudinal research has tracked children over time to determine the long-term effects of such exposure on children's perceptions of social reality.

Media and Moral Development

One criticism often leveled against the media is that they are contributing to the decay of morality. Indeed, a recent national poll reported that 70 percent of Americans are very or somewhat worried that popular culture, as portrayed in television and movies, is lowering moral standards in the United States.⁶² The concern is fueled by the tremendous amount of time youth are spending with the media and by their easy access to explicit content. Children can readily find stories about violence, sexual promiscuity, theft, and greed in a variety of media outlets including fictional programming, reality shows, rap music, and the Internet. Almost no research, however, focuses on how the media shape children's moral development. Researchers have written widely on how the media affect children's behaviors, both prosocial and antisocial. But they have paid little attention to the moral lessons children learn from the media that may be underlying these behaviors.

Moral development in children follows a predictable developmental path. When presented with an ethical dilemma, children under the age of eight typically judge an action as wrong or incorrect when it results in punishment or goes against the rules set forth by authority figures.⁶³ As children mature, they begin to consider multiple perspectives in a situation, taking into account the

intentions and motives of those involved and recognizing the often-conflicting rules inherent in moral dilemmas. In other words, their moral reasoning becomes more flexible and "other" oriented.

Marina Krčmar and her colleagues have conducted several studies on whether watching violence on television affects children's moral reasoning. In one survey, they presented six- to twelve-year-olds with hypothetical stories in which a perpetrator performed aggression either for reasons of protection, called "justified" violence, or for random reasons, called "unjustified" violence.⁶⁴ Most of the children perceived the unjustified aggression to be wrong. But children who were heavy viewers of fantasy violence programs such as *Power Rangers* were more likely than children who seldom watched such programs to judge the "justified" aggression in the stories as being morally correct. And indeed researchers have found that much of the violence in popular superhero cartoons is portrayed as justified.⁶⁵ In the Krčmar study, both children who watched a great deal of fantasy violence and those who watched more realistic entertainment violence, such as *Cops*, displayed less advanced moral reasoning strategies, focusing more on rules and the presence or absence of punishment in their reasoning about moral dilemmas.

A follow-up study found the same pattern.⁶⁶ Again, children who watched a great deal of fantasy violence were more likely than light viewers to perceive justified violence as morally acceptable. Heavy doses of fantasy violence also were linked with a child's ability to take on someone else's perspective. In particular, children heavily exposed to fantasy violence had less advanced role-taking abilities, which in turn predicted less sophisticated moral reasoning skills. This second

study also looked at the family's influence on children's television viewing and moral reasoning. In families where parents stressed communication, children were less likely to watch fantasy violence on television and therefore exhibited higher moral reasoning skills. Parents who stressed control had children who watched more fantasy violence and had less advanced moral reasoning.

Both these studies suggest that watching a great deal of violence on television may hinder children's moral development. Yet it may also be that children with less sophisticated moral skills are drawn to violent programs, especially superhero shows, because their fairly simplistic storylines depict aggression as typically justified and rarely punished.⁶⁷

Two recent studies shed some light on this puzzle. In an experiment, Marina Kremer and Stephen Curtis tested the causal effect of television on children's moral conceptions of right and wrong.⁶⁸ Children between the ages of five and fourteen were randomly assigned to one of three groups: one group watched an action cartoon that featured characters arguing and eventually engaging in violence; another group watched a similar clip involving an argument from which the characters walked away instead of fighting; and a control group did not watch television. Afterward, children listened to and judged four hypothetical stories involving violence. Children who had watched the violent program were more likely than those in the control group to judge violence as morally acceptable. They also exhibited less sophisticated moral reasoning in their responses, often relying on authority or punishment as rationales (for example, "You shouldn't hit because you'll get in trouble"). The reaction was the same regardless of the children's age. In fact, older children (nine to fourteen years) who had

seen the violent clip displayed reasoning skills that were on par with those of younger children (five to eight years) in the control group. The experiment demonstrates that exposure to a single program containing fantasy violence can alter children's short-term moral evaluations of aggression and can even adversely affect the strategies they use to make sense of those evaluations.

Unexpectedly, the study found that children who viewed the nonviolent version of the cartoon reacted much the same as those who viewed the violent version; that is, they judged violence as being more morally acceptable than did members of the control group. The authors reasoned that action cartoons might be so familiar to children and so typically full of violence that even watching a nonviolent segment from this genre triggers mental models or schemata in children that involve justified violence.

A second study, in this case a longitudinal one, also illuminates how the media affect moral development. Judy Dunn and Claire Hughes tracked forty "hard-to-manage" preschoolers and forty matched control children over a two-year period, measuring their cognitive skills, social behavior, and emotional functioning.⁶⁹ The two groups of preschoolers engaged in similar amounts of pretend play at age four, but the hard-to-manage children were substantially more likely to engage in play that involved killing, death, and physical violence. Many of these fantasy play incidents were tied to media characters and programs. In addition, children from both groups who engaged in much violent pretend play at age four had significantly lower moral reasoning scores at age six, even after researchers controlled for verbal ability, aggression, and friendship quality at age four. These violent-play children were more likely than their peers to respond

in selfish or hedonistic ways to moral dilemmas, often focusing on punishments rather than on the motives and feelings of the story characters. Although the study did not directly measure children's media habits, the preschoolers' violent fantasy play was often tied to violent television and movies they had seen.

The focus of research to date has been on detrimental effects of media exposure, not on whether some programs and genres can enhance moral development.

To summarize, some research suggests that extensive viewing of television violence can alter children's views about the acceptability of violence and perhaps even hinder the development of their moral reasoning. Fantasy violence that is portrayed as justified or heroic is most strongly implicated here, again suggesting that the type of content children watch is important. Such conclusions must be tentative, however, because of the paucity of studies in this area. With the exception of one experiment and one longitudinal study, nearly all the evidence is of the snapshot-in-time variety and does not permit drawing causal conclusions. In addition, the research has examined only children's moral views about aggression. It has paid little attention to media's effect on other moral issues such as altruism and even other types of antisocial behavior such as cheating, lying, and stealing. Finally, the focus to date has been on detrimental effects of media exposure, not on whether some programs and genres can enhance moral development. And the research has focused solely on television.

Websites, video games, movies, and even children's books sometimes grapple with moral dilemmas, and researchers need to explore their impact as well.

Media and Antisocial Behavior

No issue in the media effects arena has received as much attention as violence. Television, movies, video games, and even rap music have been widely criticized for portraying physical aggression as an entertaining solution to problems. Today, most American parents believe there is too much violence in the media and that it is harmful to society.⁷⁰

Researchers have used scientific methods to quantify the violence in different media. The National Television Violence Study, a three-year assessment of more than 3,000 programs a year, found that a steady 60 percent of programs across twenty-six channels contain some physical aggression.⁷¹ On average, a typical hour of programming features six different violent incidents. Violence varies considerably by genre and channel, however. Children's programming is more violent than all other program types, and virtually all superhero cartoons as well as slapstick cartoons contain violence.⁷² In terms of channels, only 18 percent of PBS programming contains violent content, compared with 84 percent of premium cable shows, such as HBO, 51 percent of broadcast network shows, and 63 percent of basic cable shows.

Other media products that are targeted to youth also contain violence. One study found that virtually all G-rated movies released between 1937 and 1999 featured some violence.⁷³ Another study found that 64 percent of E-rated (for "Everyone") video games released between 1985 and 2000 contained physical violence.⁷⁴

What happens when a child is exposed to violent entertainment? Two theories are helpful in answering that question. One, social cognitive theory (formerly called social learning), posits that children learn ideas, values, emotions, and even behaviors by observing others in their social environment.⁷⁵ Children can imitate people in their immediate surroundings or they can imitate characters in the media. Indeed, children as young as one are capable of imitating simple behaviors displayed on television.⁷⁶ According to social learning theory, children are more likely to imitate observed behaviors that are rewarded than those that are punished.⁷⁷ Children will also imitate behaviors that produce no consequences because, especially in the case of antisocial acts, the lack of punishment can serve as a tacit reward.⁷⁸ The type of media role model also makes a difference. Children are most likely to learn from models that are attractive and from those they perceive as similar to themselves.⁷⁹

Social cognitive theory, then, helps explain how children can acquire new behaviors from watching a media character on the screen. Rowell Huesmann uses a second theory, information processing theory, to explain the long-term effects of media exposure. Focusing on the learning of scripts—mental routines for familiar events that are stored in a person’s memory—Huesmann theorizes that children develop scripts for bedtime routines, for going to the doctor, and even for getting ready for school.⁸⁰ He argues that a child who is exposed to a great deal of violence, either in real life or through the media, will acquire scripts that promote aggression as a way of solving problems. Once learned, these scripts can be retrieved from memory at any time, especially when the situation at hand resembles features of the script. The more often an aggressive

script is retrieved, the more it is reinforced and becomes applicable to a wider set of circumstances. Thus, children who are repeatedly exposed to media violence develop a stable set of aggressive scripts that are easily prompted and serve as a guide in responding to social situations.

Scholars have written hundreds of studies of the impact of media violence on children’s aggressive behavior.⁸¹ In 2000, six major medical organizations (American Academy of Pediatrics, American Academy of Child and Adolescent Psychiatry, American Psychological Association, American Medical Association, American Academy of Family Physicians, and American Psychiatric Association) reviewed this research and issued a joint statement to Congress, concluding that “viewing entertainment violence can lead to increases in aggressive attitudes, values, and behavior, particularly in children.”⁸² In this section, I will review the findings concerning the impact of media on physical aggression as well as social aggression.

Physical Aggression

In support of social cognitive theory, numerous experiments show that children will imitate violent behaviors they see on television, particularly if the violence is rewarded. As an example, one study exposed elementary school children to a single episode of the *Mighty Morphin Power Rangers* and then observed verbal and physical aggression in the classroom.⁸³ Compared with a control group, children and especially boys who had watched the violent program committed significantly more intentional acts of aggression such as hitting, kicking, and shoving. In fact, for every aggressive behavior enacted by children in the control group, children who had seen the *Power Rangers* committed seven aggressive acts. Other research shows that children,

especially preschoolers, will imitate a cartoon character as readily as a human character and that they can reproduce aggressive behaviors they have seen on TV up to eight months later.⁸⁴

But experiments are capable of testing short-term effects only. It will take longitudinal studies that track children over time to assess the long-term effects of media violence. Rowell Huesmann and his colleagues have conducted several of these studies, the most recent one involving more than 500 elementary school children.⁸⁵ The researchers collected measures of television viewing and aggressive behavior when the children were in grade school and then again fifteen years later when they were adults. The composite measure of adult aggression included self-reports of spousal abuse, punching and choking another person, and shoving others, as well as documented criminal behavior. In support of the idea of learned scripts, heavy exposure to television violence in childhood predicted increased physical aggression in adulthood. This pattern held for both boys and girls, even after researchers controlled for the child's initial level of aggressiveness, the child's IQ, the parents' education, the parents' TV habits, the parents' aggression, and the socioeconomic status of the family. The reverse, however, was not true: being aggressive in childhood did not predict more viewing of violence in adulthood. Put another way, there was more evidence that television viewing contributed to subsequent aggression than that being aggressive led to more viewing of violence.

In one of the most extensive meta-analyses of television violence, Haejung Paik and George Comstock analyzed 217 studies and found an overall effect size of .31, a medium effect.⁸⁶ Animated and fantasy violence had a stronger effect on aggression than more realistic

programming did, which challenges the claim that cartoons are innocuous. The effect of television violence on aggression also varied with age: the effect was greatest on preschool children younger than six. The effect was also slightly larger on boys than on girls.

To provide some context, Brad Bushman and Craig Anderson compared the effect of television violence on aggression with other well-established connections in the medical field.⁸⁷ The television violence-aggression link turns out to be larger than the link between lead exposure and children's IQ. The effect of television violence on aggression is only slightly smaller than the documented effect of smoking on lung cancer.

Clearly, repeated exposure to television violence poses risks for children. What about playing violent video games? That topic has attracted less research, particularly with regard to youth. A few early experiments showed that video game play had no effect on children's aggression.⁸⁸ The violent games tested in these studies, however, were quite mild compared with the games available today. The more recent experimental evidence generally is in line with studies of violent television.⁸⁹ The largest experiment to date randomly assigned 161 nine- to twelve-year-olds to play a violent or a nonviolent video game for twenty minutes.⁹⁰ Two different E-rated (for "Everyone") violent games were used; both involved cartoon-like characters engaging in continuous violence against nonhuman enemies. Afterward, children played another computer game that allowed them to select how much punishment, such as a noxious noise blast, to deliver to an opponent, whom they were told was a competitor in the game. Children who played a violent video game delivered significantly more intense noise blasts than did those who played a

nonviolent game. Although boys were generally more punitive (that is, aggressive) than girls were, playing violent video games increased short-term aggression in both genders.

To date, only one published study has focused on the long-term effects of playing violent video games on youth.⁹¹ Craig Anderson and several colleagues tested a sample of 430 third through fifth graders twice, roughly five months apart. Children were asked to report on their violent media exposure, aggression, and hostile attribution bias (that is, their tendency to perceive ambiguous situations in a hostile fashion). In addition, the study collected teacher reports and peer ratings of aggression for the children. The study revealed that students who played violent video games early in the school year engaged in significantly increased physical aggression and hostile attributions several months later. The patterns held up even after researchers controlled for sex, race, initial levels of aggression, total time spent with screen media, and parental involvement. Viewing violence on television also predicted increases in aggression over time, but the effect of video game playing was more robust after various controls were introduced.

Although the evidence available is not large, scholars have conducted meta-analyses on the video game research. The most recent analysis evaluated thirty-two independent samples of participants and found a significant and positive overall effect size of .20.⁹² When researchers eliminated studies with serious methodological shortcomings, the effect size rose to .25, which is closer to the effect documented for television violence. It should be noted, however, that most of the studies in this meta-analysis involve adults rather than children.

To summarize, scholars have accumulated strong evidence from experiments, surveys, and longitudinal studies that viewing violent television programming contributes to both short-term and long-term increases in children's aggressive behavior. Younger children may be particularly vulnerable to social learning from television, although older children are not immune and can be primed to act aggressively after viewing violent programs. Boys show slightly stronger effects than girls do, but no demographic group is immune to this type of influence. The evidence on violent video games is less extensive but is growing. Controlled experiments, surveys, and one longitudinal study now document a link between game playing and aggression in children. Again, boys show slightly stronger effects, but they also play more video games and prefer violent content more than girls do.⁹³ Some speculate that video games may be more harmful than television because they are highly involving and often allow players to become violent perpetrators, strengthening the personal identification in this fantasy violence. Yet comparing the effects of television and video games may be less important than looking at a child's overall media diet. As it turns out, youth who are attracted to violence on television are also more likely to play violent video games.⁹⁴ All of these screen experiences can increase and reinforce the number of aggressive scripts that a child develops in memory.

Social or Relational Aggression

Parents, teachers, and even researchers have been so preoccupied with physical aggression that they have tended to overlook other forms of hostility, especially those that are more social or relational in nature. Social aggression involves harming others' feelings through social exclusion, gossip, or friendship manipulation. This type of behavior begins to emerge

Table 1. Top 10 Cable TV Programs, Week of March 5, 2007

Millions of viewers

| Rank | Program | Network | Rating | Viewers |
|------|-----------------------------|---------|--------|---------|
| 1 | WWE Entertainment (WWE Raw) | USA | 3.6 | 6.152 |
| 2 | WWE Entertainment (WWE Raw) | USA | 3.2 | 5.356 |
| 3 | I Love New York | VH1 | 2.5 | 4.066 |
| 4 | SpongeBob | NICK | 2.4 | 3.604 |
| 4 | Fairly Odd Parents | NICK | 2.4 | 3.495 |
| 4 | Princess Diaries, The | DSNY | 2.4 | 3.700 |
| 7 | Zoey 101 | NICK | 2.3 | 3.303 |
| 7 | Fairly Odd Parents | NICK | 2.3 | 3.387 |
| 7 | SpongeBob | NICK | 2.3 | 3.155 |
| 10 | Drake and Josh | NICK | 2.2 | 3.156 |
| 10 | SpongeBob | NICK | 2.2 | 3.302 |
| 10 | Law and Order: SVU | USA | 2.2 | 3.271 |
| 10 | Ned Declassified | NICK | 2.2 | 3.065 |
| 10 | Parent Trap, The (1998) | DSNY | 2.2 | 3.354 |
| 10 | Family Guy | ADSM | 2.2 | 3.257 |
| 10 | Ned Declassified | NICK | 2.2 | 3.072 |

Note: Rankings are based on Nielsen Media Research's national people meter sample. Ratings are estimates of the size of the television viewing audience, relative to the total television households in the United States (110.2 million households). Viewers include anyone over the age of two. Several programs are mentioned more than once because they run during multiple time slots during the week, and the data do not provide the different time slots for these programs.

as early as the preschool years and is more common among girls than boys.⁹⁵

The popularity of movies such as *Mean Girls* and television programs such as *Lizzy McGuire*, which feature girl friendship struggles, have led some to ask what role the media play in children's social aggression. The topic, however, has attracted little research. One study found incidents of relational aggression in 92 percent of television programs popular with teens.⁹⁶ Another study found that teens who viewed social aggression on television tended to practice such behavior.⁹⁷ Longitudinal research has linked heavy exposure to television violence in childhood to increased social aggression in adult females, even after controlling for childhood aggression, childhood IQ, parental education,

parental TV habits, and the socioeconomic status of the family.⁹⁸ Although these studies are suggestive, it will not be possible to draw conclusions about whether media violence causes this alternative form of childhood aggression until more research is conducted.

Media and Prosocial Behavior

So much public attention has been paid to potential negative effects of the media on children that parents and researchers alike have scarcely acknowledged the positive. Yet if television and movies can teach children antisocial behaviors such as aggression, then it makes sense that these same media can teach beneficial behaviors as well. The challenge is to differentiate the media messages that are potentially harmful from those that are positive or prosocial in nature.

Prosocial behavior can be broadly defined as any voluntary behavior intended to benefit another person.⁹⁹ Altruism is the most common example of prosocial behavior. Others are friendliness, sharing, cooperation, sympathy, and even acceptance of others from different groups.

Clearly children are exposed to a great deal of violence in the media. But how often do they witness prosocial behavior? One recent, large-scale study examined a randomly selected week of television programming across eighteen channels.¹⁰⁰ The total sample included more than 2,000 entertainment shows. Nearly three-fourths of the programs (73 percent) featured at least one act of altruism, defined as helping, sharing, giving, or donating. On average, viewers of these programs saw about three acts of altruism an hour. Human characters rather than anthropomorphized ones enacted most of the altruism, and about one-third of the behaviors were explicitly rewarded in the plot. Altruism was more common in situation comedies and children's shows than in other types of programs. It was also more common on children's cable networks such as Disney and Nickelodeon than on general audience cable such as A&E or TNT or on the broadcast networks. Thus, programs targeted to younger viewers often portray helping behavior. As examples, *Sesame Street* (PBS), *Dora the Explorer* (Nickelodeon), and *Dragon Tales* (PBS) are popular prosocial and educational programs for preschoolers. *Arthur* (PBS) and *The Wild Thornberrys* (Nickelodeon) are prosocial shows that are well liked by younger elementary school children, and *The Suite Life of Zack and Cody* (Disney) and *Drake and Josh* (Nickelodeon) are prosocial shows popular among older elementary school children.

Comparing the findings on prosocial TV content with those of the National Television Violence Study reveals much about the landscape of television.¹⁰¹ Children are more likely to encounter depictions of altruism (in three out of four programs) than of physical aggression (in two out of three programs) when they watch television. But the concentration of altruistic behaviors is lower (three incidents an hour) than that of violence (six incidents an hour). In children's programming itself, altruism occurs about four times an hour, but violence occurs roughly fourteen times an hour. Thus, an American child who watches an average of three hours a day of children's television programming will see 4,380 acts of altruism and 15,330 acts of violence each year.

But children and adults do not watch television indiscriminately. They are generally selective and gravitate toward their favorite programs. An examination of the top-rated programs on cable television is revealing (see table 1).

In a typical week in 2007, most of the top cable shows were targeted to children and were featured on children's networks such as Nickelodeon. Most were also situation comedies about young people in social situations. *Zoey 101*, for example, features a teenage character named Zoey who is one of the first girls to attend an all-boys boarding school. She is described as "a quick thinker who is constantly saving the day with her smarts and problem-solving skills." Other child-oriented programs on this list such as *Drake and Josh* are similarly prosocial in nature. Nevertheless, the top two programs that same week were two episodes of *WWE Entertainment Raw*, which features professional TV wrestling. Because these ratings are not calibrated by age, it may be tempting to conclude that

children are watching the Nickelodeon and Disney shows, whereas adults are watching the violent wrestling shows. Yet 15 percent of the audience for wrestling shows consists of children under the age of twelve.¹⁰²

The TV ratings data highlight both the variety of programming available to youth and the challenge of guiding youthful preferences in a prosocial direction. In the next sections, I will explore the impact of the media on three types of prosocial children's behaviors: altruism, positive social interaction, and acceptance of others.

Altruism

Most of the research on prosocial effects of the media focuses on children's altruism or helping behavior. Early studies had children watch a television clip that featured a character engaging in helping behavior and then placed the children in a similar situation to see if they would imitate the behavior. In one experiment, first graders who viewed an episode of *Lassie* in which the main character saved a puppy were subsequently more helpful toward distressed puppies than were first graders who saw a neutral *Lassie* episode with no prosocial behavior or a *Brady Bunch* episode with no prosocial displays or dogs.¹⁰³

Of course, one question is whether such short-term imitation can persist beyond the viewing situation. Field experiments that control children's viewing over time in naturalistic settings can shed light on this issue. In one such study, kindergartners were assigned to watch either *Mister Rogers' Neighborhood* or neutral programming that did not feature prosocial behavior, over the course of four sessions.¹⁰⁴ In addition, some of the children watching the prosocial *Mister Rogers* received puppet role-play training that re-enacted the main events and dialogue

in each episode they had seen. Two to three days later, all the children were given the opportunity either to work on an art project or to help another child who was struggling with the project. The children who had viewed the prosocial programs were more helpful than those who had seen the neutral programs were, especially if the prosocial programming had been reinforced by role-playing.

Other studies have found that training or follow-up lessons can enhance the effects of prosocial television.¹⁰⁵ One reason why such guidance may be beneficial is that prosocial morals on television can be difficult for children to extract. Compared with violent programming, prosocial shows typically have less action and more dialogue, which makes their plots and subplots more challenging to follow and comprehend, especially for younger children. In one study, four- to ten-year-olds watched an episode of the *Mighty Morphin Power Rangers* and were asked about possible lessons in the program.¹⁰⁶ Most of the children agreed that there was a "moral" to the show, yet only the eight- to ten-year-olds were able to identify the lesson—in this case, that work should come before play. The younger children focused instead on the fighting in the program. Other research demonstrates that moral lessons on television that are conveyed in the context of violence are often misunderstood by children under the age of eight.¹⁰⁷

Social Interaction

Another concern often voiced about screen media is that they may interfere with children's social interaction. Indeed, preschoolers and their parents spend less time talking with and looking at each other when the television set is turned on than when it is off.¹⁰⁸ Moreover, families that eat dinner in front of the

television converse less and talk about fewer topics than do families that turn the television off before they sit down to dinner.¹⁰⁹ On the positive side, families engage in more physical contact and cuddling when they watch television together than when they are doing other activities.¹¹⁰

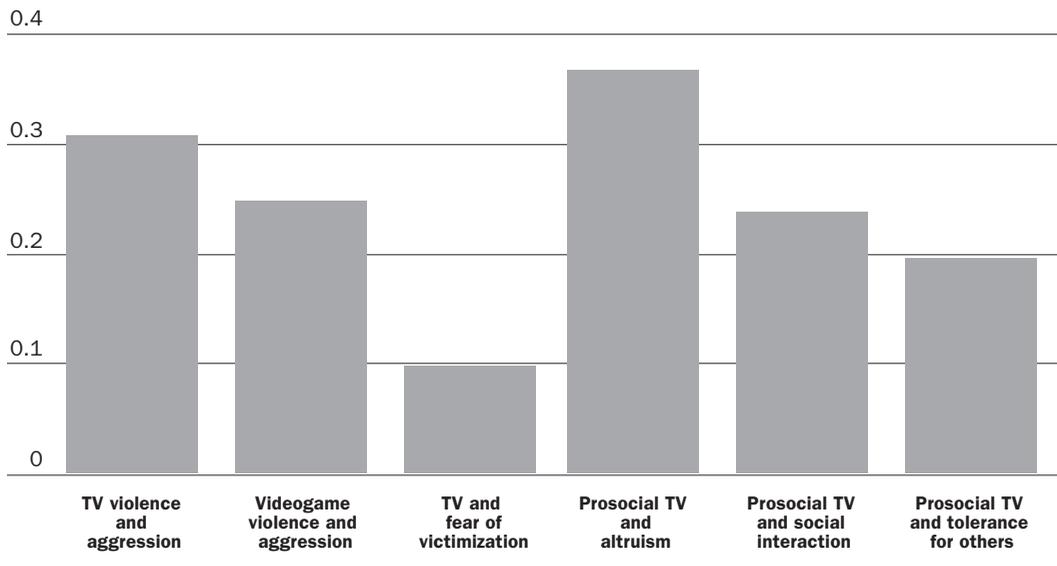
Although the sheer amount of time spent in front of a TV or computer screen may have detrimental effects on social interaction, viewing particular types of programs can teach children social skills. One early study found that second and third graders who watched a single episode of *The Waltons* displayed more cooperative behavior in a prisoner's dilemma game than did students in a control group who had not seen the program.¹¹¹ A single episode of prosocial television, however, may not be sufficient for teaching cooperation among younger, preschool-aged children.¹¹² Part of the difficulty here is that cooperation is more difficult to model behaviorally than helping is. Also, good drama often features cooperation after a period of interpersonal conflict, and this type of mixed message is likely to be particularly confusing for younger viewers.

Even though a single program may do little, repeated exposure to prosocial television can affect preschoolers' social behavior. In one study, three- to five-year-olds watched fifteen minutes a day of either *Sesame Street* or *Mister Rogers' Neighborhood* in their preschool.¹¹³ The study observed the children's social behaviors before, during, and one week after the treatment. Exposure to *Mister Rogers* increased the sheer amount of social contact preschoolers had in the classroom and increased their giving of positive attention such as praise and physical affection to others. *Sesame Street* had a similar positive effect, but only for those who were low in

social skills at the baseline. Because the study did not include a no-exposure control group, it does not permit firm causal conclusions. Nevertheless, it suggests that regular viewing of particular TV series may have a lasting impact on children's social behavior.

Acceptance of Others

The casts of prosocial and educational programs for children, such as *Sesame Street* and *Dora the Explorer*, are typically more diverse than those of adult or general audience television.¹¹⁴ Such programming also portrays children from different racial and ethnic groups interacting with one another. Early research on *Sesame Street* found that over time, preschoolers who watched the program extensively developed more positive attitudes toward people of different groups.¹¹⁵ More recently, Children's Television Workshop, the creator of *Sesame Street*, has developed content that explicitly tries to teach tolerance and respect for others. One such effort is *Rechov Sumsum/Shara'a Simsim*, a series broadcast throughout Israel and Palestine. Like *Sesame Street*, the program teaches basic educational lessons to preschoolers, but it also features characters who live on an Israeli street (Rechov Sumsum) and visit their friends who live on a Palestinian street (Shara'a Simsim). One research study compared the social attitudes of Israeli-Jewish, Palestinian-Israeli, and Palestinian preschoolers before the series debut in 1998 and four months later.¹¹⁶ Before the show began airing, children as young as four held negative stereotypes about people from the other culture, reflecting the political turmoil in this region. Four months after the series had been regularly aired on TV, the two groups of Israeli children showed more positive attitudes toward Arabs. Unexpectedly, the Palestinian children's attitudes toward Jews became more negative, suggesting a boomerang effect of sorts. The study

Figure 1. Effect Sizes Of Exposure to Various Types of Media Content and Various Social Outcomes, from Various Meta-analysis Studies

Sources: For TV violence and aggression (.31), see Haejung Paik and George Comstock, "The Effects of Television Violence on Antisocial Behavior: A Meta-Analysis," *Communication Research* 21, no. 4 (1994): 516–46. For videogame violence and aggression (.25), see Craig Anderson, "An Update on the Effects of Playing Violent Video Games," *Journal of Adolescence* 27 (2004): 113–22. For TV and fear of victimization (.10), see Michael Morgan and James Shanahan, "Two Decades of Cultivation Research: An Appraisal and Meta-analysis," *Communication Yearbook* (1996): 1–45. For prosocial TV and altruism (.37), prosocial TV and social interaction (.24), and prosocial TV and tolerance of others, see Marie-Louise Mares and Emory Woodard, "Positive Effects of Television on Children's Social Interactions: A Meta-Analysis," *Media Psychology* 7, no. 3 (2005): 301–22.

did not, however, measure individual children's exposure to the program, so it could be that other factors contributed to this negative effect. The study illustrates how challenging it can be to alter stereotypes, even among young children.

Summary of Prosocial Evidence

To sum up all of this research, Marie-Louise Mares and Emory Woodard conducted a meta-analysis in 2005.¹¹⁷ Their analysis of thirty-four studies of the prosocial effects of television involving more than 5,000 children found an overall effect of .27 (a medium size effect), indicating that viewing prosocial programming does in fact enhance children's prosocial behavior. The strongest effects of prosocial content were on altruism (.37); the effects on positive interaction (.24) and on tolerance for others (.20) were

slightly weaker. This finding is consistent with the idea that it is easier for television characters to demonstrate behaviorally how to help someone than how to be cooperative or tolerant of others. In general, effects were also stronger when the television content mirrored the behavior that children were to imitate afterward. Finally, the effect of prosocial content varied by children's age and socioeconomic status, but not by gender. Effects increased sharply between the ages of three and seven and then declined until age sixteen. That effects peak at age seven is consistent with the notion that prosocial lessons may be difficult for very young children to understand, especially lessons conveyed with words instead of action. Prosocial television had a greater effect on children from middle- to upper-class families than on children from lower-class families. The authors speculated

that the relatively happy world depicted in most prosocial programming might resonate best with children from more affluent backgrounds.

Media Choices and Children's Well-Being

American children spend a large part of their lives with television and other screen-based technologies, and there can be little doubt that they learn from these mediated experiences. Parents and educators often worry about the harmful effects of media, but the evidence is clear that time spent with media can also be beneficial for children. The point I have emphasized throughout this article is that content matters. Watching two hours of *Sesame Street* will provide a young child with a rich set of academic and social-emotional lessons; watching two hours of a superhero cartoon will recommend aggression as a way of solving problems.

Figure 1 charts the effect that exposure to different types of media content has on various social and emotional outcomes, based on the meta-analyses already noted. The good news is that prosocial television has a larger effect on altruism than any other content has on any other outcome. Close behind, however, is the effect that violent television has on aggressive behavior. Slightly smaller effects have been found for violent video games on aggressive behavior, for prosocial content on positive social interaction, and for prosocial content on teaching tolerance for others. The smaller effect for video game violence should be interpreted with caution, however, because studies in this area are few, and most involve adults. Some of the more recent research comparing television with video games suggests that the violent games may be a more potent stimulator of aggression. The smallest effect of all is

that of television in cultivating a fear of victimization. One reason for the latter finding may be that research on cultivation has tended to ignore content and instead simply measured hours of television viewing. As noted, cultivation effects tend to be stronger among heavy viewers of news programming and other authentic portrayals of violence such as those sometimes found in reality shows.

The important conclusion to draw is that all the effects displayed in figure 1 are positive, statistically significant, and established across large numbers of participants and settings. One way to interpret these effects is to treat them like correlations that can be used to estimate how much variance is explained in a given behavior or outcome. For example, television violence accounts for about 10 percent (.31²) of the variance in children's aggression. Although that share does not seem large, it is larger than any other single factor that accounts for violent behavior in youth. The truth is that, taken separately, most risk factors do not account for much of the variance in children's aggression. Being male accounts for about 3.6 percent of the variance, poverty accounts for about 1 percent, and abusive parenting accounts for about 0.8 percent.¹¹⁸ The only factor that comes close to media violence is gang membership (9.6 percent). Thus, reducing children's exposure to media messages that condone violence in our culture could reduce a small but crucial portion of youth aggression in society.

Risk Factors for Media Effects on Youth

The modest effect sizes charted in figure 1 suggest that other variables interact with or modify the media's influence. As I have noted along the way, one such variable is the age or developmental level of the child. Television

violence seems to have the strongest impact on preschool children, in part because they are still learning social norms and inhibitions against behaving aggressively. Prosocial effects of watching television are strongest for slightly older children, peaking at about age seven or eight. Prosocial lessons are often conveyed more subtly in the media and therefore require more advanced cognitive skills to decipher. The influence of media on fear and anxiety is common throughout childhood, although the types of content that upset children differ with age. Younger children are frightened more by fantasy portrayals; older elementary school children and preteens, more by realistic content, including the news.

Another important variable is a child's perception of how real the media are. Children differ in the degree to which they believe that what they see on the screen is realistic.¹¹⁹ When media storylines seem realistic, children are likely to pay closer attention to what they are watching and presumably exert more cognitive effort in processing the information. Shows perceived as being real may also encourage children to imagine themselves in the characters' place. And indeed, television violence has a heightened effect on children who perceive television as realistic.¹²⁰ On the other hand, children who are able to discount television as unrealistic will have a less intense fear reaction to a scary television portrayal.¹²¹

Another variable in children's susceptibility to the media is the extent to which they identify with characters and real people featured on the screen. Children begin developing attachments to favorite media characters during the preschool years.¹²² Fondness for media characters can last throughout childhood and adolescence. In one survey nearly 40 percent

of teens named a media figure as their role model—nearly the same share that named a parent or relative.¹²³ Consistent with social cognitive theory, children are more likely to learn from those they perceive as attractive role models. Strongly identifying with violent characters, for example, makes children more likely to learn aggression from the media.¹²⁴ Identifying with victims of tragedy also enhances children's fear responses to news stories.¹²⁵

Parental Influence on Children's Media Experiences

Parents, it turns out, can play an important and positive role in how electronic media affect young people's lives: they can not only enhance the benefits but also reduce the risks associated with children's media exposure. Parents who watch prosocial programming with their child and reinforce the messages in different portrayals can enhance their child's prosocial learning.¹²⁶ Such active media-tion can include explaining and discussing the moral lessons in a plot, reinforcing the information through rehearsal, and engaging in role-playing activities that elaborate on the information.

By helping children think critically about potentially harmful content in the media, parents can also reduce the impact of media violence.¹²⁷ In one experiment, elementary school children who were encouraged to think about the victim while watching a violent cartoon liked the aggressor less, liked the victim more, and believed that the violence was less justified than did children who received no such guidance.¹²⁸ Moreover, boys who were given such guidance were less aggressive after viewing the cartoon than were boys who received no such help; girls were less aggressive overall so the mediation had no impact on their behavior.

Parents can also teach children coping strategies to deal with frightening images in the media. Discussing the special effects used in a horror film or explaining that fantasy events on the screen cannot happen in real life are both effective techniques to reduce children's fright reactions.¹²⁹ Such "cognitive" strategies work especially well with older elementary school children who can comprehend such information and store it in memory for later use.¹³⁰ For younger children, "noncognitive" strategies such as providing physical comfort and turning off the program seem most effective.¹³¹ Parents should consider shielding children, especially preschoolers, from the types of fictional themes that are most frightening at different points in development.

When it is the news that is frightening to children, parents' role is more challenging. Older children can be taught to recognize that news programming overemphasizes crime and violence and that many terrible events covered

in the news, such as child kidnapping, occur only infrequently in the real world.¹³² Permitting children under the age of eight to see graphic images in the news, even inadvertently when the TV is on in the background, may present challenges because such content is hard to explain to younger age groups. In the case of major catastrophes, research suggests that all children benefit from curtailed television exposure and constructive conversations with a calm parent.¹³³

In general, it is essential for parents to monitor the media content their children view and find attractive. Such parental involvement is arguably more important than establishing rules about how much time children can spend watching TV or playing video games. Guiding children's media choices and helping children become critical consumers of media content can foster the prosocial benefits of spending time in front of a screen while preventing some of the risks.

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Online Communication and Adolescent Relationships

Kaveri Subrahmanyam and Patricia Greenfield

Summary

Over the past decade, technology has become increasingly important in the lives of adolescents. As a group, adolescents are heavy users of newer electronic communication forms such as instant messaging, e-mail, and text messaging, as well as communication-oriented Internet sites such as blogs, social networking, and sites for sharing photos and videos. Kaveri Subrahmanyam and Patricia Greenfield examine adolescents' relationships with friends, romantic partners, strangers, and their families in the context of their online communication activities.

The authors show that adolescents are using these communication tools primarily to reinforce existing relationships, both with friends and romantic partners. More and more they are integrating these tools into their "offline" worlds, using, for example, social networking sites to get more information about new entrants into their offline world.

Subrahmanyam and Greenfield note that adolescents' online interactions with strangers, while not as common now as during the early years of the Internet, may have benefits, such as relieving social anxiety, as well as costs, such as sexual predation. Likewise, the authors demonstrate that online content itself can be both positive and negative. Although teens find valuable support and information on websites, they can also encounter racism and hate messages. Electronic communication may also be reinforcing peer communication at the expense of communication with parents, who may not be knowledgeable enough about their children's online activities on sites such as the enormously popular MySpace.

Although the Internet was once hailed as the savior of education, the authors say that schools today are trying to control the harmful and distracting uses of electronic media while children are at school. The challenge for schools is to eliminate the negative uses of the Internet and cell phones in educational settings while preserving their significant contributions to education and social connection.

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Kaveri Subrahmanyam is a professor of psychology at California State University–Los Angeles, and associate director of the Children's Digital Media Center, UCLA/CSULA. Patricia Greenfield is a Distinguished Professor of Psychology at the University of California–Los Angeles and director of the Children's Digital Media Center, UCLA/CSULA.

The communication functions of electronic media are especially popular among adolescents. Teens are heavy users of new communication forms such as instant messaging, e-mail, and text messaging, as well as communication-oriented Internet sites such as blogs, social networking, photo and video sharing sites such as YouTube, interactive video games, and virtual reality environments, such as Second Life. Questions abound as to how such online communication affects adolescents' social development, in particular their relationship to their peers, romantic partners, and strangers, as well as their identity development, a core adolescent developmental task.

In this article, we first describe how adolescents are using these new forms of electronic media to communicate and then present a theoretical framework for analyzing these uses. We discuss electronic media and relationships, analyzing, in turn, relationships with friends, romantic partners, strangers, and parents. We then explore how parents and schools are responding to adolescents' interactions with electronic media. Finally, we examine how adolescents are using electronic media in the service of identity construction.

Adolescents have a vast array of electronic tools for communication—among them, instant messaging, cell phones, and social networking sites. These tools are changing rapidly and are just as rapidly becoming independent of a particular hardware platform. Research shows that adolescents use these communication tools primarily to reinforce existing relationships, both friendships and romantic relationships, and to check out the potential of new entrants into their offline world.¹ But while the Internet allows teens to

nourish existing friendships, it also expands their social networks to include strangers.

The newly expanded networks can be used for good (such as relieving social anxiety) or for ill (such as sexual predation). Although researchers have conducted no rigorous experiments into how adolescents' wide use of electronic communication may be affecting their relationships with their parents, indications are that it may be reinforcing peer communication at the expense of communication with parents. Meanwhile, parents are increasingly hard-pressed to stay aware of exactly what their children are doing, with newer forms of electronic communication such as social networking sites making it harder for them to control or even influence their children's online activities. Schools too are now, amidst controversy and with difficulty, trying to control the distracting uses of the Internet and other media such as cell phones while children are at school. The challenge for parents and schools alike is to eliminate the negative uses of electronic media while preserving their significant contributions to education and social connection.

Electronic Media in the Service of Adolescent Communication

To better understand how adolescents use electronic media for communication, we start by describing the many diverse ways in which such communication can take place. Among youth today, the popular communication forms include e-mail, instant messaging, text messaging, chat rooms, bulletin boards, blogs, social networking utilities such as MySpace and Facebook, video sharing such as YouTube, photo sharing such as Flickr, massively multiplayer online computer games such as *World of Warcraft*, and virtual worlds such as Second Life and Teen Second Life. Table 1 lists these communication forms, the

Table 1. Online Communication Form, Electronic Hardware That Supports It, and Function of the Communication Form

| Communication Form | Electronic Hardware That Supports It | Functions Enabled |
|--|--|---|
| E-mail | Computers, cell phones, Personal Digital Assistants (PDAs) | Write, store, send, and receive asynchronous messages electronically; can include attachments of word documents, pictures, audio, and other multimedia files |
| Instant messaging | Computers, cell phones, PDAs | Allows the synchronous exchange of private messages with another user; messages primarily are in text but can include attachments of word documents, pictures, audio, and other multimedia files |
| Text messaging | Cell phones, PDAs | Short text messages sent using cell phones and wireless hand-held devices such as the Sidekick and Personal Digital Assistants |
| Chat rooms | Computers | Synchronous conversations with more than one user that primarily involve text; can be either public or private |
| Bulletin boards | Computers | Online public spaces, typically centered on a topic (such as health, illnesses, religion), where people can post and read messages; many require registration, but only screen names are visible (such as www.collegeconfidential.com) |
| Blogs | Computers | Websites where entries are typically displayed in reverse chronological order (such as www.livejournal.com); entries can be either public or private only for users authorized by the blog owner/author |
| Social networking utilities | Computers | Online utilities that allow users to create profiles (public or private) and form a network of friends; allow users to interact with their friends via public and private means (such as messages, instant messaging); also allow the posting of user-generated content such as photos and videos (such as www.myspace.com) |
| Video sharing | Computers, cell phones, cameras with wireless | Allows users to upload, view, and share video clips (such as www.YouTube.com) |
| Photo sharing | Computers, cell phones, cameras with wireless | Allows users to upload, view, and share photos (such as www.Flickr.com); users can allow either public or private access |
| Massively multiplayer online computer games (MMOG) | Computers | Online games that can be played by large numbers of players simultaneously; the most popular type are the massively multiplayer role playing games (MMORPG) such as <i>World of Warcraft</i> |
| Virtual worlds | Computers | Online simulated 3-D environments inhabited by players who interact with each other via avatars (such as <i>Teen Second Life</i>) |

electronic hardware that supports them, and the functions that they make possible.

Although table 1 lists the various forms of electronic hardware that support the different communication forms, these distinctions are getting blurred as the technology advances. For instance, e-mail, which was originally supported only by the computer, can now be accessed through cell phones and other portable devices, such as personal digital assistants (PDAs), Apple's iPhone, the Sidekick, and Helio's Ocean. The same is true for functions such as instant messaging and social networking sites such as MySpace.

Other communication forms such as YouTube and Flickr are similarly accessible on portable devices such as cell phones with cameras and cameras with wireless. Text messaging continues to be mostly the province of cell phones although one can use a wired computer to send a text message to a cell phone. As more phones add instant messaging service, instant messaging by cell phone is also growing in popularity.² Although teens use many of these types of electronic hardware to access the different online communication forms, most research on teens' use of electronic communication has targeted computers; where available, we will include

findings based on other technologies, such as cell phones.

Adolescents are using these different communication forms for many different purposes and to interact with friends, acquaintances, and strangers alike. Teens use instant messaging mainly to communicate with offline friends.³ Likewise they use social networking sites to keep in contact with their peers from their offline lives, both to make plans with friends whom they see often and to keep in touch with friends whom they see rarely.⁴ They use blogs to share details of everyday happenings in their life.⁵

Cell phones and text messaging have also become an important communication tool for teens. Virgin Mobile USA reports that more than nine of ten teens with cell phones have text messaging capability; two-thirds use text messaging daily. Indeed, more than half of Virgin's customers aged fifteen to twenty send or receive at least eleven text messages a day, while nearly a fifth text twenty-one times a day or more. From October through December 2006, Verizon Wireless hosted 17.7 billion text messages, more than double the total from the same period in 2005. Adolescents use cell phones, text messaging, and instant messaging to communicate with existing friends and family.⁶ Using these tools to keep in touch with friends is a departure from the early days of the Internet, when contact with strangers was more frequent. But the trend is not surprising given that youth are more likely to find their friends and family online or with cell phones today than they were even five or ten years ago.⁷

Although teens are increasingly using these electronic communication forms to contact friends and family, the digital landscape continues to be populated with anonymous

online contexts such as bulletin boards, massively multiplayer online games (MMOG), massively multiplayer online role playing games (MMORPG), and chat rooms where users can look for information, find support, play games, role play, or simply engage in conversations. Investigating how technology use affects adolescent online communication requires taking into account both the activities and the extent of anonymity afforded by an online context, as well as the probability of communicating with strangers compared with friends in that context.

Privacy measures have given adolescent users a great deal of control over who views their profiles, who views the content that they upload, and with whom they interact on these online forums.

Electronic communication forms also differ both in the extent to which their content is public or private and in the extent to which users can keep content private. Public chat rooms and bulletin boards are perhaps the least private. Screen names of users are publicly available, although users choose their screen names and also whether their profile is public or private. Of course, private conversations between users are not publicly available, and such private messages are typically restricted to other users who have also registered. This restriction precludes lurkers and others not registered with the site from privately contacting a user. Communication through e-mail, instant messaging, and text messaging is ostensibly the most private.

Although e-mails and transcripts of instant messaging conversations can be forwarded to third parties, they still remain among the more private spaces of the Internet.

For communication forms such as blogs and social networking utilities, users have complete control over the extent to which their entries or profiles are public or private. Blog entries and MySpace profiles, for instance, can be either freely accessed on the Web by anyone or restricted to friends of the author. Recently, MySpace has restricted the ability of users over age eighteen to become friends with younger users. Facebook gives users a variety of privacy options to control the profile information that others, such as friends and other people in their network, can see. For example, users can block particular people from seeing their profile or can allow specific people to see only their limited profile. Searches on the Facebook network or on search engines reveal only a user's name, the networks they belong to, and their profile picture thumbnail. Facebook used to be somewhat "exclusive," in that members had to have an ".edu" suffix on their e-mail address; the idea was to limit the site to college and university students. That requirement, however, has recently changed, making Facebook less "private" and more public. Most photo sharing sites allow users to control who views the pictures that they upload; pictures can be uploaded for public or private storage and users can control who views pictures marked private. YouTube, a very public communication forum, allows registered users to upload videos and unregistered users to view most videos; only registered viewers can post comments and subscribe to video feeds.

Finally, although online games and virtual worlds are public spaces, users must be

registered and often must pay a subscription fee to access them; users create avatars or online identities to interact in these worlds and have the freedom to make them resemble or differ from their physical identities. Some virtual worlds such as Second Life are restricted to people older than eighteen; Teen Second Life is restricted to users between thirteen and seventeen. Several controls have been put in place to protect youth in these online contexts. One such control for Teen Second Life is the verification of users, which requires a credit card or Paypal account. Another control is the threat of losing one's privileges in the site; for instance, underage users found in the main area are transferred to the teen area and overage users found in the teen area are banned from both the teen and main areas.

These privacy measures have given adolescent users a great deal of control over who views their profiles, who views the content that they upload, and with whom they interact on these online forums. And young users appear to be using these controls. A recent study of approximately 9,000 profiles on MySpace found that users do not disclose personal information as widely as many fear: 40 percent of profiles were private. In fact only 8.8 percent of users revealed their name, 4 percent revealed their instant messaging screen name, 1 percent included an e-mail address, and 0.3 percent revealed their telephone number.⁸ As dana boyd points out, however, an intrinsic limitation of privacy in electronic communication is that words can be copied or altered and shared with others who were not the intended audience.⁹ Further research is needed to learn how this feature affects social relationships.

Privacy controls on networking sites also mean that adolescents can restrict parental

access to their pictures, profiles, and writings. In fact, on Facebook, even if teens give their parents access to their profiles, they can limit the areas of their profile that their parents can view. We recently conducted a focus group study that revealed that some teens may go as far as to have multiple MySpace profiles, some of which their parents can access, others of which they cannot, and still others that they do not know exist. Monitoring and controlling youth access to these communication forms is growing ever more challenging, and it is important for parents to inform themselves about these online forms so they can have meaningful discussions about them with their adolescents.

One key question for research is whether these new online communication forms have altered traditional patterns of interaction among adolescents. Is time spent in online communication coming at the expense of time spent in face-to-face communication? Or is time spent online simply substituting for time that would have been spent on the telephone in earlier eras? Research has shown that over the past century adolescence has become more and more separated from adult life; most adolescents today spend much of their time with their peers.¹⁰ An equally important question is whether adolescents' online communication is changing the amount and nature of interactions with families and relatives. Research has not yet even consistently documented the time spent by adolescents in different online communication venues. One difficulty in that effort is that the multitasking nature of most online communication makes it hard for subjects to provide a realistic estimate of the time they spend on different activities. Recall errors and biases can further distort estimates. Researchers have tried to sidestep this problem by using diary studies and experience-sampling methods in

which subjects are beeped at various points throughout the day to record and study their activities and moods. But current diary studies of teen media consumption do not address the questions of interest here. The rapidly shifting nature of adolescent online behavior also complicates time-use studies. For instance, on the blogging site Xanga, an average user spent an hour and thirty-nine minutes in October 2002, but only eleven minutes in September 2006. Similarly, recent media reports suggest that the once-popular Friendster and MySpace sites have been supplanted by Facebook among adolescents.¹¹ These shifts in popularity mean that data on time usage quickly get outdated; clearly new paradigms are needed to study these issues.

Theoretical Framework

Our theoretical framework draws on John Hill's claim that adolescent behavior is best understood in terms of the key developmental tasks of adolescence—identity, autonomy, intimacy, and sexuality—and the factors, such as pubertal and cognitive changes, and the variables, such as gender and social class, that influence them.¹² Extending his ideas, we propose that for today's youth, media technologies are an important social variable and that physical and virtual worlds are psychologically connected; consequently, the virtual world serves as a playing ground for developmental issues from the physical world, such as identity and sexuality.¹³ Thus understanding how online communication affects adolescents' relationships requires us to examine how technology shapes two important tasks of adolescence—establishing interpersonal connections and constructing identity.

Electronic Media and Relationships

Establishing interpersonal connections—both those with peers, such as friendships

and romantic relationships, and those with parents, siblings, and other adults outside the family—is one of the most important developmental tasks of adolescence.¹⁴ As electronic media technologies have become important means of communicating with others, it is important to consider them in the context of the interpersonal relationships in adolescents' lives. Two themes have framed discussions of adolescent online communication and relationships. One is concern about the nature and quality of online and offline relationships. The other is how online communication affects adolescents' relationships and well-being and whether the effects are positive or negative. We next address these issues. Although research on adolescence has historically not considered relationships with strangers, we include that relationship here, as the Internet has opened up a world beyond one's physical setting.

Electronic Media and Relationships with Friends

We first examine the role of electronic media in youth's existing friendships. One study of detailed daily reports of home Internet use found that adolescents used instant messaging and e-mail for much of their online interactions; they communicated mostly with friends from offline lives about everyday issues such as friends and gossip.¹⁵ Another study found that teens use instant messaging in particular as a substitute for face-to-face talk with friends from their physical lives.¹⁶ According to this study, conducted in 2001–02, teens feel less psychologically close to their instant messaging partners than to their partners in phone and face-to-face interactions. Teens also find instant messaging less enjoyable than, but as supportive as, phone or face-to-face interactions. They find instant messaging especially useful to talk freely to members of the opposite gender. The authors of the study

speculate that teens have so wholly embraced instant messaging despite its perceived limitations because it satisfies two important developmental needs of adolescence—connecting with peers and enhancing their group identity by enabling them to join offline cliques or crowds without their more formal rules.

Although social networking sites are also used in the context of offline friendships, this is true mostly for girls. The 2006 Pew survey study on social networking sites and teens found that girls use such sites to reinforce pre-existing friendships whereas boys use them to flirt and make new friends.¹⁷ Text messaging on cell phones has recently become popular among U.S. teens; they are now following youth in the United Kingdom, Europe, and Asia who have widely adopted it and enmeshed it in their lives. Adolescents exchange most of their text messages with their peers.¹⁸ To study the communicative purposes of text messaging, one study asked ten adolescents (five boys and five girls) to keep a detailed log of the text messages that they sent and received for seven consecutive days. Analysis of the message logs revealed three primary conversation threads: chatting (discussing activities and events, gossip, and homework help), planning (coordinating meeting arrangements), and coordinating communication (having conversations about having conversations). The teens ended most text conversations by switching to another setting such as phone, instant messaging, or face-to-face.¹⁹

Effects of electronic communication on friendships. How does adolescents' electronic communication with their friends affect their friendship networks and, in turn, their well-being? According to a 2001 survey by the Pew Internet and American Life Project,

48 percent of online teens believe that the Internet has improved their relationships with friends; the more frequently they use the Internet, the more strongly they voice this belief. Interestingly, 61 percent feel that time online does not take away from time spent with friends.²⁰

One recent study appears to support adolescents' self-reported beliefs about how the Internet affects their friendships. A survey study of preadolescent and adolescent youth in the Netherlands examined the link between online communication and relationship strength.²¹ Eighty percent of those surveyed reported using the Internet to maintain existing friendship networks. Participants who communicated more often on the Internet felt closer to existing friends than those who did not, but only if they were using the Internet to communicate with friends rather than strangers. Participants who felt that online communication was more effective for self-disclosure also reported feeling closer to their offline friends than adolescents who did not view online communication as allowing for more intimate self-disclosure.

Whereas survey participants who used instant messaging communicated primarily with existing, offline friends, those who visited chat rooms communicated with existing friends less often. This pattern makes sense because chat is generally a public venue providing wide access to strangers and little access to friends, whereas instant messaging is primarily a private medium. But the research leaves unanswered the question of whether chat decreases communication with existing friends or whether teens with weaker friendship networks use chat more. The authors completed their survey before social networking sites had become popular in the

Netherlands; only 8 percent of their respondents used the most popular Dutch social networking site. The study did not assess the relationship between the use of social networking sites and existing friendships.

Researchers have uncovered some evidence that the feedback that teens receive in social networking may be related to their feelings about themselves. A recent survey of 881 Dutch adolescents assessed how using a friend networking site (CU2) affected their self-esteem and well-being.²² The study's authors concluded that feedback from the site influenced self-esteem, with positive feedback enhancing it and negative tone decreasing it. Although most adolescents (78 percent) reported receiving positive feedback always or predominantly, a small minority (7 percent) reported receiving negative feedback always or predominantly. The study, however, was based entirely on participants' self-assessments as to the kind of feedback they received; there was no independent assessment of whether it was positive or negative. It is impossible to tell whether negative feedback per se reduced self-esteem or whether participants with lower self-esteem typically perceived the feedback they received as more negative, which in turn caused a further dip in their self-esteem. Nor did the analysis take into account whether friends or strangers provided the feedback.

Even when adolescents are communicating with their friends, social networking sites such as MySpace may by their very nature be transforming their peer relations. These sites make communication with friends public and visible. Through potentially infinite electronic lists of friends and "friends of friends," they bring the meaning of choosing one's social relationships to a new extreme. They have thus become an essential part of adolescent

peer social life while leading to a redefinition of the word “friend.” A recent focus group study of MySpace on a college campus found that most participants had between 150 and 300 “friends” on their MySpace site.²³ Friends’ photos and names are displayed on users’ profiles, and each profile includes a list of “top” friends, ranging from a “top four” to a “top twenty-four.” Such public display of best friends seems a potentially transformative characteristic of a social networking site. But how does making (and not making) someone’s “top” friends list affect adolescent relationships and self-esteem? This is an important question for future research in the area of adolescent peer relations.

Initial qualitative evidence is that the ease of electronic communication may be making teens less interested in face-to-face communication with their friends.

Other technologies clearly form barriers against all face-to-face communication. Walking through an unfamiliar university campus recently, one of us had difficulty getting the attention of students hooked up to iPods to get directions to a particular building. Initial qualitative evidence is that the ease of electronic communication may be making teens less interested in face-to-face communication with their friends.²⁴ More research is needed to see how widespread this phenomenon is and what it does to the emotional quality of a relationship.

Electronic media and bullying. The news media are increasingly reporting that

adolescents are using electronic technologies such as cell phones, text messages, instant messages, and e-mail to bully and victimize their peers. In a 2005 survey conducted in the United Kingdom, 20 percent of the 770 respondents, aged eleven to nineteen, reported being bullied or receiving a threat via e-mail, Internet, chat room, or text, and 11 percent reported sending a bullying or threatening message to someone else. Text bullying was most commonly reported, with 14 percent reporting being bullied by mobile text messaging. Bullying in Internet chat rooms and through e-mails was reported by 5 percent and 4 percent of the sample, respectively. A new form of harassment appears to be emerging through cell phone cameras: 10 percent reported feeling embarrassed, uncomfortable, or threatened by a picture that someone took of them with a cell phone camera. The majority of the respondents reported knowing the person who bullied or threatened them.²⁵

Similar trends have been found in the United States. The second Youth Internet Safety Survey (YISS-2) conducted in 2005 found that 9 percent of young Internet users reported being harassed online in the previous year. Harassment included being bothered online as well as having someone post or send messages about them to others. Both girls and boys were targets, although girls were more likely to receive distressing harassment. Instant messaging elicited the most reports of harassment (47 percent), followed by e-mails (13 percent), chat rooms (11 percent), and blogs (3 percent).²⁶

A large-scale online survey conducted at a popular teen Internet site in 2005 found a much higher rate of harassment—72 percent—using two different methods of estimating prevalence for the previous year.²⁷

The online recruitment probably yielded relatively heavy Internet users for whom the risk of cyberbullying would be greater. The online anonymity of the questionnaire may also have fostered greater honesty. The discrepancy, however, is so large that it warrants further investigation.

Research on cyberbullying has tried to create profiles both of youth who are likely to perpetrate harassment and of those who are likely to be the victims of harassment. Cyberbullies are more likely to report poor parent-child relationships, substance use, and delinquency.²⁸ Youth (aged ten to seventeen) with symptoms of depression are more likely to report being harassed. Among boys, those reporting major depression were three times more likely to be harassed than those reporting mild to no depression.²⁹ As with other correlational studies, it is impossible to know the direction of causality. The authors suggest that “future studies should focus on establishing the temporality of events, that is, whether young people report depressive symptoms in response to the negative Internet experience, or whether symptomatology confers risks for later negative online incidents.”

Cyberbullying illustrates how traditional offline adolescent issues are moving to the electronic stage. A questionnaire study of eighty-four thirteen- to eighteen-year-old teens found that text messages were the most common form of electronic bullying. Most important, the findings suggest that students' role as victim and perpetrator of bullying in the offline world predicted their role in electronic bullying. Although a subset of traditional bullies were victims in the virtual world, there was no indication that victims of bullying in the real world retaliated by becoming bullies on the Internet or in text messages. Nor was there any indication that bullying

began electronically and was thence transferred to the real world.³⁰ This general pattern was confirmed by the large-scale Internet-based survey in 2005 mentioned earlier, which included more than 1,400 respondents between twelve and seventeen years of age.³¹ The study found that respondents who had experienced repeated school-based bullying were seven times more likely to be subjected to repeated online bullying. Heavy use of the Internet also increased the risk, as did the use of particular Internet tools, specifically, instant messaging and webcams. These latter factors, however, were much less powerful than was school-based bullying. The study found that instant messaging was the most common tool for bullying, whereas the U.K. study noted earlier found that text messaging (which is more popular in the United Kingdom) was the most common. Clearly the particular tool is a function of its availability and cannot be considered a causal factor. Another finding is that Internet bullies include both unknown others and acquaintances. About two-thirds of the cyberbully victims knew the perpetrator; one-third did not.

Electronic Media and Relationships with Romantic Partners

Given that adolescents are using electronic media to interact with peers, it is important to see how they use them in the area of romantic relationships. Finding a romantic partner and establishing a romantic relationship are important adolescent developmental tasks. Related to these tasks are adolescents' developing sexuality and their construction of their sexual selves.

Adolescents appear to use electronic media to reinforce existing romantic relationships, just as they do friendships. According to a recent online survey by Teenage Research Unlimited, nearly a quarter of teens in a

romantic relationship have communicated with a boyfriend or girlfriend hourly between midnight and 5 a.m. using a cell phone or texting. One in six communicated ten or more times an hour through the night. Concern about sleep deprivation has been one response to these data.³²

Online communication forms that allow for anonymity offer adolescents a new avenue to practice partner selection. Using a sample of 12,000 utterances from adolescent chat rooms, researchers have found that the search for partners was ubiquitous online, with approximately two partner requests each minute.³³ In almost one-third of cases, a participant asked interested parties, often of the opposite sex, to provide a string of numbers (for example, *Ladies If Ya Sexy Press 11* or press 234567 if you want to chat) that stood out visually to indicate a desire to chat. Participants who declared they were older searched more actively for a partner and were also more likely to specify the gender of the partner they were seeking. Also participants who stated that they were females were more likely to make partner requests. The gender difference indicates that the online environment provides a safe space for females to initiate romantic relationships. While pairing up with a romantic partner has always been a central task of adolescent development, this study shows how teens address this need more freely and frequently in a virtual communication environment than has been heretofore possible in the “real” world.

Research also suggests that anonymous online contexts provide a forum for sexual exploration, another major task of adolescence. Of the 12,000 utterances in the chat study just noted, 5 percent were sexual ones (about one sexual remark a minute).³⁴ Participants who self-presented as older were more likely than

younger ones to make explicit sexual utterances. Gender was also related to modes of sexual expression: utterances by users with masculine screen names were more sexually explicit; those by feminine screen names, more sexually implicit. Adolescents also use online bulletin boards to learn about sexuality.³⁵ Finally, they use the Internet to engage in cybersex. In one study of 692 Czech secondary school students, 16 percent of twelve- to twenty-year-olds reported having tried virtual sex. A significant number reported having their first sexual experience online.³⁶ The study also found that 43 percent of the boys and 8 percent of the girls admitted to viewing pornographic materials. Although adolescents’ exposure to online sexual content can be either intentional or unsolicited, more research is necessary to assess how this early exposure may affect sexual identity and intimacy during emerging adulthood.³⁷ Studies have found that inadvertent exposure to sexual media in childhood and adolescence often has negative emotional effects, such as shock, disgust, or embarrassment, and that these effects can be enduring.³⁸ Online forums may also provide sexual minority adolescents with a safe haven for sexual exploration without the prejudice and harassment that gay, lesbian, and bisexual adolescents sometimes face at the hands of peers and adults.³⁹

Much less is known about adolescents’ use of electronic communication for romantic relationship formation. The 2001 Pew survey on teenagers and instant messaging reported that among teens who used instant messaging, 17 percent used it to ask someone out and 13 percent, to break up with someone.⁴⁰ One recent study of romantic relationships among college students explored the use of Facebook, a social networking site, among 1,440 first-year students at Michigan State

University.⁴¹ According to the study, the lowest-ranked use was finding casual sex partners; the next-lowest was finding people to date. The students may, however, have been using Facebook to check out people they had met as prospective dates. Uses such as checking out people they have met socially or in class or others who live in their dorm are all ranked relatively highly. Another study of relationship formation asked a sample of Facebook users about an instance when they had met someone socially and then reviewed his or her profile. Compared with light users, heavier users of Facebook reported feeling more confident in the information they had gleaned from the profile. They also reported being more attracted and feeling more similar to the profile they reviewed.⁴² One way in which online communication may affect romantic relationships may be subtle: getting more information about people one has met to screen potential dates. This possible function is worth pursuing in future research.

Relationships with Strangers and Acquaintances

Because online interactions lack important features of face-to-face communication, such as gestures and eye contact, they are believed to be less rich than offline ones. When the communication is with strangers or individuals not part of one's offline life, it is believed to represent weak ties, which have been characterized as relationships that have superficial and easily broken bonds, infrequent contact, and narrow focus.⁴³ Questions about the relative richness of online communication have raised concerns about the extent of adolescents' online interactions with strangers and about the social impact of such weaker interactions and relationships.

Trends in relationships with strangers. The potential for online stranger contact varies

depending both on the particular technology used and the time period under consideration. In the earlier years of the Internet, when chat rooms were the rage, teens were more likely to be in contact with strangers; once instant messaging became popular, teens seemed to be using it to connect mostly with offline friends.⁴⁴ With the advent of today's popular social networking sites, video and photo sharing sites, and blogs, adolescents may again connect and interact with people who are not a part of their offline lives.

Communication frequency and self-disclosure play a role in computer-mediated communication and the formation of online friendships just as they do in face-to-face interactions and offline friendships.

An earlier national survey of adolescents aged ten to seventeen published in 2002 revealed that in the year before they were surveyed, 25 percent of Internet users had formed casual online friendships and 14 percent had formed close friendships or even romantic relationships.⁴⁵ A national survey conducted in 2006 found that 40 percent of fourteen- to twenty-two-year-olds who use social networking sites such as MySpace had been contacted online by a stranger whom they did not know before.⁴⁶ Yet another survey, conducted in 2007, reported that an overwhelming majority of teens who use social networking sites do so to keep in touch either with friends whom they see frequently (91 percent) or with friends they see rarely (82 percent).⁴⁷ These

shifting trends suggest that although adolescents may be using online communication forms as a way of extending their interaction with peers from their offline lives, the potential for interactions with strangers is high and therefore merits further exploration.

Quality of online relationships with strangers.

The scant research on the topic suggests that adolescents' relationships with strangers that begin online may indeed differ from their offline ones. One study of 987 Israeli adolescents found that teens knew such online friends for a shorter period of time than they knew face-to-face friends and that the relationships were not as close: the topics discussed were less personal and shared activities were fewer.⁴⁸ It is possible, however, that online relationships may become more similar to offline ones over time. Another study, whose participants ranged in age from sixteen to twenty-nine (median age was 20.67), found that offline relationships were higher in quality initially but not when both types of relationships lasted more than a year.⁴⁹ Participants in this study, Hong Kong Internet users who were recruited from an online newsgroup, were asked about the quality of one offline and one online relationship of similar duration. Duration of relationships was likely important because the longer a relationship, the more opportunities for information exchange and greater self-disclosure. Self-disclosure appears to be important for relationship quality in computer-mediated communication. In fact, a study with college students found that participants who self-disclosed more in such communication also reported higher relationship quality.⁵⁰ Although it appears that online relationships with strangers can develop in quality over time, it is not clear how many last long enough to become higher-quality relationships offering more intimacy and support.

*Do online relationships move offline?*⁹ Another question is whether relationships with strangers that begin online move offline. In a national survey of 1,501 youth, 256 respondents reported close online relationships and 41 percent of them reported face-to-face meetings with their online friend.⁵¹ It appears that relationships move from online to offline only occasionally; however, given that the newer friendship forms of networking center on making "friends," this issue needs further exploration.

Who forms online relationships with strangers? It is also important to consider the characteristics of adolescents who are more likely to interact with strangers and to form relationships with them. Such interactions can compromise the safety and well-being of the adolescent if the strangers are not peers but, rather, older, unscrupulous adults. Early research on this question found that more troubled adolescents were more likely to have formed close online relationships. Girls who had high levels of conflict with their parents and boys who had low levels of communication were more likely to have formed close relationships.⁵² Troubled adolescents have similarly been found to be more likely to visit chat rooms, where users usually encounter strangers rather than friends or family.⁵³

Personality variables also seem to play a role in how youth form relationships with strangers online. In a questionnaire study of 600 Dutch adolescents, both extroverts and introverts reported that they formed online friendships, but they did so for different reasons.⁵⁴ Extroverts formed online friendships so that they could self-disclose more and engage in more frequent online communication. Introverts formed online friendships to compensate for their poorer social skills; the social compensation motive also led to greater self-

disclosure and frequency of communication and consequently facilitated online friendship formation. Again we see that communication frequency and self-disclosure play a role in computer-mediated communication and the formation of online friendships just as they do in face-to-face interactions and offline friendships.

With the newer generation of online communication forms and the greater privacy controls they offer, youth now have the choice to interact online both with strangers and with people from their offline lives. Researchers have compared adolescents who primarily talk online with strangers and those who talk online both with strangers and with friends; they surveyed 412 Dutch adolescents between twelve and eighteen years of age.⁵⁵ Only 5 percent talked exclusively with strangers, 43 percent talked exclusively to people they knew in person, and 10 percent talked as often to strangers as to people they knew. The study found that younger adolescents were especially prone to communicate with strangers. Participants who communicated more frequently were less likely to communicate with a stranger, whereas those who communicated at more length were more likely to talk with strangers. Adolescents were also more likely to talk to strangers if they communicated online to meet people to assuage boredom and to compensate for their lack of social skills. Those who communicated online to maintain relationships were less likely to talk to strangers.

Benefits of talking to strangers. Online communication with strangers may offer some benefits for adolescents. One study using detailed daily diaries found that adolescents who reported feeling lonely or socially anxious on a given day were more likely to communicate that day via instant messaging with people

whom they did not know well.⁵⁶ Another study showed that online interactions with unknown peers help adolescents recover from the sting of social rejection. In perhaps the only experimental study on this topic, a cyberball task (the computer equivalent of playing catch) to simulate social inclusion or exclusion was followed by either an instant message conversation with an unknown opposite-sex peer or by solitary computer game play.⁵⁷ Adolescents who experienced social exclusion reported greater negative affect (for example, lower self-esteem, shame, and anger) than those who were included. Among the participants who were excluded, online communication with an unknown peer facilitated recovery from negative affect better than solitary computer game play. The author suggests that the contact with unknown peers in forums such as chat rooms and social networking sites might help adolescents cope with threats to “belonging” in their offline lives. She goes on to write that “policies are needed to promote the creation and maintenance of safe spaces for youth to interact online.”

Positive content in online stranger interaction.

The Internet is filled with anonymous discussion groups and bulletin boards devoted to all kinds of topics of interest to youth, from music groups and bands, television shows, and fan fiction to sports, health, sexuality, and even college admissions. Despite the large number and variety of such online interest and support groups frequented by youth, existing research has mostly focused on adolescents’ interactions with strangers in the context of health information and support.

One reason why teens might like to get their health-related information online is the anonymity of such communication. Young people may feel more comfortable asking strangers sensitive health-related questions than they

would asking a parent or physician in person. Another advantage of online bulletin boards and discussion groups is their full-time availability. They also make it possible to get information passively (by looking at other people's questions and the responses they received) and to get advice and suggestions from far more sources than would be possible from one's circle of face-to-face friends.⁵⁸

The interpersonal connections with strangers made possible by electronic media may be particularly valuable for youth suffering from illnesses, such as AIDS, eating disorders, and self-injurious behavior, about which they may not feel comfortable talking with their friends in person. Online bulletin boards and chat rooms allow youth to form such connections. A study of the personal Web pages of adolescent cancer patients found that they often expressed a strong desire to help other young cancer patients through providing information, sharing personal experiences, and giving advice. The guest books found on most of the Web pages (which are analogous to electronic bulletin boards) indicated that the pages were producing cyber communities providing patient-to-patient support for cancer victims.⁵⁹

Even generally healthy adolescents may have embarrassing or difficult questions concerning health and sexuality. Lalita Suzuki and Jerel Calzo investigated a popular health support website that used a peer-generated bulletin board format to facilitate the discussion of adolescent health and social issues. Their analyses of two health bulletin boards—one on teen issues and one on sexual health—concluded that bulletin boards were a valuable forum of personal opinions, actionable suggestions, concrete information, and emotional support, and that they allowed teens to candidly discuss sensitive topics,

such as sexuality and interpersonal relations.⁶⁰ In developing nations where access to health care is much less available than in countries such as the United States, Internet communication may be an especially valuable resource.⁶¹

One extensive study of the posts and responses on self-injury message boards found that such forums provide emotional support to youth struggling with extremes of behavior.⁶² A study of an electronic support group for individuals with eating disorders, a common affliction of adolescents, particularly females, made a similar finding.⁶³ Although such online forums may provide support, they could also be problematic, particularly for vulnerable adolescents, because they normalize and thereby encourage such injurious behavior.⁶⁴

Negative content in online stranger interaction. Although the anonymous and public natures of these online forums may provide benefits to youth, they may also disinhibit users and lead to negative content in their online interactions. Racial slurs and comments were much more common, for example, in unmonitored chat rooms frequented by older adolescents than in the monitored chat rooms frequented by younger adolescents.⁶⁵ Moreover, although chat participants frequently use race to identify themselves and other in-group members, they nonetheless stay in the chat room with everyone, rather than self-segregating, as in school lunchrooms. Race and ethnicity were often mentioned in the chat conversations: thirty-seven out of thirty-eight half-hour transcripts had at least one reference to race or ethnicity. As the authors observed, "While most references had a neutral or positive valence in both monitored and unmonitored chat rooms, chat participants nonetheless had a 19 percent

chance of being exposed to negative remarks about a racial or ethnic group (potentially their own) in a session of monitored chat and a 59 percent chance in unmonitored chat.⁶⁶ These findings suggest that racist attitudes are lurking under the surface and, in the absence of social controls, such as a monitor, may be overtly expressed in online venues. But the monitor is a relatively weak social control: even a frequency of one in five Internet sessions seems an extremely high rate of racist remarks; it is hard to imagine such a high rate offline. It is also hard to imagine the extent of the psychological damage that such remarks do. These findings were validated by a study that interviewed adolescents recruited by instant messaging from a teen chat room. Participants reported exposure to negative stereotypes and racial prejudice against their own and other ethnic groups online.⁶⁷

The most dramatic instances of young people engaging in racist behavior online occur on hate sites targeted to children and teens.⁶⁸ Websites, chat rooms, multi-user domains, discussion boards, music, audio- and videotapes, games, and literature are some of the most common tools used to disseminate online hate. Hate groups reach out to young people online by a number of means, including the creation of Web pages specifically geared to children and teens. Ideas may be worded to be more understandable to young people. The sites may even feature messages by youth directed to other youth.

Online stranger contact and sexual solicitation. Online contact with strangers also puts adolescents at risk for sexual solicitation and sexual exploitation by predators, though such risks were far higher in the earlier days of the Internet before the widespread recognition of the potential dangers inherent to online stranger contact. Most online communication

forms today have privacy controls that, if used, can greatly reduce the risks for sexual victimization. Indeed, a recent study has found that over a five-year period, reports of unwanted sexual solicitation and harassment have declined, a trend that the authors speculate is a result of better education and more effective law enforcement.⁶⁹ The second Youth Internet Safety Survey (YISS-2), conducted in 2005, also found that only 4 percent of respondents had experienced aggressive sexual solicitations.⁷⁰

Concern is growing that adolescents' extensive use of electronic communication to interact with their peers may impair their relations with their parents, siblings, and other family members.

Again, despite these small numbers, it is important to understand which youth may be at risk for such victimization. The YISS-2 survey showed that youth who engaged in a pattern of risky online behaviors in their interactions with strangers were more at risk for unwanted sexual solicitation or harassment. These behaviors included aggressive behavior in the form of rude or nasty comments, embarrassing others, meeting people in multiple ways (for example, on an online dating site or when instant messaging), and talking about sex with strangers.⁷¹ Youth who are victims of unwanted sexual solicitation also report emotional distress, depressive symptoms, and offline victimization.⁷² Because the Internet allows individuals to misrepresent their identity, even less is

known about the characteristics of online predators.⁷³ Thus there continues to be a need for more current data on the extent of sexual solicitation in the newer communication forms such as social networking sites where adolescents are more likely to interact with strangers.

Electronic Media and Family Relations

Two major questions on the topic of electronic media and family relations warrant further study. First, to what extent do youth use electronic media to communicate with their parents, siblings, and other family members? Second, how has adolescents' use of electronic communication affected their relations with their parents and other family members? Numerous media reports, as well as anecdotal observation, suggest that more and more parents are turning to text messaging and instant messaging to communicate with their adolescents; text messaging in particular can be very useful to parents trying to keep tabs on their teen. There is as yet little systematic research on the question.

Concern is growing that adolescents' extensive use of electronic communication to interact with their peers may impair their relations with their parents, siblings, and other family members. There is some evidence that electronic media may enhance peer relations at the expense of family, especially parent-child relations. An intense four-year video study of thirty dual-earner families with children provides a glimpse of the role of technology in modern family life.⁷⁴ When the working spouse, usually the father, came through the door at the end of the day, the other spouse and children were often so absorbed in what they were doing that they greeted him only about one-third of the time, usually with a perfunctory "hi." About half the time, children ignored him and continued multitasking and

monitoring their various electronic gadgets. Parents had a hard time penetrating their children's world and often retreated. Electronic multitasking has become pervasive, sometimes at the expense of face-to-face family interaction, among siblings as well as with parents.

Larry Rosen points out that the advent of social networking sites such as MySpace has made most research findings on how Internet use affects social relations obsolete.⁷⁵ In one study Rosen found that nearly one in three parents felt that the time their teen spent on MySpace interfered with family life. For parents of teens who spent more than two hours a day on MySpace, the share rose to one-half. A study by Gustavo Mesch found that family time was not affected when adolescents used the computer for educational purposes; only when they used it for social purposes was family interaction negatively affected.⁷⁶ Rosen and his colleagues also found that teens who spent a great deal of time on MySpace felt that they were getting less support from their parents. This last finding, especially, makes clear how important it is to do further research establishing the direction or directions of causality.⁷⁷

The role of cell phones in adolescent life and family relations is also worthy of attention. A series of focus groups with teenagers, young adults, and parents in Norway found that teens used the cell phone to establish generational boundaries (for example, screening calls from parents into voice mail) and also that cell phone use undermined family rituals, such as mealtimes and vacations.⁷⁸ Perhaps the most powerful way in which the mobile telephone undermined family interaction in favor of peer communication was through the individualization of communication.⁷⁹ When peers called one another through a

mobile telephone, they knew that they could talk directly with their friends, without any filtering or monitoring from parents or others in the household. In the words of the authors of the study, “Adolescents control the people with whom they talk and have more room into which they can share thoughts and messages that might not be [socially] acceptable. This plays on the peer group’s ethos that their inner communications be shielded from non-members, and particularly parents.” One of the authors found further qualitative evidence of such undermining in a focus group in which one participant told about a girl whose boyfriend had secretly given her a cell phone so she could stay in touch with him against her parents’ wishes.

Qualitative evidence is starting to accumulate that social networking sites such as MySpace are causing serious parent-child conflicts and loss of parental control.

Research has not systematically examined how technology has changed parent-child relations. At the moment, researchers are limited to pointing to new phenomena in the use of technology that impinge on parent-child communication without yet being able to understand their developmental and psychological significance.

Have Social Relationships Been Altered by Electronic Media?

To assess rigorously whether technology has altered a relationship, researchers must be able to compare the relationship before and after a technology is introduced. For many

kinds of important electronic communications media, it is too late to do such studies in technologically advanced environments. The best design for assessing how technology affects relationships would probably be a historical one, in which social patterns were documented before the advent of the technology; there are undoubtedly parts of the world in which this is still possible, but the United States is not one of them.

Our analysis, however, has also shown that the characteristics of electronic communication intrinsically change social relations. We may never know the changes in absolute frequency of face-to-face and voice-to-voice communication that various types of electronic communication have brought about. But we do know that teens now conduct a higher *proportion* of their communication through writing in an electronic medium rather than face-to-face or voice-to-voice—in effect, relatively depersonalizing the process of interpersonal communication. It is also clear that electronic communication expands adolescent social networks. For example, for a teen to have 150–300 “friends” would have been unheard of before social networking. It is also evident that electronic communication brings together—for both good and ill—common-interest groups whose uniting characteristic, such as adolescent cancer or self-mutilation, may be rare in anyone’s group of friends or family. The quasi-experimental monitoring studies in teen chat have also indicated that the anonymity of the Internet produces a disinhibiting effect on both sexual and racist behavior. The daughter of an *L.A. Times* reporter told her mother that MySpace had become necessary for her social life.⁸⁰ If that feeling is widely shared among teens, it would represent a major change in the processes by which peer relationships are constructed. When the processes are so different, it would

be astonishing if the products were not different too. But this remains for future research.

Electronic Media and Parental Influence

In this section we examine parents' role in their adolescents' use of electronic media to communicate with friends and strangers. To start, what do parents know about the various communication forms and their teens' use of them? Although hard data on this question are limited, both adolescents and their parents agree that youth know more about the Internet than their parents do. In the 2001 Pew Report, 64 percent of teens believed that they knew more than their parents about communicating online and 66 percent of their parents agreed. Since that report was issued, the press has reported extensively about the potential dangers of interacting on the Internet, and we suspect parents today are better informed about electronic communication, but they are probably still not as knowledgeable as their teens.

Similarly little research exists about what parents know about their own teens' use of electronic media for communication, including whom they talk to and what information they have on their profiles. One recent survey of parent and teen pairs suggested that the parents were largely in the dark about their teens' MySpace behaviors. Nearly half the parents almost never looked at their teens' MySpace profile and a third had never seen it.⁸¹ On a similar note, a large-scale Internet-based survey of teens revealed that 90 percent of the sample did not tell an adult, including parents, about cyberbullying.⁸² This silence of course makes it impossible for parents to take action against cyberbullying.

Parents can influence their adolescents' use of electronic communication forms in two

ways: by monitoring and by limiting access. Monitoring is probably best done by using Internet software that monitors, filters, and blocks access to different kinds of content. Again, no research documents either the extent of parental use of such software or its effectiveness. Limiting access would involve restrictions on where teens go online, the time they spend online, the electronic forms they use (for example, MySpace), and how they use those forms (for example, keeping blogs private, not posting provocative pictures).

One study of parent and teen pairs has revealed that almost half the parents allow their teens to access the Internet in their bedrooms; only a third put limits on MySpace use and a quarter put limits on computer use. Interestingly, parent and teen perceptions about limits did not coincide: fewer teens than parents thought that their parents set limits on their use. Parenting styles were related to their teen's MySpace use. Not only were authoritative parents (parents who are warm, consistently apply standards, and are willing to reason with their children) more likely to have seen their teen's MySpace page, they were also more likely to have set limits on MySpace use and less likely to allow a computer in the bedroom. Their teens, along with those with authoritarian parents (parents who show little warmth, have high standards, and expect strict obedience), were least likely to give out personal information on MySpace.⁸³

Qualitative evidence is starting to accumulate that social networking sites such as MySpace are causing serious parent-child conflicts and loss of parental control.⁸⁴ Rosen's interviews with parents revealed several typical problems. For example, a boy who failed to do his homework before midnight because he was

on MySpace reacted to his parents' efforts to curtail his use of MySpace by sneaking back online. And a girl posted information about her sweet sixteen party on MySpace, leading so many teens to crash the party and cause so many problems that her father had to call the police.⁸⁵

Overall it appears that despite their concerns about their teen's online activities, parents may not know much about them and may not be effective at setting limits and monitoring their activities. More research is needed to determine whether the problem is parents' lack of knowledge about these communication forms or their lack of parenting skills. It would be interesting to find out whether parents are similarly uninformed about their teens' offline activities, particularly their offline social interactions.

Parent-child conflict about adolescents' media use is another topic needing further research. What is the extent of such conflict? Are these conflicts similar to conflicts in other areas such as sex, alcohol, and curfews? Are they similar to or different from conflicts of earlier generations? Although evidence is starting to accumulate that social networking is causing parent-child conflict and perceived loss of parental control, no research has been done on how to reduce the conflict and restore parental influence. In this void, Rosen's analysis of parenting research in other situations, as well as his list of Internet sites offering advice to parents on this topic, can be of value to parents seeking guidance.⁸⁶ Most important, we urge researchers to fill this void both with rigorous studies about whether social networking impairs parent-child relations and with intervention studies designed to restore a healthy balance between peer and family interaction.

Electronic Media and Schools

How have schools responded to the increasing presence of electronic media in the lives of today's youth? News reports suggest that some schools and school districts have responded by blocking the use of electronic media in schools, in particular text messaging, cell phones, iPods, and video games. Many school computer systems also block access to websites popular among teens such as those that provide access to instant messaging, e-mail, blogs, and social networking utilities. School authorities argue that these media are distracting, isolating, and disruptive and that they facilitate cheating (as when cell phone cameras are used to copy exams) and other illegal activity (as when cell phones and pagers are used in drug and gang activity).

But what are the effects of such bans? A questionnaire study of middle and high school teachers and support and administrative staff investigated Internet filtering and restricted Internet access for junior high schools and high schools in an entire school system.⁸⁷ Most felt that the limits unduly restricted Internet access. Out of 120 respondents, 117 felt that legitimate sites had been blocked. Some school personnel felt that students were not always punished for downloading offensive material. Others admitted that they themselves used techniques to get around the filter or block to complete their tasks. Many respondents felt that the "filtering" system hampered their performance of their duties, created an inconvenience, reduced student autonomy, lowered morale, and made it less likely that they would create lessons that would integrate technology.

The ban against cell phones in high schools is perhaps the most controversial restriction. Parents and youth alike favor cell phones as invaluable tools for everyday planning

and coordinating that can be critical in the event of emergency. But in a case brought by parents, the New York State Supreme Justice ruled in favor of New York City's ban on cell phones in the schools. Partial or complete cell phone bans have now been put in place in Toronto, Los Angeles, Detroit, and Milwaukee.⁸⁸ It remains unclear how effective such bans are in preventing the behaviors they are designed to target. Researchers need a better understanding of what teachers and school administrators know about adolescent use of electronic media and how such technologies might be integrated in school settings.

Electronic Communication and Identity Development

According to Erik Erikson, the German developmental psychologist, establishing a coherent identity is the fundamental psychosocial task of adolescence.⁸⁹ Adolescents must establish a clear sense of who they are, what they believe in, and where they are headed. Early on, some observers saw the Internet, with its potential for anonymity and disembodied interaction, as a perfect venue for such identity exploration and experimentation.⁹⁰ Online, it was thought, people could be whoever they chose to be and could slip in and out of various identities. But over time concerns were raised that such identity play may hinder, not help, adolescent development.

In fact, the evidence is mixed as to whether adolescents engage in extensive pretense and identity play online. In one study of twelve- to fifteen-year-olds, of the 175 participants who responded to questions about online pretense, 49 percent had never pretended to "not be yourself," and 41 percent reported pretending a couple of times.⁹¹ Seven participants reported pretending often and two reported that they pretended all the time. Most

common was pretending to be older, and was often done in the company of a friend and as a joke. Only 2 percent reported that they pretended to explore a new self or identity.

By contrast, in a study of Dutch adolescents, 246 out of a total of 600 participants reported having experimented online with their identity at least sometimes.⁹² Pretending to be someone older was most commonly reported, especially among girls. The most common motives for identity experiments were self-exploration (to observe others' reaction), social compensation (to make up for shyness), and social facilitation (to form relationships). The study does not make it possible to assess exactly what share of the sample pretended often to be someone else. Taken together, the findings of both studies suggest that although youth do pretend to be someone else online, they do not do so frequently, and when they do, they may simply pretend to be older. Given that many online sites have age restrictions, it is quite possible that such pretense is not a true form of identity exploration but more a way to sidestep age-related restrictions. Although youth do not seem to be using electronic media to experiment with different roles and identities in the manner envisioned by Erikson, nonetheless these media afford them opportunities to explore as well as to practice self-disclosure and self-presentation, which are both important steps toward constructing a coherent identity. Anonymous forums such as chat rooms, in particular, enable such exploration and self-presentation.

Conclusions

Society's traditional adolescent issues—intimacy, sexuality, and identity—have all been transferred to and transformed by the electronic stage. Among the hallmarks of the transformation are greater teen autonomy,

the decline of face-to-face communication, enhancement of peer group relations at the possible expense of family relations, and greater teen choice. Given the connectedness between the physical and virtual worlds, the challenge is to keep adolescents safe (both physically and psychologically) while at the same time allowing for the explorations and interactions that are crucial for healthy psychosocial development. This conflict is nicely illustrated by instant messaging, which helps teens stay in touch with friends, but is also widely used for electronic bullying.⁹³ Meeting strangers on social networking sites such as MySpace offers another example. Although such virtual contacts can endanger adolescents, research has found that interactions with strangers may also help

alleviate the negative effects of social rejection in the physical world. The benefits of exploring identity and intimacy online must also be weighed against the harmful effects of viewing sexual content and being bullied online. One challenge for research is to understand how to enhance the benefits offered by electronic media while mitigating some of the dangers that they present. Another challenge is to design research that examines how online communication affects real-world communication and relationships. The thrust of the research at present suggests that real-world relationships and adolescent issues influence adolescents' electronic communication at least as much as electronic communication influences their real-world relationships and developmental outcomes.

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Media and Risky Behaviors

Soledad Liliana Escobar-Chaves and Craig A. Anderson

Summary

Liliana Escobar-Chaves and Craig Anderson investigate two important trends among American youth and examine the extent to which the two trends might be related. First, the authors note that U.S. youth are spending increasing amounts of time using electronic media, with the average American youngster now spending one-third of each day with some form of electronic media. Second, the authors demonstrate that American adolescents are engaging in a number of unhealthful behaviors that impose huge societal costs.

Escobar-Chaves and Anderson detail the extent of five critical types of adolescent health risk behaviors identified by the Centers for Disease Control and Prevention—obesity, smoking, drinking, sexual risk taking, and violence. Obesity, the authors note, has become an epidemic among America's young people. Cigarette smoking among adolescents is one of the ten leading health indicators of greatest government concern. Alcohol abuse and alcohol dependence are widespread problems among the nation's youth and are the source of the three leading causes of death among youth. More than 20 percent of American high school students have sexual intercourse for the first time before they reach the age of fourteen. And twelve- to twenty-year-olds perpetrated 28 percent of the single-offender and 41 percent of multiple-offender violent crimes in the United States in 2005.

Escobar-Chaves and Anderson present and evaluate research findings on the influence of electronic media on these five risk behaviors among adolescents. Researchers, they say, have found modest evidence that media consumption contributes to the problem of obesity, modest to strong evidence that it contributes to drinking and smoking, and strong evidence that it contributes to violence. Research has been insufficient to find links between heavy media exposure and early sexual initiation.

The authors note the need for more large-scale longitudinal studies that specifically examine the cumulative effects of electronic media on risky health behavior.

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Soledad Liliana Escobar-Chaves is assistant professor of health promotion and behavioral sciences at the University of Texas Health Science Center at Houston. Craig A. Anderson is director of the Center for the Study of Violence and distinguished professor of liberal arts and sciences in the Department of Psychology at Iowa State University.

As children enter adolescence, many begin to engage in risky health behaviors. The U.S. Centers for Disease Control and Prevention (CDC) has identified six critical types of adolescent health risk behaviors—physical inactivity, poor eating habits, smoking, alcohol use, sexual behaviors, and violence—that contribute to the leading causes of death and disability in the United States among adults and youth. Not only are these behaviors likely to compromise the present and future health of adolescents, they also are likely to cut short their education, impair their employment prospects, and even lead to crime, thus seriously putting at risk other aspects of their well-being, both as adolescents and adults.¹

Adolescent health behaviors do not occur in isolation. They grow out of complex interactions at the individual, peer, family, school, community, and societal levels. Many observers have raised questions about whether one important source of the risk behaviors highlighted by the CDC could be adolescents' escalating exposure to electronic media. American youth aged eight to eighteen now spend an average of six to eight and a half hours a day using various forms of media, including television, videos, movies, radio, print media, computers and video games, and the Internet.²

Social science and health researchers have examined and written extensively about the possible connection between the high levels of media exposure in the United States and increased adolescent health risk behaviors. In this article, we present and evaluate the research findings on the links between adolescent exposure to electronic media and the risky behaviors cited by the CDC: obesity (which is in large part due to inactivity and

consumption of high-calorie foods), smoking, alcohol use, early sexual initiation, and violence.

Modern science distinguishes three types of risk factors. Risk factors of the first type have been shown through careful research to have a causal impact on health problems. For example, it is clear that heavy exposure to media violence causes an increase in the likelihood of future aggressive and violent behavior. Risk factors of the second type are believed to have a causal impact but researchers have not yet been able to confirm whether the effect is truly causal. Risk factors of the third type indicate a potential problem but are not believed to contribute causally to the problem. In this article we focus on what current scientific research has to say about the potential causal impact of various forms of media on the adolescent health risk behaviors noted earlier.

Another key scientific concept is “probabilistic causality.” Most major health problems are influenced by dozens of factors, some known and some unknown. They are not governed by a simple single-cause single-effect relationship. Thus, when modern science identifies a causal risk factor, it regards it as a probabilistic cause, one that increases the likelihood of, but does not guarantee, the negative health outcome. Even in the case of tobacco smoking and lung cancer, one of the strongest causal relationships in modern medicine, the causal link is probabilistic. Not everyone who smokes gets lung cancer, and some nonsmokers get lung cancer. When scientists say that smoking causes lung cancer, what they mean is that smoking causes an increase in the likelihood that a person will get lung cancer.

The research studies that address relationships between risk factors and health outcomes come in three main types, each with its

characteristic strengths and weaknesses. In experimental studies, researchers randomly assign participants to a treatment group and a control group, thus making sure that, on average, participants in the treatment group do not systematically differ from those in the control group. In a careful experiment, researchers try to control for other potentially important variables as well. To control for the sex of the participants, for example, researchers would randomly assign half the male participants and half the female participants to each of the two comparison groups. Experimental studies effectively rule out many alternative explanations of differences in outcomes between the randomly assigned groups and thus allow researchers to make strong causal statements. The primary weakness of the experimental design is that for many important questions it would be unethical or impossible to conduct a true experiment. Researchers cannot, for example, randomly assign newborn babies to a high- and a low-television watching household to see whether amount of television viewing during childhood influences adolescent obesity.

The second type of study, the longitudinal study, assesses the same participants two or more times over a period of time. For example, researchers might assess TV viewing habits, physical activity, and obesity in a large group of elementary school children every September for five consecutive years. Such a design makes it possible to see whether children who watch a lot of television in year one become more obese and less physically active in the following five years, even after researchers control statistically for how physically active and obese the children are at the beginning of year one. A careful longitudinal study also allows fairly strong causal statements, though it is difficult and expensive to conduct.

The third type, the cross-sectional study, also sometimes called an observational or correlational study, assesses the variables of interest (for example, television viewing, obesity, and physical activity) only once, usually at the same time. Such studies can test whether there is an association between two variables of interest; if they are done well, they may allow a test of some key alternative explanations. But it is risky to assume that the link they find is truly causal.

Because a study's overall quality depends on many other methodological factors, however, a well-designed cross-sectional study can yield more useful information than a poorly designed experimental or longitudinal study.³

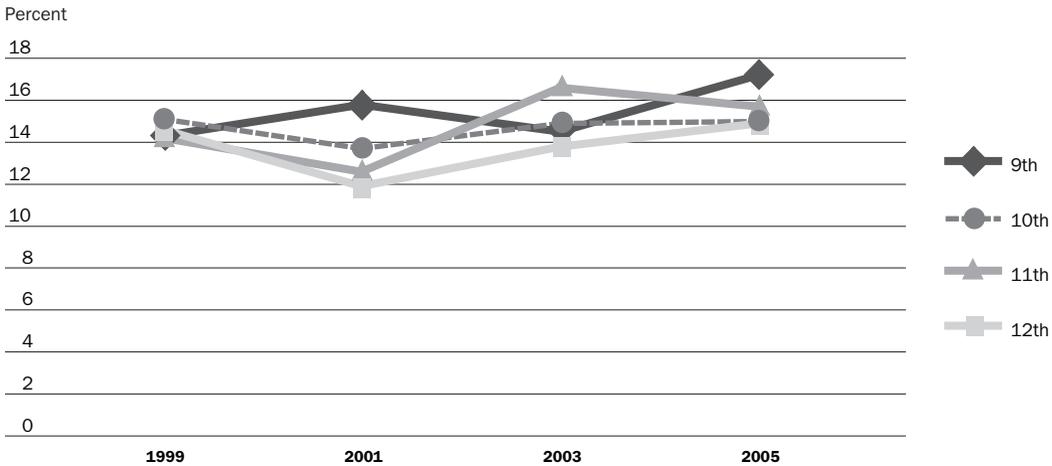
Obesity

Obesity and overweight among children are defined, based on the 2000 CDC growth reference for the United States, in terms of body mass index (BMI), or a person's weight in kilograms divided by height in meters squared.⁴ A person who is obese falls at or above the 95th percentile of BMI-for-age. A person who is overweight falls at or above the 85th percentile, but below the 95th percentile, of BMI-for-age.⁵

Obesity: The Scope of the Problem

U.S. adult obesity rates are among the world's highest and have increased for all age groups over the past three decades.⁶ Data from the National Health Examination Surveys for 1976–80 and for 2003–04 show that the prevalence of obesity for children aged six to eleven has increased from 6.5 percent to 18.8 percent, and for those aged twelve to nineteen from 5.0 percent to 17.4 percent.⁷ Approximately 35 percent of U.S. six- to nineteen-year-olds are overweight, and almost half of them are obese. All racial and ethnic groups have become heavier, but Mexican

Figure 1. Share of Students Who Were at Risk for Becoming Overweight, by Grade, 1999–2005



Source: Healthy Youth! YRBSS Youth Online: Comprehensive Results. <http://apps.nccd.cdc.gov/yrbss/QuestYearTable.asp?path=byHT&ByVar=C1&cat=5&quest=507&year=Trend&loc=XX> (accessed July 25, 2007). Overweight is defined as being at or above the 85th percentile but below the 95th percentile for body mass index.

Americans and African Americans are particularly affected by the epidemic. Overall, the prevalence of being at risk for becoming overweight was higher among ninth graders (17.1 percent) than twelfth graders (14.8 percent) (see figure 1).⁸

Obesity in children increases the risk of poor health outcomes in adulthood. Health problems include type 2 diabetes, hypertension, high cholesterol, orthopedic disorders, and sleep disorders.⁹ Almost two-thirds (60 percent) of obese children have at least one additional cardiovascular risk factor, such as hypertension or hyperlipidemia.¹⁰ Obese children are also at higher risk of becoming obese adults.¹¹

In 1995, obesity-related spending in the United States was estimated to be \$99 million.¹² Most obesity-related health spending goes to treat type 2 diabetes, coronary heart disease, and hypertension.¹³ The costs of obesity now exceed those of tobacco use.¹⁴ It has been estimated that obesity-related morbidity

accounts for approximately 6 percent of U.S. health spending.¹⁵

Food advertising on TV features mostly high-calorie and low-nutrient foods and beverages; advertisements for healthful foods and beverages are limited.

Media Exposure and Obesity

Researchers hypothesize that the link between obesity and television use in children and adolescents is a result of young people's decreased metabolic rates while watching TV, their decreased physical activity as a result of spending time in front of the screen, and their increased caloric intake, either because they eat while watching TV or because they eat in response to food advertisements on TV.¹⁶ Other media, such as video games, may be

linked to obesity through the same pathways.

Advertisers spend about \$1 billion a year marketing food to children and adolescents, who represent an important demographic market for three reasons: they are customers themselves, they influence purchases made by parents and households, and they are the future adult market.¹⁷ Television receives more advertising dollars than other media because it reaches a greater share of the targeted audiences.¹⁸

Food advertising is a big business in the United States. In 1997, advertisers spent \$1.4 billion to promote food products on network TV and \$1.2 billion to promote restaurants.¹⁹ More than 75 percent of the \$7 billion spent by food manufacturers for advertising in 1997 was allocated to television.²⁰ Food advertising on TV features mostly high-calorie and low-nutrient foods and beverages; advertisements for healthful foods and beverages are limited.²¹ Each day adolescents aged thirteen to seventeen see an average of thirty-five minutes of TV advertising, which includes an average of seventeen food ads.²²

We will examine evidence uncovered by researchers about possible links between obesity and television viewing, movies, video games, and the Internet.

Television Viewing and Obesity

A variety of research studies have found significant associations between obesity and TV viewing. Experimental studies, as noted, provide the strongest form of causal evidence. One such study, designed to prevent obesity by reducing third and fourth graders' use of television, videotapes, and video games, divided 192 children attending two public elementary schools in California into two groups, an intervention and a control group.

The children in the intervention group were taught an eighteen-lesson curriculum, after which they had a ten-day television turnoff (no TV, videotapes, or video games). Parents of children in the intervention group received motivational newsletters. As compared with the control group, the intervention group had significantly smaller increases in BMI and in three of four other measures of adiposity. The intervention group also reduced TV viewing by four to six hours a week and ate one fewer meal a week in a room with the TV on.²³

A longitudinal study examined two sets of data, one collected between 1963 and 1965 from a national sample of 6,965 children aged six to eleven and the other collected between 1966 and 1970 from a sample of 6,671 adolescents aged twelve to seventeen. Investigators measured TV viewing (hours) and fatness (triceps skinfold). Among both the younger children and the adolescents, those who watched more TV had a greater prevalence of obesity or super-obesity than those who watched less TV.²⁴

Several experimental studies grew out of efforts to fight childhood obesity by limiting television viewing. The Stanford GEMS pilot study used after-school dance classes and a family-based intervention to reduce TV and videotape viewing and video game use. Girls in the treatment group reduced BMI and waist circumference, increased after-school physical activity, and reduced television, videotape, and video game use.²⁵

Planet Health, a controlled field trial with five intervention and five control schools included a total of 1,295 youth (whose mean age was 11.7 years). The intervention included thirty-two classroom lessons, each forty-five minutes long, taught over a two-year period, and a two-week campaign to reduce TV viewing in

households. Both girls and boys in the intervention schools reduced TV watching; girls who reduced TV use reduced obesity, and all ate more fruits and vegetables.²⁶ However, not all interventions focusing on reduction of weight through increased activity, decreased electronic media exposure, and changed eating patterns have reported effects.

Other, less conclusive, studies have examined the link between exposure to TV and obesity in observational or cross-sectional fashion. For example, an observational study reported that among youth, increases in TV viewing were linked with increases in total energy intake and that the intake of foods commonly advertised on TV mediated this link.²⁷ A cross-sectional study found that among youth aged ten to fifteen, the odds of being overweight were nearly five times greater for those who viewed five hours of TV a day than for those who viewed two hours or less.²⁸ More recently, Carlos J. Crespo and several colleagues found that the prevalence of obesity among children aged eight to sixteen was lowest among those watching no more than one hour of TV a day and highest among those watching four or more hours of TV daily. Television watching was positively associated with obesity among girls. In other words, girls who watched more TV were more likely to be obese even after researchers accounted for other possible risk factors such as their age, race and ethnicity, family income, weekly physical activity, and energy intake.²⁹

In 2001, an experimental study among pre-school children showed that the effects of television advertising were the same for boys and girls, for children whose home language was English and whose home language was Spanish, and for children with varying levels of access to media. Preschoolers in the control group watched two animated shorts with

a 2.5-minute educational segment; those in the treatment group watched the same two animated shorts but edited into the middle and end were two segments of commercials for products frequently advertised on children's TV programs. The advertisements were for juice, sandwich bread, doughnuts, candy, a fast food chicken entrée, snack cakes, breakfast cereal, peanut butter, and a toy. Immediately after viewing the shorts, both groups of children were interviewed. Those who saw the advertisements preferred the advertised brand over a similar product with similar packaging, even if the advertised brand was unfamiliar and the alternate was a local favorite.³⁰

Each day adolescents aged thirteen to seventeen see an average of thirty-five minutes of TV advertising, which includes an average of seventeen food ads.

Self-reported data from a cross-sectional study among 400 fourth and fifth graders showed that children who viewed more television were less informed about the relative healthfulness of foods and beverages, regardless of their gender, race and ethnicity, reading level, parents' education level, and parents' occupation.³¹ More recently, Kirsten Harrison conducted a similar study among 134 children in grades one through three and concluded that advertising diet foods on television may confuse children, who may not understand the difference between weight-loss benefits and nutritional benefits. The study measured children twice, six weeks

apart, for beliefs about healthful food choices offered as pairs; two pairs were diet food items (fat-free ice cream versus cottage cheese and Diet Coke versus orange juice) and four were regular food items (celery versus carrots, rice cakes versus wheat bread, jelly versus peanut butter, and lettuce versus spinach). The more children watched television, the less accurate their choices for diet foods (both pairs had items likely to be advertised on television) but not for regular foods (only one of four pairs had items likely to be advertised on television).³²

Movies and Obesity

Researchers have conducted few studies of links between watching movies and children's obesity. Because movies do not typically include product advertisements, the marketing strategy most used in movies is product placement—that is, the use by popular actors and characters of a particular product in the movie itself.³³ The strategy is indirect and subtle, yet powerful.³⁴ It is also commonplace in movies aimed at children and adolescents.³⁵

Researchers conducted an experimental study of product placement in films among 105 children—forty-eight eleven- and twelve-year-olds and fifty-seven six- and seven-year-olds—in the United Kingdom. Half of the children, those in the treatment group, saw a 110-second clip from the film *Home Alone* that featured a character drinking Pepsi Cola. The other children, those in the control group, saw a similar clip from the same movie that did not include the Pepsi episode. After viewing the clips, investigators randomly took children to a separate interview room that had a table with cups and small cans of Coke and Pepsi. Children who saw the Pepsi branded clip were significantly more likely to choose Pepsi.³⁶

Video Games and Obesity

Food marketers also have sought to capitalize on the popularity of video games and the Internet among youth. Product placement is difficult to implement effectively in traditional console video games, where the placement must be part of the original programming and cannot be changed once the game is released.³⁷ New technology, however, is making it possible to insert specific brands into video games through the Internet and to track gamers' exposure to these product placements.³⁸

Researchers have not yet rigorously tested possible links between video gaming and obesity. Cross-sectional data from a study conducted among 2,831 children aged one to twelve showed that video game use was positively related to elevated weight status, but only for girls aged nine to twelve who played moderate amounts of games.³⁹ Some evidence suggests video game playing induces higher energy expenditure among children, even while sitting.⁴⁰ But analysts emphasize that the intensity of video game play should not substitute for regular physical exercise, because energy expended in playing video games is more stress-based than aerobic-based.⁴¹

Some anecdotal evidence suggests that interactive video games that require intense physical movement are making a positive difference. *Dance Dance Revolution*, a popular video game available for home use, is being tested by researchers at West Virginia University's School of Physical Education in school settings.⁴² Publicity pieces report that study participants show improvements in their aerobic capacity, blood vessel function, and fitness level.⁴³

The Internet and Obesity

Product placement on Internet-based games, easily incorporated and easy to change as product popularity ebbs and flows, has given rise to what is known as “advergaming” or “advertainment.”⁴⁴ Advergaming are Internet-based games with a commercial message, either subtle or overt, that can be found on product or brand websites. Most websites for popular children’s TV channels (Nick.com, Cartoonnetwork.com, 4Kids.tv, Disney.com) or toy products (Lego, Hasbro, Mattel) feature games that incorporate characters and products to build and extend brand loyalty. For example, SpongeBob SquarePants (Kraft) was the top-selling macaroni and cheese in 2002.⁴⁵ Increasingly, advergaming can be found on websites for foods marketed almost exclusively to children and adolescents. The McDonald’s, Kellogg’s, General Mills, and Hostess websites all have games for children featuring their products. Although advertainment has not been linked directly to childhood obesity, it certainly contributes to children’s choices about foods and beverages.

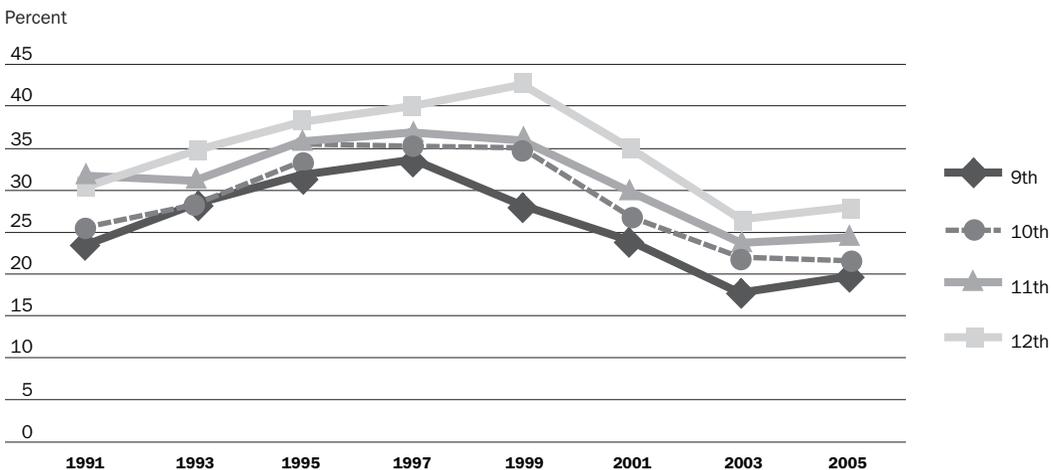
Obesity: Summary

The growing epidemic of childhood obesity has focused attention on the possible role that media consumption and food advertising may play in influencing body weight and eating behaviors. Current evidence, however, is not sufficient to determine the possible contribution of electronic media use, especially television and movies, to the obesity problem. Hence, additional research is needed before definitive causal conclusions can be made. Evidence is stronger for factors such as the lowered cost of food, the increase in calorie-dense foods, the large portion sizes, and the widespread availability of fast food restaurants.⁴⁶ However, advocates are taking steps to reduce the marketing of unhealthy foods to children and adolescents and to reduce time spent on passive electronic media.

Smoking

Cigarette smoking among adolescents is one of the ten greatest U.S. government health concerns.⁴⁷ Smoking is associated with such health problems as cough and phlegm

Figure 2. Share of Students Who Smoked Cigarettes on One or More of the Past 30 Days, by Grade, 1991–2005



Source: Healthy Youth! YRBSS Youth Online: Comprehensive Results. <http://apps.nccd.cdc.gov/yrbss/QuestYearTable.asp?cat=2&Quest=Q30&Loc=XX&Year=Trend&compval=&Graphval=no&path=byHT&loc2=&colval=Race&rowval1=All&rowval2=None&ByVar=C1&Submit2=GO> (accessed July 25, 2007).

production, an increase in the number and severity of respiratory illnesses, decreased physical fitness, unfavorable lipid profile, and potential retardation in the rate of lung growth and the level of maximum lung function.⁴⁸ Smoking is the leading cause of preventable death in the United States.⁴⁹ Daily smoking may lead to coronary heart disease and lung cancer, though usually among adults because these effects usually manifest themselves only after many years of exposure. In 1999, for each of the approximately 22 billion packs of cigarettes sold in the United States, the nation spent \$3.45 on smoking-related medical care and incurred \$3.73 in productivity losses.⁵⁰ During 1997–2001, cigarette smoking and exposure to tobacco smoke resulted in some 438,000 premature deaths annually, as well as 5.5 million years of potential life lost and \$92 billion in productivity losses each year.⁵¹

Smoking: The Scope of the Problem

The majority of new smokers are children and adolescents. In 2005, 63 percent of all new smokers were younger than eighteen. The 2.3 million adolescents aged twelve or older who smoked cigarettes for the first time during 2005 represented a 20 percent increase from 2002, but the overall trends in cigarette smoking among U.S. high school students show a decrease since 1997.⁵²

Nevertheless, according to the 2005 Youth Risk Behavior Survey (YRBS), nationwide more than half of students (54 percent) in grades nine to twelve had ever tried cigarette smoking (even one or two puffs); 23 percent had smoked cigarettes during the thirty days preceding the survey; 8 percent had used smokeless tobacco, such as chewing tobacco, snuff, or dip; and 14 percent had smoked cigars, cigarillos, or little cigars during the thirty days before the survey. Overall, the

prevalence of current cigarette use was higher among white (26 percent) and Hispanic (22 percent) than black (13 percent) students.⁵³ Twelfth-grade students reported the highest prevalence of current cigarette use (27.6 percent). (See figure 2.) Although cigarette smoking has been declining, a large share of U.S. students has tried cigarettes.

Media Exposure and Smoking

Among the external factors that can influence smoking initiation in adolescents are peer pressure, social norms, law enforcement regarding sales of cigarettes to minors, and advertising and promotion. Adolescents are flooded with promotional messages.⁵⁴ During 2003, cigarette companies spent \$15.2 billion to promote their products, including \$156.4 million on magazine advertising and \$32.6 million on outdoor advertising.⁵⁵ Outdoor advertising includes billboards; signs and placards in arenas, stadiums, and shopping malls; and any other advertisements placed outdoors, including those on cigarette retailer property no matter their size.⁵⁶

The scientific community has examined the extent to which cigarette advertising is a contributing causal factor to adolescent smoking. Because researchers cannot ethically conduct randomized controlled trials of the effects of advertising (they could not knowingly risk encouraging smoking), they must rely on other, less conclusive, forms of evidence.

John P. Pierce and several colleagues conducted a longitudinal study with a three-year follow-up (between 1993 and 1996) among 1,752 adolescents aged twelve to seventeen who had never smoked to evaluate the association between their receptiveness to tobacco advertising and promotion and their starting to smoke. The authors established three levels of receptivity: high, intermediate, and

minimal, depending on how the adolescent responds to a basic exposure to advertising (that is, does the adolescent have a favorite tobacco advertisement or recall a billboard or magazine tobacco ad). They categorized the study participants into four mutually exclusive categories: nonsusceptible never-smokers (those who responded negatively when asked whether they would try a cigarette soon, accept a cigarette offered by a friend, or were thinking about smoking during the next year), susceptible never-smokers (those who responded affirmatively when asked these three questions), experimenters (those who reported having smoked or tried even a few puffs of a cigarette), and established smokers (those who reported smoking at least 100 cigarettes in their life). Almost 50 percent of the nonsusceptible never-smokers progressed toward smoking within the three-year follow-up period. Sixteen- and seventeen-year-olds were twice as likely as younger participants to become susceptible never-smokers within the three-year follow-up.⁵⁷ Analysis of the data demonstrated that receptivity to tobacco advertising and promotion was a predictor of established smoking. Experimenters who were highly receptive to tobacco marketing were 70 percent more likely than those who were minimally receptive to become established smokers at follow-up.⁵⁸

Another longitudinal study examined the link between tobacco marketing and adolescent smoking among 529 youths aged twelve to fifteen. Analysts interviewed adolescents over the phone in 1993 and followed them up four years later. They asked participants if they had clothing or some other object with a tobacco brand name or logo on it and asked them to name the cigarette ad that had attracted their attention the most. Teens who were highly receptive to such forms of marketing in 1993 were more than twice as

likely as those with low receptivity to become established smokers by 1997. At the four-year follow-up, 21 percent of the adolescents had become established smokers (having smoked at least 100 cigarettes).⁵⁹

Several cross-sectional studies have examined the links between media advertising and adolescent smoking behavior. Although individually they cannot prove causality, all have found a significant correlation between cigarette advertising and adolescents' smoking initiation.⁶⁰

Researchers have conducted no studies on links between smoking and video games, music, and the Internet. We will review what is known about smoking and television viewing, including music videos, and movies.

Television and Smoking

Smoking on television remains widespread in prime-time programming. Little data exist about links between smoking as portrayed on television and in music videos and when adolescents begin to smoke. Pradeep Gidwani examined the relationship between television exposure in 1990 and smoking initiation between 1990 and 1992 among U.S. adolescents aged ten to fifteen. Among the sample, smoking increased from 4.8 percent in 1990 to 12.3 percent in 1992. The study found important associations between how much adolescents watched TV and when they began smoking. Adolescents who watched more than five hours of TV a day were almost six times more likely to start smoking than those who watched two hours or less a day. Those who watched more than four to five hours of TV a day were more than five times more likely to start smoking than those who watched two hours or less.⁶¹ Other studies have made similar findings: the more TV that adolescents watch, the more positive they feel about

smoking, the more likely they are to begin smoking, and the sooner they start smoking.⁶²

Many studies provide clear and strong evidence that youth are more susceptible to viewing smoking favorably and to becoming smokers as a result of exposure to smoking in the media.

Content analysis of 518 music videos shown on TV from May to June 1994 found that Music Television (MTV) had the highest share of videos (25.7 percent) with smoking-related behaviors, followed by Video Hits One (VHI), Country Music Television (CMT), and Black Entertainment Television (BET). Researchers have found that even moderate music television viewing results in significant exposure to portrayals of cigarette smoking.⁶³ These 1994 data are the most recent available.

Movies and Smoking

Analysts have used both short-term experimental studies and longitudinal studies to examine the link between exposure to smoking in the movies and both adolescents' views of smoking and their smoking initiation.

In 1998, the attorneys general and other representatives of forty-six U.S. states explicitly banned cigarette advertising to children and youth on billboards, any motion picture, television show, theatrical production or other live performance, commercial film or video, or video game. Despite the ban, movies in 2002 featured roughly as much smoking

as they did in 1950.⁶⁴ Advertisers know that many people, and especially younger people, are influenced by what they see in movies. An analysis of fifty G-rated animated movies released between 1937 and 1997 found that tobacco was used by at least one character in 68 percent of the films overall and in 56 percent of the films released in 1996 and 1997. Both good and bad characters smoked. Tobacco use in Disney films made before and after 1964 was similar despite the release in that year of the first surgeon general's report linking smoking to lung cancer.⁶⁵ In 2004, 78 percent of middle school students reported seeing actors using tobacco on television or in movies.⁶⁶

One experimental study divided 232 ninth graders into two groups, with one viewing a movie preview that portrayed smoking, the other viewing a preview that did not portray smoking. Study participants completed a written survey that measured beliefs about smokers and smoking. Those who viewed the smoking scenes had more positive views of smoking and smokers than those who did not.⁶⁷

One longitudinal study published in 2003 reported a strong link between exposure to movie smoking and smoking initiation among 2,603 adolescents aged ten to fourteen. The study measured exposure to smoking in movies by asking participants to indicate the films they had seen from a list of fifty. It found significant associations between exposure to movie smoking and smoking initiation after adjusting for age, sex, and school grade. Ten percent of the participants began smoking during the follow-up period. Researchers also assessed potential interactions between exposure to movie smoking and other smoking risk factors such as age, sex, and social influences (for example, smoking by a friend, sibling,

or parent). They found a significant interaction between exposure to movie smoking and parental smoking behaviors. For adolescents with nonsmoking parents, the risk of smoking initiation increased with greater exposure to movie smoking. Adolescents with smoking parents had an overall higher risk of smoking initiation. After controlling for all covariates, the researchers found that 52.2 percent of the smoking initiation in this cohort could be attributed to exposure to smoking in movies.⁶⁸ Similar results were found in a longitudinal study by Janet M. Distefan, who conducted a random-digit-dialing telephone survey in 1996 of 3,104 never-smokers aged twelve to fifteen. In a follow-up three years later among 67 percent of the adolescents (2,084), the study found that for adolescent girls who had never smoked, viewing their favorite stars smoking in movies significantly increased the risk of future smoking, independent of effects arising from other tobacco advertising and promotional practices. Moreover, adolescent girls whose favorite star smoked in movies released between 1994 and 1996, before the baseline survey, were more than 80 percent more likely to smoke by the time of the follow-up interview than those whose favorite star did not smoke in movies.⁶⁹ A more recent study of more than 2,600 nonsmoking fifth- to eighth-graders found that exposure to smoking in movies increased the likelihood of smoking onset eighteen months later in two different ways, both directly, through modeling and imitation, and indirectly, through increased affiliation with peers who smoke. Researchers found these effects even when they took into account other risk factors such as parenting style, rebelliousness and sensation seeking, school performance, parental smoking, sibling smoking, and several demographic variables.⁷⁰

Smoking: Summary

The media bring billions of impersonations of glamorized smoking to millions of youths through TV, movies, video games, music, the Internet, and advertisement in general. Longitudinal, experimental, and cross-sectional studies provide clear and strong evidence that youth are more susceptible to viewing smoking favorably and to becoming smokers as a result of exposure to smoking in the media. Additional research is needed on the effects of portrayals of smoking on the Internet and in video games and music.

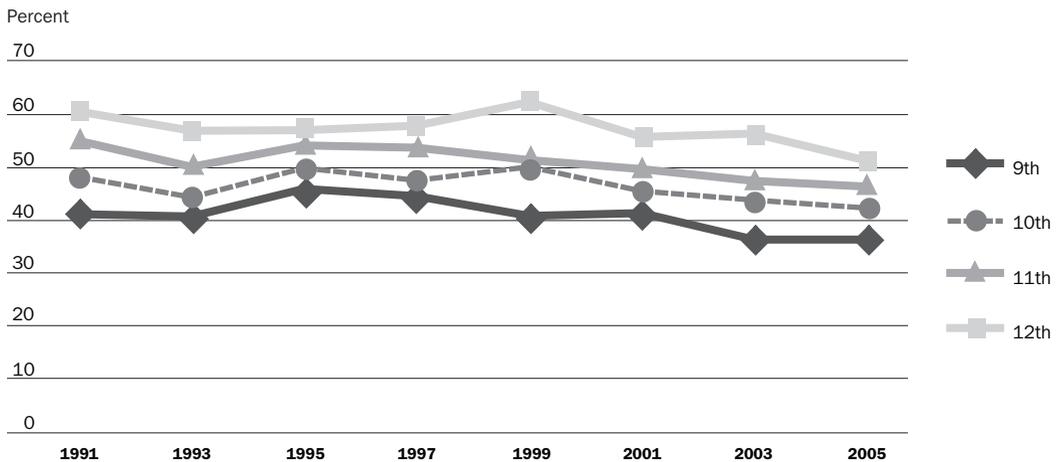
Alcohol Use

Alcohol use by children and adolescents continues to be a problem. It brings several negative consequences at the personal, familial, and societal levels. It affects school performance and induces high-risk behaviors. Alcohol plays an important role in the three leading causes of death among youth: unintentional injuries (including motor vehicle fatalities and drowning), suicides, and homicides.⁷¹

Alcohol Use: The Scope of the Problem

Alcohol abuse and alcohol dependence are widespread problems among U.S. adolescents. Results from the YRBS 2005 of a nationally representative sample of students in grades nine through twelve showed that 74 percent had had at least one drink of alcohol on more than one day during their life; 43 percent had had at least one drink of alcohol in the thirty days preceding the survey. Overall, the prevalence of current alcohol use was higher among white (46 percent) and Hispanic (47 percent) students than among blacks (31 percent), and higher among twelfth graders (50.8 percent) than ninth, tenth, and eleventh graders. (See figure 3.) Moreover, 26 percent of students had had five or more drinks of alcohol in a row (that is, within a couple of hours) on one or more

Figure 3. Share of Students Who Had at Least One Drink of Alcohol on One or More of the Past 30 Days, by Grade, 1991–2005



Source: Healthy Youth! YRBSS Youth Online: Comprehensive Results. <http://apps.nccd.cdc.gov/yrbss/QuestYearTable.asp?cat=3&Quest=Q41&Loc=XX&Year=Trend&compval=&Graphval=no&path=byHT&loc2=&colval=Race&rowval1=All&rowval2=None&ByVar=C1&SubmIt2=GO> (accessed: July 25, 2007).

of the thirty days preceding the survey.⁷²

People who begin drinking at age fourteen or younger are approximately four times as likely to become alcohol dependent as are those who begin drinking at age twenty or older.⁷³ Moreover, underage drinking is associated with greater risk of motor vehicle crashes, problems in school, fighting, and crime. Indeed, some 5,000 youth under age twenty-one die each year in the United States from alcohol-related injuries involving underage drinking.⁷⁴ The cost to society of underage drinking is estimated to be \$3 per illegal drink.⁷⁵

Media Exposure and Alcohol Use

Alcohol advertising is ubiquitous in sporting events and broadcast media and is also present on the Internet. Each year the alcohol industry spends more than \$1 billion on television, radio, print, and outdoor advertising.⁷⁶ The alcohol industry's voluntary advertising codes provide that alcohol advertising should not be overtly directed to underage consumers.⁷⁷ The electronic media, however, still show alcohol

use as a normative and harmless behavior.⁷⁸

Alcohol advertising is designed to appeal to children and adolescents. It sells images of success, sexuality, fun, and love, and it can be found in movies (no matter the rating), television, magazines, billboards, and radio.⁷⁹

Over a three-week period in 2003, the Center on Alcohol Marketing and Youth reviewed seventy-four websites operated by alcohol companies and found widespread use of features catalogued as potentially attractive to underage youth. Nearly 700,000 in-depth visits to fifty-five alcohol websites during the last six months of 2003, for example, were initiated by underage youth.⁸⁰

When analysts examined alcohol advertising in magazines from 1997 to 2001 to see whether placement of the ads was associated with adolescent readership, they found that the number of beer and distilled spirits ads tended to increase with a magazine's youth readership. For each additional 1 million magazine readers aged twelve to nineteen,

they found 1.6 times more beer advertisements.⁵¹ Alcohol advertisements are often more concentrated in media directed to youth than in media directed to adults.⁵²

Accumulating evidence suggests that alcohol advertising may contribute to adolescent drinking.

Accumulating evidence suggests that alcohol advertising may contribute to adolescent drinking.

No research exists on links between adolescents' alcohol use and alcohol advertising in video games, music, and the Internet. We will review what is known about alcohol use on television, including music videos, and in movies.

Television Advertising and Alcohol Use

Alcoholic drinks are the beverages most commonly advertised on TV.⁵³ From 2001 to 2005, alcohol companies spent \$4.7 billion on 1.4 million advertisements for alcoholic beverages on television. Youth overexposure to alcohol is more often found on cable since cable networks usually have more narrowly defined and concentrated viewers than broadcast networks. From 2001 to 2005, youth overexposure to alcohol advertising on cable increased from 60 percent to 93 percent.⁵⁴ In the spring of 2000, researchers recruited 2,998 seventh graders from Los Angeles for a longitudinal study to look at how televised alcohol commercials might have influenced their alcohol consumption one year later. Participants indicated the number of times during the past month that they

watched programs drawn from a list of twenty popular TV series. They also responded to psychosocial, behavioral, and alcohol-related questions. The study found a strong association between exposure to television beer ads in grade seven and alcohol consumption in grade eight, even after taking into account other risk factors such as prior alcohol use, intentions, peer and adult alcohol use, peer norms, and sports participation.⁵⁵

A recent longitudinal study of 1,786 middle school children in South Dakota measured exposure during sixth grade to television beer advertisements, alcohol ads in magazines, in-store beer displays, and beer concessions; radio listening time; and beer promotional items such as T-shirts, hats, and posters. The study then measured drinking intentions and subsequent behavior during seventh grade. Findings supported a positive link between alcohol-related media exposure during sixth grade and beer drinking and drinking intentions in seventh grade. After making statistical adjustments for psychosocial factors and drinking in sixth grade, the study found that children who had high exposure to overall alcohol advertising during sixth grade were 50 percent more likely to drink during seventh grade than children who had low exposure.⁵⁶

In New Zealand, a longitudinal study of 667 youths examined the association between their recall of alcohol advertising at ages thirteen and fifteen and their alcohol consumption at age eighteen. Boys who recalled more commercial advertisements at age fifteen reported consuming more beer three years later. The study found no association between girls' drinking and advertising exposure.⁵⁷

Phyllis L. Ellickson conducted a longitudinal study of the relationship between exposure to

different forms of alcohol advertising—televised sports and late night programs that air beer commercials, magazines that advertise alcohol, beer concession stands, and in-store beer displays—and drinking behavior in a sample of 3,111 early adolescents in South Dakota. Adolescents were assessed three times, in seventh, eighth, and ninth grades. Nondrinking students in seventh grade who reported higher exposure to in-store beer displays were more likely to drink alcohol by grade nine. Students who were drinking in seventh grade and who reported exposure to magazines with alcohol advertisements and to beer concession stands at sports or music events reported increased frequency of drinking in grade nine. Exposure to television beer ads, however, was not significantly linked to drinking in ninth grade for either drinkers or nondrinkers.⁸⁸

A longitudinal study conducted in California examined the relationship between students' exposure to different types of media (TV, music video, and videotape viewing; computer and video game use) and their alcohol use eighteen months later. At the eighteen-month follow-up, students reported increased lifetime drinking (36 percent of baseline nondrinkers began drinking and 51 percent of baseline drinkers continued to drink). The study found a strong link between watching TV and music videos and subsequent onset of alcohol use. For each extra hour of TV viewing a day, the risk of starting to drink over the next eighteen months increased an average of 9 percent; for each extra hour a day of viewing music videos, the risk increased an average of 31 percent.⁸⁹

Movies and Alcohol Use

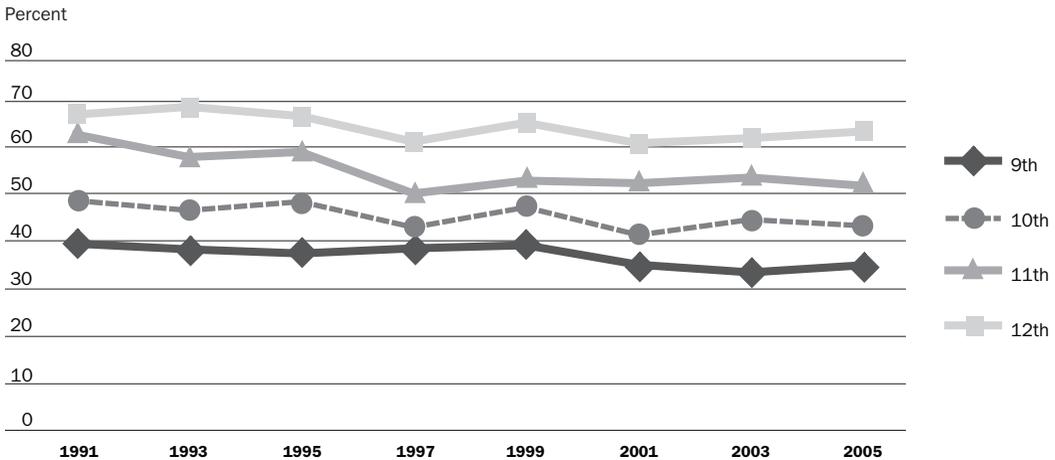
Although movies do not feature advertisements for alcohol, even animated films frequently depict alcohol use. Of eighty-

three G-rated animated movies available on videocassettes for purchase or rental before October 31, 2000, forty-six contained scenes of alcohol use. Of the characters shown drinking in these films, 39 percent drank wine, 24 percent beer, 20 percent champagne, and 17 percent hard liquor or mixed drinks.⁹⁰

Alcohol use was portrayed in nineteen of thirty-three Walt Disney animated movies available from 1937 through 1997.⁹¹ Of a sample of 110 top-grossing American films released between 1985 and 1995, at least one lead character used alcohol in 79 percent.⁹² Of the 200 most popular movie rentals for 1996 and 1997, 93 percent showed a character drinking alcohol. In 9 percent of these movies, 22 percent of the characters who drank alcohol appeared to be younger than eighteen.⁹³

James D. Sargent and colleagues conducted a school-based cross-sectional survey among adolescents aged ten to fourteen, with a follow-up of 2,406 never-drinkers thirteen to twenty-six months later to assess whether drinking in movies was related to early-onset drinking. They found that 92 percent of movies in a pool of 601 popular contemporary films depicted alcohol use. They estimated exposure to these movies by asking participants whether they had ever seen any films from a set of fifty titles randomly selected from the pool. Alcohol initiation was assessed by the question: "Have you ever had beer, wine, or other drink with alcohol that your parents didn't know about?" Researchers found that 50 percent of the participants were exposed to eight or more hours of movies and that movie exposure was related to a significantly higher likelihood of early-onset alcohol use even after controlling for age, self-esteem, rebelliousness, sensation seeking, and parenting style.⁹⁴

Figure 4. Share of Students Who Ever Had Sexual Intercourse, by Grade, 1991–2005



Source: Healthy Youth! YRBSS Youth Online: Comprehensive Results. <http://apps.nccd.cdc.gov/yrbss/QuestYearTable.asp?cat=4&Quest=Q57&Loc=XX&Year=Trend&compval=&Graphval=no&path=byHT&loc2=&colval=Race&rowval1=All&rowval2=None&ByVar=C1&Submit2=GO> accessed July 25, 2007).

Alcohol Use: Summary

Overall, the research strongly suggests that exposure to alcohol advertising and to electronic media that portray alcohol use increases adolescents’ alcohol use. Additional research is needed for video games, the Internet, and music, but the existing studies, especially longitudinal ones, strongly support a causal link between alcohol portrayal in TV and movies and later alcohol use.

Early Sexual Initiation

Early sexual initiation has been associated with an increased risk of sexually transmitted infections (STIs) and teen pregnancy.⁹⁵ Youth who initiate sexual intercourse at age thirteen or younger (about 6 percent of youth this age) are more likely to report having multiple lifetime sexual partners, engaging in frequent sexual intercourse, using alcohol or drugs before sex, and having sex without a condom.⁹⁶ Adolescent STIs including HIV are serious public health problems. In 2000, youth between the ages of fifteen and twenty-four accounted for 9.1 million (48 percent)

of all new STI cases at an estimated medical cost of \$6.5 billion.⁹⁷

Early Sexual Initiation: The Scope of the Problem

Adolescents are engaging in sexual risk-taking behaviors at an earlier age, often before they are developmentally ready to deal with the potential outcomes. Data from the 2005 YRBS indicate that 6.2 percent of high school students engage in sex before the age of thirteen.⁹⁸

According to data from the 2003 Middle School Youth Risk Behavior Surveillance Survey, 6 percent of sixth graders and 9 percent of eighth graders have engaged in sexual intercourse (implicitly, vaginal intercourse).⁹⁹ In 2005, a total of 47 percent of ninth- to twelfth-grade students had had sexual intercourse, with the prevalence higher among black (68 percent) than white (43 percent) and Hispanic (51 percent) students. Figure 4 shows the share of students in ninth, tenth, eleventh, and twelfth grade who have ever had sexual intercourse.

Media Exposure and Early Sexual Initiation

Children and adolescents are exposed to indirect as well as to explicit, sexually oriented media marketing that sells everything from soda to candy to male body products. Still, virtually no attention has been given to the ways in which the sexual content of advertising may shape adolescent sexual behavior. According to one study, the share of undressed women in advertisements has changed little over the past forty years, whereas that of undressed men has increased significantly, especially since the early 1980s. The impact of these increased portrayals of nude men remains unexamined.¹⁰⁰ Likewise, few studies have addressed the question of whether the exposure of children and adolescents to sexual talk and sexual content in the media might influence adolescent sexual behavior.¹⁰¹ We found only one relevant piece of evidence, a cross-sectional study of the link between sexual content of movies and adolescent sexual behavior. That study found that among adolescent black females, exposure to X-rated movies was associated with more sexual behavior, although it is difficult to say much from one cross-sectional study.¹⁰²

No research exists on links between sexual behavior and video games and the Internet. We will examine research on the association between sexual behavior and sexual content on television, including music videos on television, and music.

Television and Early Sexual Initiation

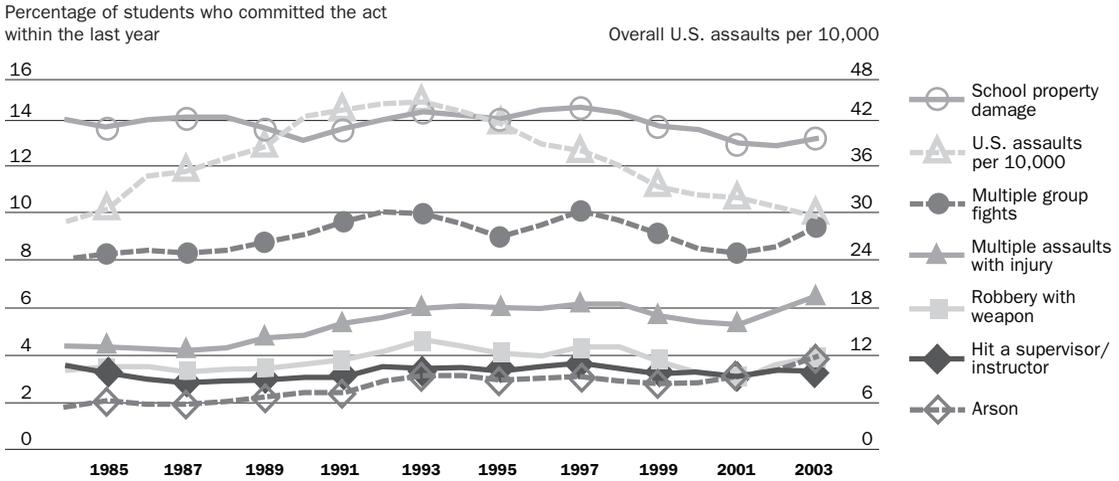
Roughly two-thirds of TV programs contain sexual content, yet few studies have examined the association over time between exposure to TV and sexual behaviors in adolescents.¹⁰³ A longitudinal study conducted by James Peterson and colleagues suggested a positive link between amount of television watched and

early initiation of sexual intercourse, but the effect size was not statistically significant.¹⁰⁴ Rebecca Collins and several colleagues presented findings from a recent longitudinal study that took into account other risk factors, such as age, race and ethnicity, social environment, religiosity, deviant behavior, mental health, and sensation seeking, and still found a significant association between the amount of sexual content viewed by adolescents and their sexual behavior one year later. Watching TV that featured sexual content had the effect of artificially aging youths: those who watched more such content than average behaved sexually as if they were nine to seventeen months older and watched only average amounts of such content. Exposure to talk about sex was associated with the same risk as exposure to more visually explicit programming.¹⁰⁵

Virtually no attention has been given to the ways in which the sexual content of advertising may shape adolescent sexual behavior.

Several cross-sectional studies have shown a link between sexual exposure on TV and sexual behavior among adolescents. These studies suggest that high school students who watch television shows with high sexual content are more likely to be sexually active than those viewing television shows with less sexual content and that adolescents' sexual media consumption is significantly related to their sexual experience and intentions to be sexually active.¹⁰⁶ Other studies suggest that adolescents who view more television with sexual content tend to overestimate the

Figure 5. Overall U.S. Assault Rates and Six Twelfth-Grade Violence Prevalence Rates, 1982–2003



Source: Criminal Victimization in the United States, 2005, U.S. Department of Justice. Downloaded July 1, 2007 from: <http://www.ojp.usdoj.gov/bjs/abstract/cvusst.htm>. Bureau of Justice Statistics, Sourcebook of Criminal Justice Statistics 2003, 31st Edition, U.S. Department of Justice. Downloaded on June 29, 2007 from: <http://www.albany.edu/sourcebook>.

frequency of certain sexual behaviors and to have more permissive attitudes toward premarital sex.¹⁰⁷ One study found that youth who were exposed to portrayals of sexual relations outside of marriage were less likely to view nonmarital sex negatively than youth exposed to portrayals of sexual relations within marriage or to scenes of nonsexual relations.¹⁰⁸

In a small 1986 study on television music videos, adolescents who had just watched an hour of MTV videos were more likely to report approval of premarital sex than those who had not.¹⁰⁹ A decade later, a larger study found that among adolescent girls the link between exposure to music videos and permissive attitudes toward premarital sex was stronger than it was among adolescent boys and stronger for girls with low rather than high family satisfaction.¹¹⁰ The data cannot determine a causal relationship, and the sample size and study design do not allow taking into account extraneous and potentially confounding variables.

Music and Early Sexual Initiation

Radio, CDs, and tapes make up 17 percent of teens’ total daily media exposure. On average, adolescents listen to music between 1.5 and 2.5 hours a day depending on their age.¹¹¹ Yet only one study has examined the relationship over time between exposure to music and sexual behaviors in adolescents. Steven Martino and several colleagues conducted a national longitudinal telephone survey in 2001, 2002, and 2004 of a sample of adolescents aged twelve to seventeen. Interviewers asked about media use; about sexual knowledge, attitudes, and behavior; and about demographic and psychosocial variables known to predict sexual behavior or media use. They found that adolescents who spent more time listening to music with degrading sexual content were more likely to initiate sexual intercourse and to progress in their noncoital activity than those who spent less time. That finding held up even when researchers took into account eighteen other predictors of sexual behavior.¹¹²

Early Sexual Initiation: Summary

Although the media are ubiquitous and although scientific studies have demonstrated their influence on other behaviors such as smoking, relatively few studies have examined their relationship with child and adolescent sexual initiation. Most of the studies have examined the association in a cross-sectional fashion, which does not permit inferences to be made about a causal connection but does allow assessments of whether media is at all associated with sexual early initiation. Those few studies, however, suggest that media exposure can increase early sexual behavior.

Aggressive and Violent Behavior

Aggression is usually defined by behavioral scientists as behavior that is intended to harm another person. Common forms of aggression are physical (for example, punching), verbal (for example, saying or writing hurtful things to another person), and relational (for example, intentionally and publicly not inviting someone to a party to harm his social relationships). Violence usually is conceived as more extreme forms of physical aggression that are likely to result in physical injury. The most extreme form of violence is homicide, but any form of aggressive behavior that is likely to result in an injury serious enough to warrant medical attention is considered violence. Thus, fights involving weapons as well as fistfights by adolescents old enough to be able to inflict serious injuries are considered acts of violence.

The relation of these terms to violent “crime” requires some comment. The vast majority of media violence research focuses on aggressive and violent behavior as defined earlier. Violent crime is a much more restrictive category and is applied only in cases where someone has been arrested for a crime classified by police as a major crime against persons, such as

murder, rape, and assault. There are at least two reasons for the discrepancy between the behavioral scientists’ focus and the criminologists’ focus. First, the criminological focus is based more heavily on the consequences of a specific action, whereas the behavioral science focus is almost exclusively based on the intention behind the action. Understanding the causes of violent behavior requires this focus on intentions rather than on whether the person succeeded in harming the individual and was subsequently caught. Second, not only is it much more difficult and expensive to do research on violent crime because it is

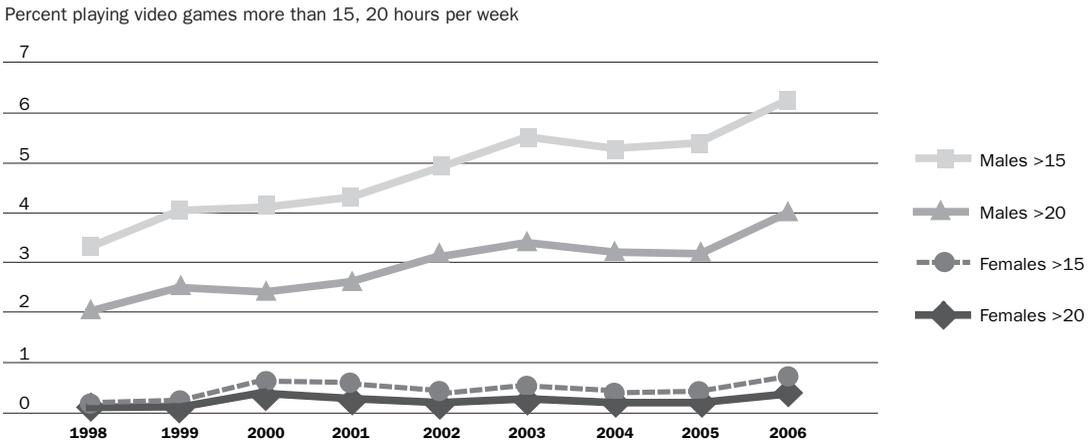
Despite many reports that exposure to violent media is a causal risk factor, the U.S. public remains largely unaware of these risks, and youth exposure to violent media remains extremely high.

relatively rare (thereby requiring huge sample sizes), but also certain types of research, such as experimental studies, would be unethical. For these reasons, we focus on aggressive and violent behavior, though we cite violent crime data where useful.

Violent Behavior: The Scope of the Problem

Youth violence resulting in deaths and injuries has direct and indirect costs in excess of \$158 billion each year. Only accidental injury (frequently auto accidents) consistently leads homicide as the cause of death of U.S. youths

Figure 6. Share of College Freshmen Reporting Having Played Video Games More Than 15 and More Than 20 Hours Per Week During 12th Grade, by Year and Sex, 1998–2006



Source: Cooperative Institutional Research Program Survey results, 1998–2006. Higher Education Research Institute, University of California–Los Angeles.

between one and twenty-four years of age.¹¹³ For youths between the ages of ten and twenty-four, homicide is the leading cause of death for African Americans, the second leading cause for Hispanics.¹¹⁴

Young people not only suffer but also commit a disproportionate share of violence. Although twelve- to twenty-year-olds made up about 13 percent of the U.S. population in 2005, they were responsible for some 28 percent of the single-offender and 41 percent of multiple-offender violent crimes.¹¹⁵ Figure 5 displays the overall U.S. assault rates and six twelfth-grade violence prevalence rates between 1982 and 2003. U.S. assault rates rose dramatically from the early 1980s to the early 1990s and then, just as dramatically, fell. Other overall rates for violent crime, such as homicide, show the same pattern. One factor that likely contributed to this rise and fall was changes in the share of the U.S. population in the high-violence age range.

Although rates of youth violence also increased during the late 1980s and early

1990s, they have not fallen in recent years. In fact, the youth violence indicators in figure 5 show considerable stability over time; several appear to be increasing.¹¹⁶

Media Exposure and Aggressive and Violent Behavior

The extent to which media violence causes youth aggression and violence has been hotly debated for more than fifty years. Despite many reports that exposure to violent media is a causal risk factor, the U.S. public remains largely unaware of these risks, and youth exposure to violent media remains extremely high. Among the public advisories that have been generally ignored are congressional hearings in 1954, U.S. surgeon general reports in 1972 and 2001, a National Institute of Mental Health report in 1982, and a Federal Trade Commission report in 2000. In addition to government studies, reports have been issued by scientific organizations such as the American Psychological Association (in 1994, 2000, and 2005), the American Academy of Pediatrics, the American Academy of Child and Adolescent Psychiatry, the

American Medical Association, the American Academy of Family Physicians, and the American Psychiatric Association.

The most recent thorough review of the research on media violence, by an expert panel convened by the U.S. surgeon general, concluded, “Research on violent television and films, video games, and music reveals unequivocal evidence that media violence increases the likelihood of aggressive and violent behavior in both immediate and long-term contexts.”¹¹⁷ Hundreds of original empirical studies of the link between media violence and aggression have been conducted, and numerous reviews of those studies—both narrative and statistical—have come to the same conclusion. Indeed, one analysis found clear evidence that exposure to media violence increases aggressive behavior as early as 1975.¹¹⁸

The newest form of media violence—violent video games played on computers, video game consoles, handheld systems, the Internet, and even cell phones—also is the fastest growing. Although most youth still spend more time each week watching TV, including movies, than playing video games, the time they spend with video games is increasing rapidly, and a growing share of youth is spending many hours playing video games. For example, about 90 percent of U.S. youth aged eight to eighteen play video games, with boys averaging about nineteen hours a week.¹¹⁹ Annual surveys of college freshmen over time reveal that as twelfth graders they spend ever-increasing amounts of time playing video games. The finding is especially true for boys, as shown in figure 6.¹²⁰

We review evidence on the link between youth violence and violence on television and film and on video games. We could find no

studies on the effects of violence in advertising on aggressive or violent behavior, but the effects of such violent content are likely to be similar.

Television and Movie Violence and Violent Behavior

Television and movie violence are the most extensively researched forms of media violence. Studies using all three major research designs have all reached the same conclusion—exposure to television and movie violence increases aggression and violence.

Experimental studies have shown that even a single exposure increases aggression in the immediate situation. For example, Kaj Bjorkqvist randomly assigned one group of five- to six-year-old Finnish children to watch violent movies, another to watch nonviolent ones. Raters who did not know which type of movie the children had seen then observed them playing together in a room. Children who had just watched the violent movie were rated much higher on physical assault and other types of aggression.¹²¹ Other experiments have shown that exposure to media violence can increase aggressive thinking, aggressive emotions, and tolerance for aggression, all known risk factors for later aggressive and violent behavior.

Many cross-sectional studies have examined whether people who view many violent TV shows and movies also tend to behave more aggressively. Such studies generally find significant positive correlations. For example, one group of researchers studied the links between “aggressive behavioral delinquency,” such as fighting and hitting, and TV violence viewing in samples of Wisconsin and Maryland high school and junior high school students. They found significant positive links between TV violence exposure and aggression

for both boys and girls.¹²² Another research team reported 49 percent more violent acts in the past six months by heavy viewers of TV violence than by light viewers.¹²³

Researchers also have used longitudinal studies to investigate television violence effects, using time periods that range from less than one year to fifteen years. One research team studied a group of six- to ten-year-olds over fifteen years. They found that both boys and girls who viewed television violence committed more aggression (physical, verbal, and indirect) during young adulthood. The study found the same link when the outcome examined was outright physical violence, such as punching, beating, choking, threatening, or attacking with a knife or gun. This media violence study is one of the few to include measures of violent crime. Because it is a well-conducted longitudinal study, it lends considerable strength to the view of media violence as a causal risk factor for aggression, violence, and violent crime. Interestingly, although frequent exposure to TV violence during childhood was linked to high levels of adulthood aggression, high aggressiveness during childhood did not lead to frequent viewing of television violence in adulthood.¹²⁴

Violent Video Games and Violent Behavior

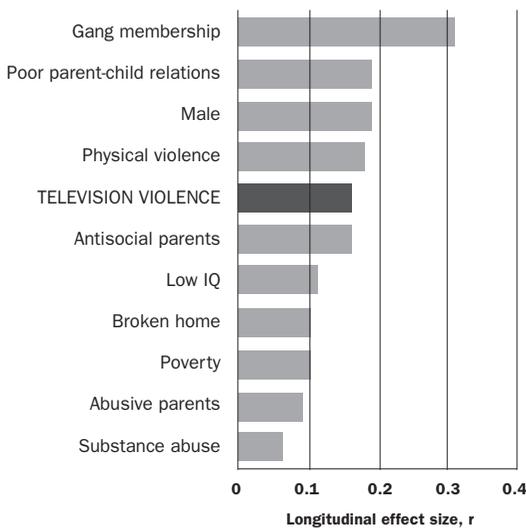
The most popular video games played by youth contain violence. Even children's games (as designated by the industry-sponsored Entertainment Software Ratings Board) are likely to contain violence. More than 30 percent of games rated "E" (suitable for everyone) contain a violence descriptor; more than 90 percent of "E10+" games (suitable for those ten years and older) contain a violence descriptor.¹²⁵ About 70 percent of fourth to twelfth graders report playing "Mature"-rated games (suitable for those

seventeen and older), which contain the most graphic violence of all.¹²⁶

Research on video game violence is less extensive than that on TV and film violence, but the findings are essentially the same. Experimental studies in field and laboratory settings generally find that brief exposure to violent video games increases aggressive thoughts, feelings, and behavior. For example, one laboratory study assigned children and college students randomly to play either a children's video game that involved shooting cartoon-like characters or a nonviolent children's video game. Later, all participants completed a standard laboratory task that measures physical aggression. Those who had played the violent children's game displayed a 40 percent higher aggression rate than those who had played a nonviolent game. The effect was the same for both elementary school children and college students.¹²⁷ In a field experiment, children were randomly assigned to play either a violent or nonviolent video game and then were observed by trained coders during a free-play period. The children who had played the violent game displayed significantly more physical aggression than those who had played a nonviolent game.¹²⁸

To date, the only published longitudinal study that clearly delineates the possible influence of violent video games used a relatively short time span of six months. The researchers conducting the study assessed the media habits and aggressive tendencies of elementary school children, as well as a host of control variables, twice within a school year. The children who were heavily exposed to video game violence early in the school year became relatively more physically aggressive by the end of the year, as measured by peers, teachers, and self-reports.¹²⁹ Cross-sectional

Figure 7. Risk Factors for Youth Violence, Based on Longitudinal Evidence



Source: U.S. Department of Health and Human Services. *Youth Violence: A Report of the Surgeon General* (Rockville, Md.: U.S. Government Printing Office, 2001); L. Rowell Huesmann and others, "Longitudinal Relations between Children's Exposure to TV Violence and Their Aggressive and Violent Behavior in Young Adulthood: 1977-92," *Developmental Psychology* 39 (2003): 201-221.

studies have also found positive correlations between exposure to violent video games and various forms of aggression, including violent behavior and violent crimes.¹³⁰

All three types of studies have also linked violent video games to a host of additional aggression-related cognitive, emotional, and behavioral outcomes. Outcomes include more positive attitudes toward violence, increased use of aggressive words or solutions to hypothetical problems, quicker recognition of facial anger, increased self-perception as being aggressive, increased feelings of anger and revenge motives, decreased sensitivity to scenes and images of real violence, and changes in brain function associated with lower executive control and heightened emotion.¹³¹

Violent Behavior: Summary

The research evidence shows clearly that media violence is a causal risk factor for aggressive and violent behavior. There is considerably less evidence concerning violent crimes, but the few cross-sectional and longitudinal studies that included violent crime measures also found similar links with media violence. The size of the media violence effect is as large as or larger than that of many factors commonly accepted by public policymakers and the general public as valid risk factors for violent behavior. Figure 7 illustrates the current best estimates of several risk factors for youth violence.

The figure does not include the longitudinal violent video game effect because the one relevant study did not include a specific measure of violence that is comparable to the other factors. However, several studies have directly compared video game and TV violence using the same participants and the same measures; they generally find a somewhat larger effect for video games. Thus, we expect that the effect of violent video games on long-term violence will be larger than that of TV violence and smaller than that of gang membership. Furthermore, it is likely that overall media violence exposure has a somewhat larger effect than any individual type of media violence. In any case, the figure makes clear that media violence exposure has a larger effect on later violent behavior than does substance use, abusive parents, poverty, living in a broken home, or having low IQ.¹³²

Conclusions

Media have a very powerful influence on health behavior. The leading causes of youth morbidity and mortality today are the outcomes of health risk behaviors that have been linked with media exposure, including excessive caloric intake, physical inactivity, smoking, underage drinking, early sexual initiation, and

violent behavior. The largest and most well developed research literature concerns the effects of one type of media content on one type of risky health behavior —the effect of media violence on aggressive and violent behavior. That link is very strong, clearly causal, and surprisingly large. The links between media consumption and smoking and alcohol use also are strong and there is good evidence that they are causal. Although there are good theoretical reasons to expect media exposure effects on obesity and on early sexual initiation, and although there is some supportive research for each of these risky health behaviors, there currently is too little high-quality research to make it possible to say whether the links are causal.

To better understand the effect of the media on youth risk behavior, researchers will have to develop comprehensive explanatory models that include socioeconomic and cultural variables. One promising model, the prototype-willingness model of risk behavior, assumes two primary pathways to risk behaviors, one that is reasoned and one that is more spontaneous and opportunistic. Analysts have long understood the reasoned pathway, which involves a person's carefully considered expectations of the likely outcome of the risk behavior and the value placed on the likely outcome. The unique aspect of the model is the second, more spontaneous pathway, which indeed seems to be a common route traveled by youths on their way to the onset of risky health behaviors. Work on this second pathway has yielded three key insights. First,

much risk behavior involves a reaction to favorable social circumstances rather than a preplanned event. Second, because these circumstances are social and public, they are associated (in the minds of youths) with clear images of what the behavior is, what the risks and benefits are, and what kinds of people engage in the behavior. Third, these images have a huge impact on the spur-of-the-moment decision to engage (or to refuse to engage) in the risk behavior.¹³³ Researchers have applied this model successfully to a number of adolescent risk behaviors, including smoking, alcohol consumption, and sexual behaviors. Of particular importance for our purpose is that a major source of the risk behavior images in this model is likely to be media exposure to the behaviors. One need only recall the impact of the image of the Marlboro Man or Joe Camel to get an intuitive feel for how media images can influence snap decisions to engage in risky behavior.

Finally, we note that what may be part of the problem could instead become part of the solution. As noted by Douglas Evans in his article in this volume, electronic media have been used in positive ways, leading to positive health behavior outcomes. Therefore, channeling creative energy into positive mass media content could well help to reduce the health risk behavior rates, particularly among adolescents. A thorough understanding of the nature of the media impact on health and well-being is a vital component of the public health agenda in the United States.

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Social Marketing Campaigns and Children's Media Use

W. Douglas Evans

Summary

Media-related commercial marketing aimed at promoting the purchase of products and services by children, and by adults for children, is ubiquitous and has been associated with negative health consequences such as poor nutrition and physical inactivity. But, as Douglas Evans points out, not all marketing in the electronic media is confined to the sale of products. Increasingly savvy social marketers have begun to make extensive use of the same techniques and strategies used by commercial marketers to promote healthful behaviors and to counter some of the negative effects of conventional media marketing to children and adolescents.

Evans points out that social marketing campaigns have been effective in helping to prevent and control tobacco use, increase physical activity, improve nutrition, and promote condom use, as well as other positive health behaviors. He reviews the evidence from a number of major recent campaigns and programming in the United States and overseas and describes the evaluation and research methods used to determine their effectiveness.

He begins his review of the field of social marketing by describing how it uses many of the strategies practiced so successfully in commercial marketing. He notes the recent development of public health brands and the use of branding as a health promotion strategy. He then goes on to show how social marketing can promote healthful behavior, how it can counter media messages about unhealthful behavior, and how it can encourage discussions between parents and children.

Evans concludes by noting some potential future applications to promote healthful media use by children and adolescents and to mitigate the effects of exposure to commercial marketing. These include adapting lessons learned from previous successful campaigns, such as delivering branded messages that promote healthful alternative behaviors. Evans also outlines a message strategy to promote "smart media use" to parents, children, and adolescents and suggests a brand based on personal interaction as a desirable alternative to "virtual interaction."

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W. Douglas Evans is vice president for public health and environment at RTI International.

Commercial marketing is central to the American, indeed the global, economy. Since the early twentieth century, marketing strategies have grown in reach and influence as media channels have proliferated and people's exposure to media has increased. At its core, marketing is about an exchange of value between the marketer and consumer. If the marketer can promote a product or service to make the consumer perceive sufficient value, the consumer is more likely to purchase it. In the past thirty-five years, marketers have begun to use the same powerful idea in a new way—not to sell products and services but to promote socially beneficial causes and behaviors. A growing body of evidence shows that marketing is highly effective in this arena as well.

Marketing is perhaps best exemplified by the strategy of “branding” products, services, organizations, and ideas. Brands, recognition of brands, and the relationship between brand and consumer largely explain the tremendous success of product advertising and the growth of the American and global consumer economy over the past century. Marketers use brands to build relationships that enhance the value of products and services for consumers. By providing additional value for consumers, brands can instill a sense of loyalty and identification that causes consumers to continue purchasing the branded products and services over competitors. Brands project a personality with which consumers identify and seek to associate themselves through owning and using the branded products and services.¹ Very much like reputations, brands precede the individual or organization and shape how the world responds.

In this article, I examine social marketing and its use of commercial marketing principles to

promote health behavior change. I argue that, like commercial marketers, social marketers create value for target audiences through their own form of branding—by creating positive associations with health behaviors and encouraging their adoption and maintenance. Social marketers also use market research to identify attitudes and beliefs among their target audiences that may support or inhibit the intended behavior change—increasing exercise or using a condom, for example. They apply audience segmentation techniques to develop targeted (to a group) and tailored (to an individual) messages and promotional activities.

Substantial evidence, especially from subject areas such as tobacco control, nutrition and physical activity, and HIV/AIDS, suggests that social marketing can change health behavior and is a broadly effective social-change strategy that can be applied in other subject areas as well. Well-funded social marketing campaigns, such as the American Legacy Foundation's *truth* campaign, have demonstrated robust effect sizes and have had major population-level effects on health behavior, morbidity, and mortality.² The challenge for social marketers is to compete successfully in a media-saturated environment against better-funded commercial marketers and their often unhealthful commercial messages for products such as junk and fast food, tobacco, and alcohol.

After discussing the evidence that social marketing works, I turn to the question of how it works. As noted, social marketing applies the central marketing strategy of building positive relationships with the audience to increase the value of promoted behaviors and to encourage exchange in the form of behavior adoption. Many social marketing campaigns have used branding to meet the

competition head-on. The anti-tobacco use *truth* campaign, for example, developed behavioral alternatives and creative branded messaging to counter its competition, tobacco industry advertising. The approach used in *truth* and other anti-tobacco use campaigns is often called “countermarketing.” Countermarketing campaign advertisements provide behavioral alternatives to smoking, such as rebelling against industry manipulation and expressing independent thinking, thereby outdoing the industry’s own marketing of cigarettes as hip and cool products. Similar approaches have been developed in nutrition, physical activity, and HIV/AIDS social marketing.

Social marketing has also been used to promote better parent-child communication and improved family health.

Social marketing in fields such as these can target not only individual behavior, but also public policy. Social marketing in tobacco control, for example, has been used to promote policy change and new legislation, leading to changes in social norms and the acceptability of smoking.³ Public health organizations use branding strategies to promote social mobilization and to influence public debate and opinion.⁴ Whether to focus on individual behavior or larger policy issues involves a strategic decision by the social marketing campaign based on available resources and competition for public attention.

Social marketing has also been used to promote behaviors such as better parent-child communication and improved family health. Many social marketing messages, such

as nutrition and physical activity messages promoted by the 1% Or Less milk campaign and the 5-4-3-2-1 Go! campaign in Chicago, have targeted parents to encourage them to change the home health environment and talk to their children about health behaviors.⁵ These efforts also use relationship-building strategies, and many have used community outreach as well as mass media components for a multi-channel message strategy.

These strategies have clear applications to children’s media use and the effects of advertising on children’s health behavior. Marketers have the ability to reach parents of young children and adolescents with targeted social marketing campaigns aimed at changing social norms about media use. They can promote “smart”—limited in time and self-aware in terms of influences—media use and a culture of parental involvement with messages that vary by children’s stage of development.

At the same time, marketers are able to target adolescents with messages to promote “smart” media use and brand it as socially desirable behavior. The evidence suggests that social marketers would be most likely to succeed not by demonizing media use but by competing with media influences by providing appealing behavioral alternatives. Using positive messages and imagery, they could promote alternatives to media use—for example, “branding” direct social interaction as cool and hip. Such a strategy could lead to a culture of more healthful engagement with, and understanding of, media and its influences.

Social Marketing

Social marketing uses the principles and processes of commercial marketing, but not with the aim of selling products and services. Rather, the goal is to design and implement programs to promote socially beneficial

behavior change.⁶ In public health, social marketing attempts to increase healthful behaviors in a population by using such proven marketing techniques as market research to understand audience attitudes and beliefs that may affect behavior in response to a health message. Social marketers analyze their competition and use persuasive techniques such as creating social models to engage in the promoted behavior. In some cases, marketers can even create messages tailored for individuals using information about personal preferences and behavior just as online and direct mail commercial marketers do. In recent years, social marketers have successfully branded such health behaviors as being

a nonsmoker, being physically active, or using a condom in an effort to encourage those behaviors.⁷

In this article, I review research on social marketing to highlight its potential application to counter the flood of often unhealthy commercial media marketing to which American children and adolescents are exposed, explore what is now being done on these topics, and outline a future agenda for research to enhance the impact of social marketing as a protective factor in the lives of children and adolescents. In the following section, I explain how social marketing works. Then I turn to address three main topics:

Table 1. Major Recent Social Marketing Campaigns

| Campaign | Topic area | Research design | Location | Target audience |
|-------------------------------------|---|--------------------|---------------|---|
| 1% Or Less | 1% milk consumption | Observational | California | Adults, parents, and families |
| 5-4-3-2-1 Go! | Nutrition and physical activity promotion | Experimental | Chicago | Parents and families |
| 5-A-Day for Better Health | Fruit and vegetable consumption | Observational | United States | Adults, parents, and families |
| Florida TRUTH | Tobacco countermarketing | Quasi-experimental | Florida | Adolescents and young adults |
| <i>Jalan Sesama</i> | Educational entertainment | None | Indonesia | Youth |
| KNOW HIV/AIDS | HIV/AIDS awareness and prevention | Observational | United States | Young adults |
| <i>loveLife</i> | HIV/AIDS awareness and prevention | Observational | South Africa | Adolescents and young adults |
| Massachusetts anti-tobacco campaign | Tobacco countermarketing | Quasi-experimental | Massachusetts | Adolescents (prevention) and adults (cessation) |
| Parents Speak Up | Reproductive health | Experimental | United States | Parents and families |
| <i>Salama</i> | HIV/AIDS awareness and prevention | Observational | Tanzania | Adolescents and young adults |
| <i>Sisimpur</i> | Educational entertainment | None | Bangladesh | Three- to six-year-olds |
| <i>stand</i> | Tobacco countermarketing | Quasi-experimental | Ohio | Adolescents and young adults |
| The TV Boss | Children's media use | Observational | United States | Parents |
| <i>Trust</i> | HIV/AIDS awareness and prevention | Observational | Kenya | Adolescents and young adults |
| <i>truth</i> | Tobacco countermarketing | Quasi-experimental | U.S. | Adolescents and young adults |
| VERB: It's What You Do | Physical activity promotion | Quasi-experimental | U.S. | Pre-adolescent children |

how social marketing can promote healthful behavior, how it can counter media messages about unhealthful behavior, and how it can encourage discussions between parents and children.

How Social Marketing Works

Social marketing has been widely and successfully used to affect health and other social behaviors related to children and adolescents. Table 1 summarizes many of the major social marketing campaigns conducted over the past fifteen years.

Social marketing efforts aimed directly at pre-adolescents or adolescents—exhorting them not to start smoking, for example, or to exercise regularly—have evolved in recent years. During the 1980s and earlier, most efforts focused on providing young people with facts and information about health risks. In tobacco control, school-based programs aimed to equip adolescents with protective intrapersonal and interpersonal skills to stay tobacco-free in a social environment rich in positive imagery encouraging tobacco use.⁸ Since the early 1990s, social marketing to children and adolescents has begun directly taking on the commercial marketing competition, countering unhealthful product marketing and social messages and providing young people with positive behavioral alternatives.⁹

Social Modeling, Imagery, and Environment

The concept of social modeling has long been understood by psychologists and by commercial marketers. In the work of Albert Bandura, for example, social modeling plays a central role in social learning and social cognition; that is, the formation of knowledge, attitudes, and beliefs.¹⁰ In marketing, social models embody the ideals promised

by an advertisement or a larger campaign. For example, the Marlboro Man, so familiar in commercials since the 1950s, provided an appealing social model for the Marlboro cigarette's target audience. Of late, social marketers have also made use of models, such as the independent, rebellious youth featured in the American Legacy Foundation's *truth* campaign.¹¹

Imagery can be a powerful marketing tool to help create an idealized social model and thus promote product purchases and certain kinds of behavior. The Marlboro Man riding out on the range, the BMW driver cornering nimbly on a windy road, the *truth* campaign young adult confronting the tobacco industry—all embody socially desirable, idealized characteristics. Research has shown that such images feed the targeted audience's aspirations to realize such an ideal—to be like the Marlboro Man, to own a BMW, to stand boldly against the tobacco industry.¹² Social images exemplify socially desirable behavior and the attributes of those who engage in a behavior—for example, the affluent, sporty, sexy BMW driver.¹³

Because social imagery formation plays an important role in determining adolescent health behaviors, such as smoking, it can be used both to encourage and to discourage those behaviors. For example, tobacco brand marketing portrays smokers as cool, popular, and blessed with many friends.¹⁴ Because adolescents typically value these traits, they may be likely to at least experiment with smoking.¹⁵ But, as with the *truth* campaign, social marketers can make their own use of social imagery.

The social environment, especially the influence of parents among pre-adolescent children and of peers among adolescents, is

another powerful influence on health behavior that can be used in social marketing. The associations teens form among their immediate social environment, social images, and exposure to marketing can explain adoption of health behaviors.

Competition

By creating and promoting positive social images of healthful behaviors aimed at countering unhealthful imagery, social marketers can compete for children's and adolescents' time, attention, and behavioral choices. In marketing terminology, social marketing can compete with commercial messages by identifying the "frame of reference"—the competing behavioral options in a given social context, such as whether to play outdoors or watch TV—and the "point of difference"—how to portray one behavior as superior to another—and developing messages based on that analysis.¹⁶

Social marketers have developed messages to compete both with commercial marketing and with the social norms that promote behaviors such as smoking, excessive media use and other sedentary behavior, or consumption of junk and fast foods. For example, the Centers for Disease Control and Prevention's VERB: It's What You Do campaign branded children's play as fun, cool, and socially desirable behavior.¹⁷ The health campaign portrayed the competition—excessive sedentary behavior, such as watching television—as socially undesirable, dull, and boring for the target audience of tweens (nine- to thirteen-year-olds). The VERB brand's vision was to "free children to play out their dreams."¹⁸

Social marketing messages like VERB and Legacy's *truth* campaign compete with commercial marketing—TV as a pastime rather than active play, or the tobacco industry as

an industry and source of unhealthful behavioral choices—in an overarching sense, but not necessarily with specific commercial brands. Douglas Evans, Simani Price, and Steven Blahut argue that the *truth* brand sought to take "market share" away from the tobacco industry.¹⁹ In traditional product marketing and branding, taking market share would involve one product, such as Coca-Cola, increasing its share of a population, such as soda drinkers or total sales of soda among a specific population, at the expense of a competitor, such as Pepsi, in that same population.

But social marketing efforts in a health domain, such as physical activity, compete with commercial marketing in that domain as a whole by pitting one lifestyle against another. For example, the active lifestyle promoted by VERB represents a range of possible active behavioral choices, from running, to jumping, to climbing trees, to playing soccer. It is the general behavior of *physical activity* that is at stake. In this context, "market share" means the proportion of individuals who choose one behavioral alternative or another. The competition is between engaging in an unhealthful behavior, such as being a couch potato or becoming a smoker, and choosing to engage in a physically active lifestyle and maintaining that choice.

Social marketing can provide children and adolescents with reasons and opportunities to engage in healthful alternatives by demonstrating behavioral alternatives that tap into their wants and needs, just as commercial marketers tap into their wants and needs through product promotion. For example, the *truth* campaign tapped into adolescents' need for independence, rebellion, and personal control through appealing social images of nonsmoking lifestyle—cool kids

living without tobacco.²⁰ The social marketing objective is to get the target audience, in the case of *truth* adolescents and young adults aged twelve to twenty-four, to do other things besides smoking. By doing other things—taking action against the tobacco industry, joining a social movement against tobacco use—adolescents aspire to the nonsmoking lifestyle promised by the campaign.

Social marketing can provide children and adolescents with reasons and opportunities to engage in healthful alternatives by demonstrating behavioral alternatives that tap into their wants and needs.

Public Health Branding

By marketing a coherent set of behavioral alternatives, public health marketing campaigns also can “brand” a healthful lifestyle by creating and maintaining social models of that lifestyle through advertising and promotional activities similar to those used by commercial marketing.²¹ In the commercial world, brands represent products and services.²² Commercial marketers seek to build strong relations (positive associations, brand identification, and loyalty) between customers and product and service brands such as BMW, Nike, and Crest toothpaste. Public health brands represent health behaviors or lifestyles that embody multiple health behaviors.²³ The hypothesis underlying public health branding as a social marketing strategy is that adopting branded “healthful lifestyles” increases the probability that individuals will engage in health-promoting and disease-preventing

behaviors and that the associations individuals form with these brands, such as *truth* or VERB campaign brands, mediate the relationship between social marketing messages and health behaviors such as remaining a nonsmoker or exercising.²⁴

Factors such as brand loyalty, identification with brand characteristics, and the perception of positive brand personality traits, among others, operate as cognitive and emotional mechanisms in the minds of the audience that brand marketers use to promote consumer behavior.²⁵ These factors can be measured as both immediate effects of brand exposure on consumers, and, consequently, influences on consumer behavior, that form the basis for individual-level brand research and evaluation. For example, if I am exposed to BMW marketing, I may form positive perceptions of the BMW personality (affluent, sporty, sexy). Forming these personality associations makes me more likely to buy a BMW in order to attain the social benefits it promises (idealized imagery in the brand promotion). Individual-level factors such as loyalty, identification, and personality are among the constructs underlying *brand equity*, the higher-order construct (that is, composed of individual-level factors) that captures the effects of commercial brands on consumers and public health brands on individual health behaviors.²⁶

Like commercial brands, public health brands present a call to action—and give the targeted audience a voice in making informed decisions about their health and society’s well-being. For example, tobacco countermarketing calls on adolescents to join a social movement against tobacco use, to live a nonsmoking lifestyle, and to take action to promote a nonsmoking society.²⁷ All brands make a “promise”—that the individual will

realize value by associating with the brand and that the exchange for that value will benefit the individual.²⁸ The state of Ohio's tobacco countermarketing brand, called *stand*, promises, "Make a difference in the lives of important people around you by *Standing Up* against tobacco use."²⁹

The final element of public health brands, and one that helps to distinguish them from commercial brands, is the notion that they "vaccinate" or "inoculate" adolescents against unhealthful lifestyles.

The final element of public health brands, and one that helps to distinguish them from commercial brands, is the notion that they "vaccinate" or "inoculate" adolescents against unhealthful lifestyles. The *truth* campaign provided arguments, both rational and emotional, for choosing a nonsmoking lifestyle.³⁰ Adolescents and young adults who accept those arguments—who associate with the brand—thereby have rational and emotional tools to resist being influenced by tobacco industry arguments. This view reflects the well-known Elaboration Likelihood Model and the view that individuals who engage in a process of elaboration of persuasive messages are more likely to accept and act on them as intended.³¹

How Social Marketing Can Influence Health Behavior

The best evidence of social marketing effectiveness comes from studies of mass, population-level communication campaigns,

which afford opportunities for rigorous evaluation and intervention research. Smaller-scale social marketing, such as tailored communication for individuals or small groups, is growing in popularity and has substantial applications using the Internet and handheld devices.³² However, tailored health communications is a new field and has not yet been widely applied to prevention and health promotion, and there is limited evidence of its effectiveness in these applications.

Evaluations of Social Marketing Campaigns

Unlike commercial marketing, where unpublished proprietary research is the norm, social marketing is generating a large and growing research and evaluation literature. Much of the research on outcomes of social marketing campaigns, especially mass media campaigns, are effectiveness studies conducted in real time, in the media markets or communities in which messages are delivered. For example, a national evaluation of the *truth* campaign was based on a quasi-experimental design—that is, it included a treatment group and a control group, but the groups were not randomly assigned, as they are in a true experimental design—in which campaign exposure was measured both from environmental measures and self-reported "confirmed awareness" of campaign ads.³³

In many instances, however, such evaluations are impractical or impossible, thus limiting opportunities to advance the state of health communication research and the knowledge base on effective campaign strategies, messages, and channels. In the case of paid media campaigns, funds may be too limited for the campaign to reach a wide enough audience to detect campaign effects using population survey methodologies. Logistical constraints such as campaign implementation timelines may also preclude collection of pre-campaign

survey data. In the case of unpaid media, or public service announcements (PSAs), the campaign reach in any given designated market area is typically low. For example, television PSAs typically run late at night or on midweek afternoons, when audiences are small. Thus it is difficult to detect campaign effects because of low statistical power.

As a result of practical limits facing many social marketing campaign evaluations, much of the research in this field is either quasi-experimental, like the *truth* campaign evaluation, or observational—that is, with no control group. With the help of several colleagues, I reviewed evaluations of social marketing campaigns that used branding strategies and found that only three out of thirty-three studies used a randomized experimental design, the gold standard for evaluations. Five reported outcomes from quasi-experimental designs. Twenty-five of the studies were based on observational designs.

Evidence of the Effectiveness of Social Marketing

Other recent reviews of social marketing evidence, including campaigns that were not explicitly “branded,” indicate that mass media social marketing through television, radio, outdoor and print advertising, and the Internet is effective in changing health behaviors on a population level. In general, these studies show that social marketing has successfully changed health behavior such as smoking, physical activity, and condom use, as well as behavioral mediators such as knowledge, attitudes, and beliefs related to these behaviors. Most of these studies, however, have shown effect sizes of less than 10 percent.³⁴

In their widely cited study of forty-eight U.S. social marketing campaigns based on mass media, Leslie Snyder and Mark Hamilton

found that the average campaign accounted for about 9 percent of the variation in health risk behavior outcomes, but with varying results.³⁵ The subset of “non-coercive” campaigns—that is, those that simply deliver health information instead of attempting to persuade and advocate for a behavior—accounted for about 5 percent of observed variation, as compared with 9 percent for all forty-eight campaigns reviewed.

A study of seventeen recent European media campaigns on a range of topics including promotion of HIV testing, myocardial infarction hospital admissions, immunizations, and cancer screenings found similar effects in the range of 5–10 percent.³⁶ Like previous research, this study shows that single or few-time behaviors can be easier to promote than behavior requiring repetition and maintenance over time.³⁷ Some behaviors that do not require long-term maintenance, such as breastfeeding and Vitamin A promotion, and switching to 1 percent milk, have shown greater effect sizes and generally appear to have higher rates of success.³⁸

One example of social marketing to promote a broad range of healthful behaviors that has not, as yet, been widely evaluated is “edutainment” programming, such as adaptations of the *Sesame Street* series sponsored by the Sesame Workshop.

Edutainment: The Sesame Workshop
Edutainment (sometimes called “educational entertainment” or “entertainment-education”) is another form of social marketing that has been widely used to reach children and adolescents for the purpose of informing and changing health and social behaviors. Edutainment seeks to instruct or socialize its audience by embedding lessons in some familiar form of entertainment: television

programs, computer and video games, films, music, websites, multimedia, and so on.

Sesame Workshop, a nonprofit educational media producer, has created a series of adaptations of the long-running children's educational program, *Sesame Street*. *Sisimpur*, for example, the Bangladeshi adaptation of *Sesame Street*, is designed to meet the learning needs of three- to six-year-olds across social classes and different regions of the country. The series features unique Bangla-speaking Muppets such as Ikri Mikri, an imaginative three-year-old who encourages young girls to have a limitless sense of possibility. Original music and locally produced live-action and animated segments reflect the rich artistic heritage of Bangladeshi culture. With a curriculum defined by Bangladeshi educators, the series emphasizes literacy, math, and science and also helps foster values such as self-respect, empathy, and cooperation. Other key objectives include improving educational opportunities for young girls; promoting good nutrition, hygiene, and safety; and encouraging appreciation of the shared cultural heritage of diverse segments of Bangladeshi society.

Another recent adaptation by Sesame Workshop is *Jalan Sesama*, a television series created by local producers and educators to meet the needs of Indonesian children aged three to six. *Jalan Sesama* promotes age-appropriate and culturally relevant academic and life skills. Like its counterpart in the United States, the television program has a "magazine" format comprising short animations, live action (documentary film) pieces, and studio segments featuring puppets, affording opportunities to present an array of educational experiences that enhance and expand children's knowledge and skills. Each segment of *Jalan Sesama* addresses a specific

educational objective from one of the following developmental domains: physical (including physical development, health, and safety); cognitive (including such areas as cognitive development, language arts, mathematics, and science); emotional (identifying, expressing, and managing emotions); social skills to get along with peers and adults; aesthetic (appreciating art forms, creativity, and culture); and moral (moral principles and integrity, honesty, fairness, and manners).

The Sesame Workshop adaptations and others like them have successfully integrated multiple health, educational, and social topics into a single program, or series of programs, thus addressing multiple risk factors.

Edutainment, many examples of which span the spectrum of health, education, and social issues, has several major advantages as a form of social marketing. First, as commercial programs, edutainment can reach a wider audience than many other social marketing campaigns.³⁹ Second, edutainment combines the benefits of branding, through characters and story lines, with knowledge- and skills-building through health information delivery. Finally, in a program format, the Sesame Workshop adaptations and others like them have successfully integrated multiple health, educational, and social topics into a single program, or series of programs, thus addressing multiple risk factors. This approach has significant potential for social marketing

aimed at protecting children from the effects of commercial media and marketing.

How Social Marketing Can Counter Media Messages about Unhealthy Behavior

As noted, social marketing campaigns have been notably successful in three areas: preventing tobacco use, promoting diet and physical activity, and preventing HIV/AIDS. In each area, messages promote healthful behavior and counter the effects of media messages that glamorize or otherwise encourage risky behaviors. These three areas have seen the largest number of effective branded campaigns.⁴⁰

Tobacco Countermarketing Campaigns

One of the most successful social marketing efforts has been tobacco countermarketing campaigns aimed at preventing youth from starting to smoke. For example, campaigns such as the American Legacy Foundation's *truth* campaign have successfully reduced smoking initiation and progression to established smoking. Matthew Farrelly and several colleagues showed that from 1999 to 2002, U.S. youth smoking prevalence declined from 25.3 percent to 18.0 percent and that *truth* accounted for approximately 22 percent of that decline.⁴¹

Although the effect size of the *truth* campaign is small by clinical standards, the campaign shows that social marketing can have a big impact on population-level health. In the case of *truth*, the campaign-attributable decline in youth smoking equates to some 300,000 fewer youth smokers and thus millions of added life years as well as tremendous reductions in health care and other social costs.

State-funded countermarketing campaigns have also been effective in preventing and controlling tobacco use. Edward Siegel and

Lois Biener analyzed longitudinal data from the Massachusetts countermarketing campaign and found that adolescents who were aged twelve to thirteen years at the study's outset and who reported exposure to television antismoking advertisements were significantly less likely to progress to established smoking than their peers who did not report exposure.⁴² The study, however, found no effect on progression to established smoking among adolescents aged fourteen to fifteen as the study began and no effects of exposure to radio or outdoor advertisements.

Countermarketing campaigns have been found effective in influencing specific, targeted attitudes and beliefs to affect smoking behavior. A longitudinal study of the Florida TRUTH campaign (the state campaign that preceded, and was the model for, the national *truth* campaign) found that teenagers with high levels of anti-tobacco industry attitudes were four times less likely to initiate smoking and more than thirteen times less likely to become established smokers than their peers with low levels of such attitudes.⁴³ James Hersey and several colleagues found that state countermarketing campaigns using an anti-tobacco industry message prime, or make more salient, negative perceptions about tobacco industry practices.⁴⁴ Jeffrey Niederdeppe, Matthew Farrelly, and M. Lyndon Haviland confirmed that TRUTH reduced smoking among Florida teens and found specifically that adoption of two counterindustry beliefs central to the campaign were associated with lower teen smoking rates.⁴⁵

Diet and Physical Activity Countermarketing Campaigns

Social marketing's success in the arena of nutrition and physical activity promotion and obesity prevention has provided insights to help inform future nutrition campaigns.⁴⁶

Several effective branded nutrition campaigns, such as the National Cancer Institute's (NCI) 5-A-Day for Better Health, are widely known to the public. In a workshop on diet and communication sponsored by NCI in July 2005, researchers examined the potential for diet and communication fields to work collaboratively and develop more effective social marketing strategies.⁴⁷ The workshop confirmed previous research on poor nutrition as a serious and growing risk factor for children's health and highlighted social marketing's promise in protecting children and promoting better nutritional health.⁴⁸

One of the most successful diet and nutrition efforts has been the 1% Or Less campaign, which encouraged adults and children older than age two to drink milk with a fat content of 1 percent or less, instead of whole or 2 percent milk.⁴⁹ Designed by the Center for Science in the Public Interest, a nonprofit group dedicated to improving the nation's health through better nutrition, this campaign has been carried out at many sites since 1995. The campaign includes news stories and advertisements on television, radio, billboards, and in newspapers; milk taste-tests at a variety of community sites; supermarket shelf labeling to draw attention to low-fat milk; and school activities. The California Adolescent Nutrition and Fitness (CANFit) program found that after its 1% Or Less campaign in East Los Angeles, whole milk purchases had dropped from 66 percent to 24 percent of overall sales and that the share of all low-fat milk sold had more than doubled.⁵⁰ Although it was not a goal of the campaign, overall milk purchases had increased by 30 percent.⁵¹

HIV/AIDS Countermarketing Campaigns

HIV/AIDS prevention in the United States, other developed nations, and the developing

world, especially Africa, presents a different kind of social marketing challenge. Sexual imagery, sexualization of children, and normalization of early sexual debut among adolescents are pervasive in both contemporary media and commercial marketing and represent a major risk factor.⁵² Having sex is often seen as a rite of passage of youth, and the peer pressure and social desirability of being sexually active may be stronger than they are in the case of smoking or other risk behaviors. Social marketing campaigns must consider these factors when developing messages and setting behavior change objectives.

The Henry J. Kaiser Family Foundation partnered with media giant Viacom to launch KNOW HIV/AIDS, a comprehensive public education campaign in the United States in 2003.⁵³ The effort built on the existing partnership between the Kaiser Family Foundation and Black Entertainment Television (BET, whose parent company is Viacom), which promoted HIV/AIDS prevention and awareness through the targeted Rap It Up campaign beginning in 1998.⁵⁴ The campaign reports that it has produced 131 rights-free (that is, non-copyrighted) messages, totaling a media value commitment of more than \$600 million.⁵⁵

KNOW HIV/AIDS has five aims: to increase awareness about HIV/AIDS and how to prevent it, to encourage dialogue between partners and with health care providers about sexual health issues, to encourage and promote testing, to address the role that stigma and discrimination play in spreading the disease, and to promote safer sex behaviors.⁵⁶ The campaign uses partnerships with media, commercial businesses, government, and community-based groups and contributions of air time, community outreach, and similar

methods to increase campaign exposure. It promotes messages through paid and unpaid targeted television, radio, and outdoor PSAs; HIV-themed television and radio programming (primarily through partners Viacom and BET); print media; online and other electronic media; and public outreach.⁵⁷

The 2004 survey of African Americans reported by Victoria Rideout revealed that 82 percent of all respondents and 94 percent of young adults aged eighteen to twenty-four recalled at least one campaign advertisement or program component, and 70 percent recalled seeing two specific advertisements. Brand awareness for the Rap It Up campaign was also high, with 58 percent of all respondents and 92 percent of young adults reporting awareness. Approximately 30 percent of all respondents and young adults demonstrated recall of the KNOW HIV/AIDS brand.⁵⁸

Respondents who reported exposure to one or more campaign component said that the campaign had influenced their plans for the future, including visiting a doctor or getting tested for HIV, and were more likely than respondents who were not aware of campaign components to indicate they planned to engage in these behaviors. However, one major study did not show a link between exposure and intentions or sexual behavior.⁵⁹

Three branded HIV/AIDS prevention social marketing campaigns that illustrate strategies for reaching adolescents and young adults have recently been conducted in Africa: *Trust* in Kenya, *Salama* in Tanzania, and *loveLife* in South Africa.⁶⁰ *Trust*, conducted by the U.S.-based Population Services International (PSI), promoted the social desirability of condom use to make using a condom seem cool. Special events such as concerts were part of the campaign. *Salama*, also led by PSI, tar-

geted high-risk groups including young people aged fifteen to twenty-four, commercial sex workers, and rural populations, but it also operated on the principle that young people are susceptible to messages about behavior change. *Salama* relied heavily on community outreach such as concerts, cultural shows, mobile video units, and sport tournaments.

The *loveLife* campaign was the most comprehensive of the three. It aimed to reduce by half the rate of HIV infection among fifteen- to twenty-year-olds, as well as to reduce other sexually transmitted diseases and the incidence of teenage pregnancy. It promoted a lifestyle choice valuing abstinence, delayed initiation of sexual activity, fewer sexual partners among already sexually active teenagers, and condom use. It was supported by nationwide adolescent-centered reproductive health services in government clinics and a network of youth outreach and support.

Studies show that each of the campaigns increased adolescent and young adult awareness of these HIV/AIDS prevention brands and also increased awareness of HIV/AIDS health risks and intentions to use condoms.⁶¹ Effects of the campaigns included delayed onset of sexual activity and increased condom use among those with repeated exposure to these brands. No comparable interventions, however, have been conducted in the United States.

How Social Marketing Can Encourage Discussions among Parents and Children

Social marketing campaigns can also help parents influence their children's behaviors. Three examples stand out. The first is a traditional public service announcement, an unpaid (that is, air time was provided free by media outlets) mass media campaign called

the TV Boss campaign sponsored by the Ad Council. The second is a multi-channel, mixed community- and media-based campaign aimed at reducing childhood obesity, in part through reduced screen time and increased exercise, called 5-4-3-2-1 Go! sponsored by the Consortium to Lower Obesity in Chicago Children. The third is the Parents Speak Up national campaign, a U.S. Department of Health and Human Services campaign to promote parent-child communication about delaying sexual activity.

Each of these examples highlights different ways that social marketing can possibly protect children from effects of exposure to commercial media and marketing, either directly through messages to them or indirectly through messages to parents and family. Lessons learned from these examples may be instructive to future social marketing efforts in this arena.

The TV Boss Campaign

The Ad Council has created a TV Boss website and a public service announcement campaign in collaboration with major sponsors such as the Motion Picture Association of America, the National Cable and Telecommunication Association, the National Association of Broadcasters, and others.⁶² The stated purpose of the campaign is to “give parents the tools and information they need to guide their child’s television consumption.”

The campaign is a “direct influence” effort to raise parents’ knowledge and build their skills to control children’s TV and media use. Recognizing that motivation will be important to encourage parental action, the campaign uses themes such as parental control over negative media influences, depicting knowledgeable parents “blocking” potentially risqué or violent characters in PSA spots.

The TV Boss is a good example of the use of branding to reduce media use and limit children’s exposure to specific content. The campaign has virtually all the major elements of public health branding.⁶³ First, it seeks to develop a relationship with the target audience by depicting parents in the same situation that audience members likely would be (need to protect kids, lots of negative TV characters out there), modeling their concerns, and showing them being strong and taking control by blocking negative content. The campaign adds value for audience members by providing tools and information and builds on positive norms of parental involvement and control that tap into parents’ needs with respect to their children, especially adolescents.

To date, no evaluation data on The TV Boss have been published. But this and other campaigns that are directly aimed at behaviors to protect children and adolescents from inappropriate TV content are a promising social marketing strategy and should be evaluated. In particular, it will be important to compare the effectiveness of parentally oriented campaigns and those targeting children directly using risk factor and behavior change messages.

The 5-4-3-2-1 Go! Campaign

The Consortium to Lower Obesity in Chicago Children (CLOCC) developed a public health education initiative to bolster ongoing local efforts addressing Chicago’s childhood obesity epidemic through healthful eating and physical activity. A citywide coalition of groups representing virtually all social sectors developed the 5-4-3-2-1 Go! social marketing initiative, which involves community youth and partners across Chicago in developing and disseminating the core messages. After completing a training process, youth ambassadors (known as Go! Teams) deliver these messages through community outreach activities. The campaign

Table 2. 5-4-3-2-1 Go! Delivery Channels

| Channels | Aim | Strategy | Tactics | Effects |
|--|--|--|--|---|
| Go! Teams | Create 5-4-3-2-1 Go! Teams to provide a “for us, by us” element to the program so that the targeted Chicago children, adolescents, and families will relate to it. | Engage Chicagoans who are social models and embody the values of living a healthful lifestyle, such as high school sports stars, political leaders, sports, TV and movie personalities. | Create a team of high school student leaders (the Go! Team) from diverse ethnic backgrounds who can serve as positive role models for younger kids and, at the same time, serve as living mascots who build awareness for the 5-4-3-2-1 Go! brand. | Brand the look of the Go! Team to guarantee recognition and visual appeal. |
| Earned media coverage through community media and events | Raise public awareness and promote support for 5-4-3-2-1 Go! and involvement in 5-4-3-2-1 Go! activities through advocating for and drawing attention to the campaign, leading to news media coverage. | CLOCC has more than 500 community partners, many in the six target communities. Working with partners, 5-4-3-2-1 Go! will promote news media attention to its activities using media advocacy techniques such as staging events. | Go! Teams work through community partners to reach community-level newspapers published in English and Spanish. | Awareness of the existence of 5-4-3-2-1 Go! will increase, as measured by response to 5-4-3-2-1 Go! awareness and specific questions about exposure to news media coverage of 5-4-3-2-1 Go! |
| Website www.clocc.net/ | Create a 5-4-3-2-1 Go! website (www.clocc.net/) featuring information in English and Spanish as an effective way to disseminate information about the campaign 24 hours a day/7 days a week. | The site contains detailed and practical information based on key messages and is updated weekly. It features upcoming events and how to participate, prizes and how to win them, photos, and games to test kids’ nutrition and fitness knowledge. CLOCC works with Chicago schools to direct traffic to the site and make it a “favorite” on all elementary school computers. | Drive traffic to the site by coordinating with Chicago Park District, Chicago Public Schools, Mayor’s Office of Special Events, and other partners to establish a hyperlink back to the site. Promote the site through Go! Teams. | The website becomes a trusted health information source for community members. They receive more detailed information on the 5-4-3-2-1 Go! message and specific information about how to access community resources, how to make more healthful food choices, and where to get nutritious foods (for example, local farmers’ markets and the produce-mobile). |

is based on a simple 5-4-3-2-1 healthful eating and active living message for children: consume *five* or more fruits and vegetables, *four* servings of water, and *three* servings of low-fat dairy a day; spend no more than *two* hours watching television or engaging in a similar sedentary behavior; and get at least *one* hour of physical activity a day.

The 5-4-3-2-1 Go! campaign uses a healthful-lifestyles branding strategy aimed at improving family food choices and increasing use of community physical activity resources.⁶⁴ It targets six vanguard community areas that are linked to census boundaries in Chicago and is in part a response to the “obesigenic” environment, both social and physical, in those

communities that inhibits healthful lifestyles.⁶⁵ The campaign also responds to the complex and potentially reciprocal relation among characteristics of the physical environment, social capital, and physical activity. For example, highly walkable, mixed-use neighborhoods have been associated with increased physical activity in the form of more walking for transportation.⁶⁶

The social marketing strategy behind the campaign is culturally relevant and true to community norms and values. Its healthful-lifestyles brand uses a name and logo-treatment that embodies the brand essence: “Eating right and being healthy is as easy as 5-4-3-2-1 Go!” It communicates positive

messages that resonate across different ethnic communities and builds on local community pride in being Chicago residents. Table 2 summarizes the delivery channels used to market key messages and their hypothesized effects.

Parents Speak Up National Campaign

In 2005, Congress authorized up to \$10 million for the Administration on Children and Families to carry out the Parents Speak Up national campaign, a national public education campaign to promote delayed sexual debut by teenagers. The national multimedia campaign encourages parents to talk “early and often” to their pre-adolescent and adolescent children aged ten to fourteen about delaying the onset of sexual activity. The purpose is to increase parent-child communication as a proximal behavioral outcome leading to delayed onset of sexual activity. The strategy of aiming messages promoting parent-child communication at this target audience has been used on a smaller scale in school- and community-based interventions, but never on a national scale in a mass communication campaign. The campaign was publicly released in June 2007.

The campaign applies many of the principles of marketing. In particular, it uses a theory-based behavior-change model that hypothesizes increased parent-child communication will result from positive reactions to the public service advertising. It also develops a credible and likeable “argument” for delaying initiation of sexual activity by communicating personal (social, educational, career-related) advantages of abstinence. The campaign uses strategies such as promoting self-efficacy and appealing to fear to communicate the health risks of early sexual debut, the individual’s ability to delay sexual debut, and the benefits of waiting.⁶⁷

The campaign’s primary means of communication is paid and unpaid public service announcements designed for a general audience. The campaign also supports three outreach centers—African American, Hispanic, and American Indian—to get help with research, message development, creative development, support building, and message penetration in these communities. Finally, the campaign uses outdoor advertising (billboards), bus media, posters, Web banners, and media kits.

Parents Speak Up also includes a 4Parents.gov website and associated parent and adolescent guides. The website provides information (as opposed to motivational messages) for parents about how to talk with their preteen or teen about waiting to have sex, about the accuracy of social norms among teens, and about related topics such as parent-child relationship quality and setting goals for the future.⁶⁸

There is also an ongoing impact evaluation to measure reactions and changes associated with exposure to Parents Speak Up messages and ad executions. The evaluation will be the first of its kind of a national campaign to increase parent-child communication about sexual activity. The primary evaluation study is a randomized controlled trial of mothers and fathers of children aged ten to fourteen, the campaign’s target audience. Parents are randomly assigned to control, treatment (exposure to a core set of campaign messages), and treatment plus booster (core plus additional and more frequent campaign messages) conditions. The different groups will be surveyed at baseline (before message exposure) and at four follow-up time points, four weeks, six months, twelve months, and eighteen months later.

Conclusions and Recommendations

Social marketing has been successful at changing a wide range of health behaviors, especially in the domains of tobacco use, nutrition and physical activity, and HIV/AIDS. Social marketers have become increasingly adept at using commercial marketing strategies to craft competing messages and reduce the percentage of children and adolescents responding to commercial messages. In some cases, despite their relatively small budgets and slender resources, social marketers have been successful at taking market share away from the commercial sector.⁶⁹

The competition between industry and social marketing brands is far from even. How can social marketing succeed in the long run given this comparative disadvantage?

Unlike more heavily funded commercial marketers, however, social marketers can rarely maintain public exposure to health messages at high levels. Given the importance of exposure, social marketers thus often operate at a significant disadvantage to the commercial sector. The competition between industry and social marketing brands is far from even. How can social marketing succeed in the long run given this comparative disadvantage?

The answer to date has been threefold: develop more socially powerful and persuasive competing messages; use multiple channels including media, community outreach, and mobilization and develop social movements; and focus on social and health policies that affect individual behavior and

behavioral determinants. Tobacco counter-marketing campaigns like *truth*, for example, have developed innovative public health brands and created messages based on an adolescent “consumer” orientation.⁷⁰ At the same time, *truth* engaged communities and advocated for state and national tobacco policy changes, such as clean indoor air laws and cigarette tax increases.⁷¹

Future efforts to limit children’s media use should draw on lessons learned from past efforts: know the audience and target messages appropriately; use creative marketing and promotional strategies such as branding healthful lifestyle choices; use multiple channels to increase exposure; and address public policy in addition to individual behavior.

There are several potentially fruitful avenues for future messages and campaigns. For pre-adolescent children, parents are a powerful social influence and have substantial opportunities to limit media use and marketing exposure. Social marketers should conduct formative research with parents to understand the home and family media environment and parents’ role in regulating children’s media use. Amy Jordan and several colleagues conducted research along these lines, though not aimed at designing a social marketing campaign, that could serve as a starting point.⁷²

Based on findings of this and related research, a campaign targeting possibly two distinct groups—parents of preschool (aged two to five) and elementary school (aged six to eleven) children—could be developed. Messages would be crafted specifically for each group with the aim of informing each about what constitutes appropriate media use (for example, two or fewer hours of screen time a day) and raising awareness of the

health risks of excessive media use and the potential risks of marketing exposure. Another aim would be to modify parent attitudes and practices about children's media use, following other successful campaigns by portraying an active healthful lifestyle as socially desirable. The overarching goal would be to change the social norm about media use from one of permissiveness to one of parental involvement and management of the home and family media environment.

For adolescents (aged twelve to seventeen), and potentially also a secondary audience of young adults (aged eighteen to twenty-four), separate formative research should be conducted on their knowledge, attitudes, beliefs, and practices related to media use and how they use their time with media, including television, music, and new media, as compared with other pursuits. The goal of this campaign would be to *brand* limited media use as socially desirable, as the new, hip, and cool way to live. Media use would not be demonized, but placed in the context of a larger, socially desirable lifestyle in which television, the Internet, and other media devices are part of a wide array of pursuits—living a physically active, outgoing, socially engaged lifestyle—in which hip young people want to engage. Messages would be aimed at changing social norms about media use, raising consciousness of the limitations of media-multitasking, and increasing awareness of the value of interpersonal interaction in balance with human-media interaction. Advertising to promote the brand would use social modeling by portraying hip, edgy, cool kids using media in moderation or balancing media use and multitasking with popularity among peers and direct (not online) social interaction as

desired goals. Media use—“it’s cool but don’t let it rule (your life).”

Five new strategies now being developed and used within social marketing campaigns may help in future messages and campaigns. The first such strategy is improved audience segmentation. For example, social marketers can use market research data, such as that used by commercial marketers, to identify more refined behavioral predictors and related message strategies. The second strategy is to develop tailored messages for very specific groups, such as adolescents who visit certain websites. The third strategy is co-branding. Like the commercial marketers, social marketers can link their branded messages to other trusted brands, such as by co-branding a nutrition social marketing message with the Sesame Workshop. The fourth strategy is to make full use of technology. The Internet, handheld devices, and other media offer social marketers opportunities to compete with industry using low-cost word-of-mouth marketing (so-called viral marketing). The fifth and final strategy is social networking. Social marketers can place messages in media used by children and adolescents to network and take advantage of potential social diffusion effects (for example, through MySpace, Facebook, and iPods).

Innovations such as these are no panacea. The task facing social marketing is daunting in the face of the rising tide of children's media use and large and growing commercial marketing efforts and budgets. These approaches, however, would continue the so-far successful trends in social marketing demonstrated in tobacco control, diet and physical activity, and HIV/AIDS prevention.

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Children as Consumers: Advertising and Marketing

Sandra L. Calvert

Summary

Marketing and advertising support the U.S. economy by promoting the sale of goods and services to consumers, both adults and children. Sandra Calvert addresses product marketing to children and shows that although marketers have targeted children for decades, two recent trends have increased their interest in child consumers. First, both the discretionary income of children and their power to influence parent purchases have increased over time. Second, as the enormous increase in the number of available television channels has led to smaller audiences for each channel, digital interactive technologies have simultaneously opened new routes to narrow cast to children, thereby creating a growing media space just for children and children's products.

Calvert explains that paid advertising to children primarily involves television spots that feature toys and food products, most of which are high in fat and sugar and low in nutritional value. Newer marketing approaches have led to online advertising and to so-called stealth marketing techniques, such as embedding products in the program content in films, online, and in video games.

All these marketing strategies, says Calvert, make children younger than eight especially vulnerable because they lack the cognitive skills to understand the persuasive intent of television and online advertisements. The new stealth techniques can also undermine the consumer defenses even of older children and adolescents.

Calvert explains that government regulations implemented by the Federal Communications Commission and the Federal Trade Commission provide some protection for children from advertising and marketing practices. Regulators exert more control over content on scarce television airwaves that belong to the public than over content on the more open online spaces. Overall, Calvert concludes, children live and grow up in a highly sophisticated marketing environment that influences their preferences and behaviors.

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Sandra L. Calvert is a professor and the chair of the Department of Psychology at Georgetown University. She is also the director of the Children's Digital Media Center.

During the 1920s, U.S. advertising leaders began to see that a consumer society would create larger markets for the surplus fruits of mass production.¹ Aware that people might not buy enough goods fast enough on their own, advertisers adopted a strategy of exploiting consumers' feelings of inadequacy and sought to market products as a means of alleviating consumers' negative self-image. Their strategy succeeded beyond their greatest expectations.

Crucial to their success was the emergence and eventual dominance of television in U.S. homes.² As the medium of television developed, advertisers quickly realized that they could use it to bring products to the attention of mass audiences, both young and old, and thus deliver an enormous supply of children and adults to businesses.

Today, marketing and advertising permeate children's daily lives. Many products marketed to children are not healthful and promote obesity. Younger children often do not understand the persuasive intent of advertisements, and even older children probably have difficulty understanding the intent of newer marketing techniques that blur the line between commercial and program content. Relatively little government regulation protects children from this highly commercialized environment.

In this article, I first examine trends that have made children and youth an ever more attractive audience for marketers and advertisers and then look at marketing and advertising practices directed toward youth. I discuss content analyses of foods and beverages, toys, and alcohol and tobacco. I also examine the effects of marketing on children, focusing

both on how children of different ages—and, more important, at different stages of cognitive development—perceive commercials in different ways and on how advertising affects children's behaviors and attitudes. I turn then to how families and parents may mediate the impact of advertisements on their children and discuss the commercialization that results as marketers expand their presence in the public schools. I conclude by considering regulatory issues, including First Amendment concerns.

Marketing and Advertising

According to the American Marketing Association, marketing is “an organizational function and a set of processes for creating, communicating, and delivering value to customers and for managing customer relationships in ways that benefit an organization and its stakeholders.”³ Using the “Four Ps” of marketing—product, place, price, and promotion—advertisers use paid public presentations of goods and services in a variety of media to influence consumers' attention to, and interest in, purchasing certain products.⁴

Television has long been the staple of advertising to children and youth.⁵ Children view approximately 40,000 advertisements each year.⁶ The products marketed to children—sugar-coated cereals, fast food restaurants, candy, and toys—have remained relatively constant over time.⁷ But marketers are now directing these same kinds of products to children online.⁸

Targeting Youth

Although the kinds of products marketed to children have remained much the same, the buying power of children and adolescents has increased exponentially over time.⁹ The affluence of today's children and adolescents

has made youth a market eminently worthy of pursuit by businesses. Youths now have influence over billions of dollars in spending each year.¹⁰ In 2002, U.S. four- to twelve-year-olds spent \$30 billion.¹¹ American twelve- to seventeen-year-olds spent \$112.5 billion in 2003.¹² In 2003, 33 million U.S. teens aged twelve to nineteen each spent about \$103 a week.¹³ According to one report, parents supply 87 percent of young children's income. That share drops to 37 percent for teens, who have more of their own discretionary income.¹⁴

Youths also shape the buying patterns of their families. From vacation choices to car purchases to meal selections, they exert a tremendous power over the family pocketbook.

Youths also shape the buying patterns of their families.¹⁵ From vacation choices to car purchases to meal selections, they exert a tremendous power over the family pocketbook. Experts estimate that two- to fourteen-year-olds have sway over \$500 billion a year in household purchasing.¹⁶ Thus, to influence youth is to influence the entire family's buying decisions.

Rapid growth in the number of television stations and online venues has also led advertisers to market directly to children and youth.¹⁷ Because children and youth are heavy media users and early adopters of newer technologies, media marketing and advertising campaigns using both television and newer media are efficient pathways into children's homes and lives.¹⁸ Although television is still the preferred medium for reaching children

and youth, marketers are exploring how to reach this age group online using cell phones, iPods, game platforms, and other digital devices. Banner ads, for example, which resemble traditional billboard ads but market a product across the top of an Internet page, appear on most webpages.¹⁹ And "adver-games" integrate products such as cereal and candy into online video games to sell products to youth.²⁰

In 2004, total U.S. marketing expenditures were estimated at some \$15 billion to target products to children.²¹ Reliable estimates of spending in the newer media are not available.²² Newer forms of marketing are a small share of the overall marketing budget spent on traditional print, broadcast, radio, and online advertising, but the share spent on these newer forms is growing.²³ Indeed, online venues can reap large returns for relatively small investments. For example, Wild Planet Toys spent \$50,000 for a four-month online promotion that was associated with a doubling of Wild Planet's yearly revenues. A comparable buy for a television advertising campaign would have cost \$2 million.²⁴ And a recent Nabisco World game and puzzle website designed to increase awareness of Nabisco's cookies and crackers cost only 1 percent of the company's advertising and marketing budget.²⁵ Advertising on online games was expected to grow from \$77 million to about \$230 million between 2002 and 2007.²⁶

Marketing Techniques

Marketers use a variety of techniques to attract audiences to increase product purchases. Traditional marketing techniques in television commercials include repetition, branded characters, catchy and interesting production features, celebrity endorsements, and premiums (free merchandise that accompanies a product).

Table 1. Television and Internet Marketing Techniques: Definitions and Use Patterns

| Marketing technique | Definition | Used on television | Used on Internet |
|---------------------------------------|--|--------------------|------------------|
| Repetition of the message | Repeating the same commercial message over and over. | X | X |
| Branded characters | Popular animated characters used to sell products ranging from cereal to vacations. | X | X |
| Attention-getting production features | Audio-visual production features such as action, sound effects, and music. | X | X |
| Animation | Visually drawn moving images. | X | X |
| Celebrity endorsements | Popular actors, athletes, and musicians are either depicted on the product itself or are shown using and approving of the product. | X | X |
| Premiums | Small toys or products that are offered with product purchase; for example, a toy in a Happy Meal or screen savers for filling out an online survey. | X | X |
| Product placement | Placing a product within program content so it does not seem to be an advertisement; for example, E.T. eating the candy Reese’s Pieces. | X | X |
| Advergaming | Online video games with subtle or overt commercial messages. | | X |
| Viral marketing | The “buzz” about a product that is spread by word of mouth. | | X |
| Tracking software and spyware | Software that makes it possible to collect data about time spent on a website. | | X |
| Online interactive agents | A virtual form of stealth advertising where robots are programmed to converse with visitors to a website to maintain and increase interest in the site and its products. | | X |
| Integrated marketing strategies | Marketing products across different media; for example, the toy in a cereal box is also a product placement in a film. | X | X |
| Video news releases | Circulated stories to news media about a product that are broadcast as a news release. | X | X |

In recent years advertisers have begun to experiment with new techniques. One such technique is stealth advertising, in which marketers attempt to conceal the intent of an ad.²⁷ The theory behind the new technique is that advertising is most effective when consumers do not recognize it as advertising.²⁸ If consumers’ “guards” are down, they will be more open to persuasive arguments about the product. Using this approach, marketers try to blur the line between the advertisement and the content. Stealth advertising is allowed only in media like online venues, however.²⁹ In children’s television advertising, clear markers must separate commercial content and program content.³⁰

Marketers who practice stealth advertising embed products within a program’s content,

use so-called viral (word-of-mouth) marketing, enable children to interact with online characters who promote specific brands, disguise advertisements as video news releases, and collect information from youth at online sites.³¹ All these practices are designed to create or enhance branded environments that foster user loyalty.³²

Repetition. Repetition involves simply repeating the same commercial message over and over. The idea is that familiarity with a product increases the likelihood of purchasing and using it.³³

Attention-getting production features. Attention-getting production features are designed to attract children’s interest in commercial content.³⁴ Such features, which are heavily

concentrated in children's television advertisements, include action and movement, rapid pacing, sound effects, and loud music.³⁵

Branded characters and premiums. Successful marketing campaigns often use branded characters—that is, media characters that are associated with a company, and hence promote its brand name—that appeal to children and youth.³⁶ Rights to use popular television cartoon characters like Nickelodeon's Sponge-Bob SquarePants, who are licensed for a fee to various companies, help sell products ranging from cereal to vacations, while animated characters such as Tony the Tiger are spokesmen for a specific product, in this instance Kellogg's Frosted Flakes. Similarly, the Ronald McDonald character is used to sell the McDonald's brand, including Happy Meals, and has recently taken on a new role as a physical fitness guru. Marketers associate the products and activities they want to sell with entertaining characters to increase interest in those products.³⁷ They use the same characters in online marketing campaigns and in television advertisements. They also use premiums, such as a small toy in a McDonald's Happy Meal, to increase product purchases by children online and on television.³⁸

Celebrity endorsements. Celebrity endorsements also help sell products.³⁹ Athletes are depicted on cereal boxes and appear onscreen wearing and using specific athletic clothes and gear. Children who like those celebrities are expected to purchase these products.

Product placement. Product placement was first recognized as a successful marketing technique when the character E.T. in Steven Spielberg's 1982 movie of the same name ate Reese's Pieces, resulting in a national spike of 66 percent in product purchases.⁴⁰

In television programs or movies, brands are not only used by characters, but even become characters. For instance, Charlie the Tuna, Twinkie the Kid, and Mrs. Butterworth fight against the evil brand X products in a film titled *FoodFight!*.⁴¹ Such marketing exposure increases a consumer's familiarity with a product and can result in a favorable opinion of a brand.

Another form of product placement involves websites whose sponsors put their logo on the page. For instance, Bolt, a popular website for teens, had a Pepsi logo on its music page.⁴² Every time users go to the music page, they are spending time with Pepsi, thereby increasing their brand awareness. Corporations typically retain a product placement agency for an annual fee; they pay additional fees for each placement, with the cost dependent on whether the product simply appears or is used and labeled.⁴³

Marketers also use product placement in gaming. Traditional console games cannot be changed, making them an expensive venue for product placement.⁴⁴ But online games, which can be updated frequently, are more suited for product placement.⁴⁵ Although gaming has historically been more popular with boys than with girls,⁴⁶ many companies are now trying to get girls to play branded games as well.⁴⁷

To appeal to this now extensive gaming audience, advertisers have developed advergames, online video games with a subtle or overt commercial message where the use of product placement is common.⁴⁸ In advergames, marketers not only ensure that users' eyes are on the embedded advertisement, but also know how long the user is engaged with the brand and can track the user's exact behavior. For example, whenever players run

over Coke cans in an arcade-style basketball advergaming called *Live the Madness*, their performance is enhanced: they can run faster, for example, or dunk the basketball.⁴⁹ The implicit message is that Coke will make you a better athlete.

One of the most popular sites on the Web is Candystand, sponsored by Kraft Entertainment. Fruit Stripe Photo Safari, the most popular game in Candystand, allows players to take photos of wildlife as the company promotes Fruit Stripe gum. These photos go into an online album, and children gain bonus points for taking “good pictures.”⁵⁰ While fun for children, the point of the game from the marketers’ perspective is to create a website where children will continue to play the game and have extensive exposure to the products on the website. Sites like neopets.com, which are popular with preadolescent, or “tween,” girls, also let children “buy” foods, such as Uh Oh Oreo cookies, to feed their virtual pets using points that they have earned by playing games.⁵¹ All of these stealth techniques foster immersive branding, potentially creating favorable views and memories of specific products.⁵²

Marketers are increasingly building brand awareness and loyalty through video games.⁵³ A successful game means a successful product as the consumer is engaged, interested, and focused on the product.⁵⁴ Now that games can be downloaded, marketing can be transmitted by cell phones and other digital devices.⁵⁵

Viral marketing. Viral marketing is the “buzz” created when people talk about a product to one another, either in real or virtual conversation.⁵⁶ Marketers use various forms of viral marketing, including capitalizing on the spontaneous talk about a popular website. They also pay “alpha” kids to use a product

so that others will notice and want to buy it.⁵⁷ The human touch by friends also escalates sales. For instance, e-mail sent by friends forwarding information about a freebie from a website is ten times more likely to be opened than is unsolicited e-mail.⁵⁸ Online chat and other kinds of viral marketing are also used to get the trust of gamers.⁵⁹ Viral marketing is especially effective with teens, particularly if it involves big discounts, attractive products, and meaningful freebies.⁶⁰

Online interactive agents. Online interactive agents are a virtual form of stealth advertising. Marketers program robots, or bots, to reply to surfers who initiate a conversation.⁶¹ Such bots are programmed to respond to users in a one-on-one relational way that builds brand loyalty, as for instance, with virtual bartenders who “talk” to those who visit their sites.⁶² These alcohol-related websites feature humor, games, and hip language to appeal to minors.⁶³

Video news releases. Video news releases, in which companies circulate stories about their products, are a form of virtual advertising that is used on television by every single news organization.⁶⁴ For instance, General Mills will send out a news story about Cheerios featuring a factory tour and a giant Cheerio made just for the occasion.⁶⁵ Video news releases, which are cheaper than traditional advertisements, are neither presented nor labeled as advertisements, thus potentially breaking down the more critical stance that older viewers take when viewing an advertisement that they understand is trying to sell them a product.

Integrated marketing strategies. Another new marketing trend is the use of integrated marketing strategies, particularly with branded characters driving interest across media platforms.⁶⁶ Companies charge advertisers a fee

for licensing popular children's characters for multimedia applications in TV, books, CD-ROMs, games, and movies to sell products.⁶⁷ Integrated marketing will use, for example, SpongeBob the television character, who becomes a movie character who markets Burger King products with SpongeBob premiums as rewards for product purchases.⁶⁸ Toys, both large and small, are key to such marketing campaigns.⁶⁹ These strategies integrate different media, as well as different product lines by tying food to toys.

Marketers are increasingly building brand awareness and loyalty through video games. A successful game means a successful product as the consumer is engaged, interested, and focused on the product.

Tracking software and spyware. Not surprisingly, marketers want to know who is visiting their websites to find out how effective their marketing strategies are. Using so-called cookies, or electronic bits of data placed on a computer from a website, coupled with registration forms to those sites, marketers can create an extensive data file about each individual user's preferences for places and products.⁷⁰

Bolt has pioneered such activity by using communication tools to enable users to interact with others or to create content. Three million teens, 70 percent of whom live in the United States, registered with their site in just three years. Bolt uses supercomputers to analyze the data provided by users and then forecasts trends for marketers.⁷¹ Bolt also

sends information that individual teens want at their website to their wireless devices such as cell phones and pagers.⁷²

Bolt users are aware of these data collection practices, and Bolt does not sell individual data to marketers. Other companies, however, have been less scrupulous in their business practices with their online visitors. Some marketers spy on their users by tracking what they do online. Spyware is installed when files are downloaded; these files are then inserted on the user's hard drive and send information back to the marketer. In Netspeak, these are called "E.T. applications" because they "phone home" to report back what they learn about the user. Such information, which can be detailed and intrusive, includes the person's name, address, phone number, ad clicks, and buying patterns. Adam Cohen describes these applications as Trojan horses: they violate the privacy of users, commandeering their own computers to spy on them without their knowledge. Applications that spy on users include zBubbles, which helps users make consumer decisions, DoubleClick, and even SurfMonkey, a program that is supposed to protect children when they are online. A program called RealJukebox, which allowed users to transfer music from the Web and CDs to their PCs, also surreptitiously sent information back to RealNetworks about the kind of music the person liked. This practice violated the privacy of minors even though it was not technically illegal. Privacy concerns were also raised when DoubleClick purchased Abacus Direct and attempted to link online knowledge about consumers with traditional marketing techniques where targeted product offers would be delivered by the postal service.⁷³

Marketers publicly say that user information is used only in an aggregate form as supercomputers take all this data and analyze it for

consumer trends to get an advantage over the market. Nevertheless, a company can use this information to inform marketing strategies. For instance, the company can send individual users different ads rather than the same ones repeatedly, thereby avoiding overexposure and maximizing interest and potential sales. Moreover, some websites state that their privacy policies can change without notice.

In summary, although television is still the dominant venue for advertising, marketers are exploring new ways to market to children and adolescents through online media and wireless devices, often using stealth techniques whereby consumers are immersed in branded environments, frequently without knowing that they are being exposed to sophisticated marketing campaigns. Marketers carefully analyze children's and adolescents' interest patterns, focusing on games for "tweens," as well as communication software for teens. Tracking these patterns provides extensive information that marketers now analyze in aggregate form, but that can, in the future, be used for one-on-one relational marketing strategies directed at specific individuals.

Content Analyses of Advertising and Marketing Practices in Children's Media

Using content analysis, researchers examine large samples of television programs and online websites and games, focusing on the nature of the products advertised, the production techniques used, and, in the case of television advertisements, the length of the commercials.

Program Content

Content analyses of children's television programs aired by major broadcasters have

for years revealed a heavy reliance on certain key products: sugar-coated cereals, fast-food restaurants, candy, soft drinks, and toys, and even alcohol and tobacco.⁷⁴ As cable became more prevalent in U.S. households, researchers compared the kinds of products being advertised on major national broadcasts, independent stations, and cable channels. They found that 75 percent of all advertisements they examined featured sugar-coated cereals, sugared drinks and snacks, and fast foods.⁷⁵ Sugar-coated cereals, snacks, and drinks dominated advertisements on the major broadcasters; toys, those on the independent stations. The products advertised to children on cable networks varied more widely than those on the other two media and included telephone services for children to call.

Content analyses of online marketing practices reveal similar patterns. One study of children's online advergames found that sugar-coated cereals dominated those sites and that advertisers used animation to provide a perceptually interesting and enjoyable online gaming experience.⁷⁶ A study of the nutritional value of products on food websites, such as Lay's Potato Chips, found the food products high in calories and low in nutritional value.⁷⁷ In an analysis of ten popular children's websites, Lisa Alvy and Sandra Calvert found that 70 percent of the sites marketed food and that the food, including candy, sweetened breakfast cereals, snacks, and fast food, was high in calories and low in nutritional value. The sites used perceptually grabbing techniques, including animation, bold and colorful text, and branded characters.⁷⁸

Tobacco advertisements were once prevalent on radio and television. Because of the documented health hazards of smoking, the Federal Communications Commission invoked the Fairness Doctrine in 1967,

requiring one public service announcement to be run for every three tobacco ads; in 1970, a law banned tobacco advertising from radio and television. Even so, characters in television and films continue to smoke.⁷⁹ Although tobacco can no longer be advertised on television, one study found that the less strictly regulated online world features numerous tobacco and cigar sites and depicts smoking as a hip activity. Advertisers use virtual bartenders on alcohol-related sites to create one-on-one relationships with youth. The sites use games, humor, and hip language to attract children and youth.⁸⁰

Length of Commercials

The amount of time allocated to advertisements in children's programs is regulated by the Federal Communications Commission (FCC).⁸¹ The implementation of the Children's Television Act (CTA) by the FCC now limits advertisements on children's commercial television stations to 10.5 minutes an hour on weekends and 12 minutes an hour on weekdays, though these limits are frequently violated. For instance, one in four of the 900 U.S. commercial television stations showed more commercial material than allowed by the CTA from 1992 through 1994; in 2004, the FCC levied a \$1 million fine against Viacom and a \$500,000 fine against Disney for showing more commercial material than allowed by the CTA.⁸²

More than three decades ago, F. Earle Barcus examined the share of airtime devoted to commercials on two samples of children's programs, one collected in 1971 and the other in 1975. In the 1971 sample, about 20 to 25 percent of the time in children's Saturday morning cartoons was allocated to advertising. By 1975, political pressure on commercial broadcasters from advocacy groups such as Action for Children's Television led the

National Association of Broadcasters to reduce the share of commercial time on children's television programs to 15 percent. But to keep the same number of advertisements, the airtime of individual commercials was reduced from sixty to thirty seconds, with the result that more commercials could be screened in less time.⁸³ Similarly, a study by

Although tobacco can no longer be advertised on television, one study found that the less strictly regulated online world ... depicts smoking as a hip activity.

John Condry examined advertisements on children's television programs sampled in 1983, 1985, and 1987. Although the overall time allocated to advertisements remained the same, the number of ads increased because the airtime of commercials had fallen further to fifteen seconds.⁸⁴ One study found that the major national broadcasters showed the most commercials and that cable channels presented the fewest, in part reflecting the fact that cable revenues include paid subscriptions as well as advertisements.⁸⁵

Products marketed online are subject to no time limits. Indeed, some of the online children's websites are built around specific products, such as the silly rabbit from Trix cereal, which means that 100 percent of the time children play on these sites can be devoted to advertising. The advergames on these sites encourage children to play with products in a fun, enjoyable context.⁸⁶ Such marketing practices are not allowed on television.⁸⁷

In summary, content analyses of both television and websites reveal a heavy marketing focus on food products that are high in calories and low in nutritional value. Marketers use perceptually salient production techniques to attract attention and interest. Branded characters designed to promote specific products populate both television and online sites. Considerable time is allocated to advertising and marketing in children's television programming and now on children's websites, which are regulated by the Federal Communications Commission and the Federal Trade Commission though fewer regulations exist for marketing on the Internet. Products that are banned from television advertisements, such as smoking tobacco, have migrated to their new online home.

How Marketing Practices Affect Children

To explore how marketing affects children, I turn first to theories of cognitive development that address age-based differences in children's understanding of commercial content. I then examine empirical research about children's developing cognitive processes and about how exposure to advertising and marketing affects behavior. The effects of advertising and marketing depend on the attention children pay to the advertisement, how well they remember the content, and how well they comprehend the advertiser's intent, as well as on their subsequent purchasing behavior.

Developmental Differences in Children's Learning from Media

One key area in research on the effect of advertising on children has been analysis of age-based changes in children's ability to understand commercial messages, particularly their intent.⁸⁸ Before they reach the age of eight, children believe that the purpose of

commercials is to help them in their purchasing decisions; they are unaware that commercials are designed to persuade them to buy specific products.⁸⁹ The shifts that take place in children's understanding of commercial intent are best explained using theories of cognitive development.

Developmental psychologists, as well as researchers in communication and marketing, often apply three stages of Jean Piaget's theory of cognitive development—preoperational thought, concrete operational thought, and formal operational thought—to explain age-based differences in how children comprehend television content.⁹⁰ During the stage of preoperational thought, roughly from age two to age seven, young children are perceptually bound and focus on properties such as how a product looks. Young children also use animistic thinking, believing that imaginary events and characters can be real. For instance, during the Christmas season, television is flooded with commercials that foster an interest in the toys that Santa will bring in his sleigh pulled by flying reindeer. Young children “buy in” to these fantasies and the consumer culture they represent. Preoperational modes of thought put young children at a distinct disadvantage in understanding commercial intent and, thus, in being able to make informed decisions about requests and purchases of products.⁹¹

With the advent of concrete operational thought, between age seven and age eleven, children begin to understand their world more realistically. They understand, for example, that perceptual manipulations do not change the underlying properties of objects. More important, they begin to go beyond the information given in a commercial and grasp that the intent of advertisers is to sell products. By the stage of formal operational

thought, about age twelve and upward, adolescents can reason abstractly and understand the motives of advertisers even to the point of growing cynical about advertising.

Building on Piaget's theory, Deborah John constructed a three-tiered model of consumer socialization: the perceptual stage (roughly age three to seven); the analytical stage (roughly age seven to eleven); and the reflective stage (roughly age eleven to sixteen). The perceptual stage is characterized by "perceptual boundness" as children focus on single dimensions of objects and events, thereby limiting their decision-making skills as informed consumers. During the analytical stage, as children gain the ability to analyze products according to more than one dimension at a time, their knowledge of advertiser techniques and brands becomes much more sophisticated. During the reflective stage, a mature understanding of products and marketing practices results in a relatively sophisticated knowledge of products and advertiser intent. Even so, all children can be influenced to purchase certain products if the products are made attractive enough to consumers.⁹²

Integrating a variety of different theoretical perspectives, Patti Valkenburg and Joanne Cantor advanced a developmental model of how children become consumers. In the first stage (birth to two years), toddlers and infants have desires and preferences, but they are not yet true consumers because they are not yet truly goal-directed in their product choices. During the second stage (two to five years), preschoolers nag and negotiate, asking for and even demanding certain products. At this point in their development, young children do not understand the persuasive intent of commercials; they focus on the attractive qualities of products and cannot keep their

minds off the products for long. These developmental characteristics make them extremely vulnerable to commercial advertisements. By the end of this stage, children replace whining and throwing tantrums to get a desired product with more effective negotiation. In early elementary school (five to eight years), children reach the stage of adventure and first purchases. They begin to make clearer distinctions between what is real and what is imaginary, their attention spans are longer, and they make their first purchases outside the company of their parents. In the final stage (eight to twelve years), elementary school children are attuned to their peer groups' opinions. Their critical skills to assess products emerge, and their understanding of others' emotions improves considerably. In the later years of this stage, interest shifts from toys to more adult-like products, such as music and sports equipment. Although children's consumer behaviors continue to develop during the adolescent years, the foundation is laid in these early years with a progression from simple wants and desires to a search to fulfill those desires to making independent choices and purchases to evaluating the product and its competition.⁹³

Fewer theories address the ways in which commercial messages influence children in interactive media exchanges. Research on how children learn from interactive media builds on developmental theories such as those of Jean Piaget and Lev Vygotsky, both of whom argued that knowledge is constructed through interactions between the knower and the known. Although such interactions do occur as children view television and film, including advertisements, they are different in the newer interactive technologies, which allow for greater user control and interchanges. Interactive technologies are based on dialogue and turn-taking—a child takes a

turn, then a computer responds and takes a turn, then the child takes a turn again. In essence, a conversation is taking place in which each response made by a child leads to potentially different content being shared.⁹⁴ Learning takes place through contingent replies, responsiveness to the user, and turn-taking, tools that can enhance learning in any kind of interaction, whether human or simulated with intelligent artificial agents.⁹⁵ The nature of the conversation that can take place, however, depends on the child's developmental level. For instance, children under age eight may well believe that they are really interacting with branded characters while older youth understand the differences between what is real and what is imaginary.

Because interactive media incorporate and build on a child's actions, they have an edge over traditional media like television in tailoring their message. In particular, an interactive medium is "smart" and can potentially take into account each learner's knowledge base and adapt the message accordingly. In an interactive medium, advertisers can transmit their message effectively by responding explicitly to the user's developmental level and knowledge base—a distinct advantage when marketers are trying to persuade a child or adolescent to buy a product, particularly given the varying knowledge bases during the childhood years.

The surreptitious presentation of messages about products in online forums can also tap into children's implicit memory, which involves learning without conscious awareness.⁹⁶ For example, embedding a marketed product into entertaining content creates favorable attitudes about that product without the user even being aware.⁹⁷ Precisely how implicit processes influence consumer attitudes and product choices awaits further study.

The trend toward increased advertising online makes children more vulnerable to marketing. Once a television viewer watches an advertisement, that viewer must act on the message if a product purchase is to occur. That action can involve multiple steps: requesting the product from a parent, pulling it from a shelf while shopping with a parent, and making a purchase. The delay between seeing an advertisement and being in a store where the product can be purchased is also a potential disruption to a purchase. By contrast, newer interactive interfaces involve a user directly in the content; actions can range from clicking on a television icon to transport a child directly to a website where he can purchase the advertised product,⁹⁸ to having a cell phone elicit purchase-oriented behaviors.⁹⁹ In newer technologies, the distinctions between the commercial and program content can be blurred in a seamless presentation. The time between being exposed to the product and purchasing it can also be greatly diminished. These changes have major implications for children, who are more vulnerable to commercial messages than adults are.

How Children Process Advertisements

To be effective, marketing campaigns must get children to attend to the message, desire a specific product, recognize and remember that product, and purchase it.¹⁰⁰ How well children understand the persuasive intent of advertisements also affects the success of commercials.

Attention. Commercials that are designed to attract and hold children's attention are characterized by lively action, sound effects, and loud music.¹⁰¹ The animated character Tony the Tiger, for example, bursts onto the screen, proclaiming that Kellogg's Frosted Flakes are "GRRRRREAT!!" One study found that preschoolers paid more attention

Embedding a marketed product into entertaining content creates favorable attitudes about that product without the user even being aware.

to commercials full of action, sound effects, and loud music than to more low-key commercials.¹⁰² Audio features are particularly important in gaining children's attention. Another study found that children aged three to eight were more attentive to commercials that were higher in audio than in video complexity.¹⁰³ Audio features have more recruiting power than visual features because interesting sounds can get children who are not looking at the television screen to direct their visual attention to it. These findings are consistent with Piaget's insight that young children are especially focused on the attention-getting perceptual qualities of presentations.

Children's patterns of attention help reveal how well they can make distinctions between the commercial and the television program. In one study, researchers trained mothers to examine their children's visual attention to Saturday morning cartoons and advertisements. The mothers reported that the younger children (five to eight) continued to pay attention when a commercial came on but that children older than eight looked away. The older children's awareness of the break in the content suggests that they are less susceptible than the younger children to the effects of advertising.¹⁰⁴

Recognition and retention. Advertisers use visual and auditory production techniques and repetition to enhance children's memory of the content. One study found that pre-school, kindergarten, and second-grade children remembered food products that had been advertised audiovisually or visually better than they remembered products presented in an audio version only.¹⁰⁵ Advertisers use catchy auditory features, such as jingles, repetitively in commercials to reach child audiences.¹⁰⁶ Song lyrics and rhymes can replay in children's heads, leading to automatic rehearsal and memory of content.¹⁰⁷

When children are shown the same commercial repeatedly, they are more likely to remember the product advertised.¹⁰⁸ Repetition also undermines children's, even older children's, defenses against product messages.¹⁰⁹

Comprehension of commercial intent. As noted, children younger than age eight do not understand that the intent of commercials is to persuade them to buy one product over another; instead they see commercials as a means of informing them about the vast number of attractive products that they can buy.¹¹⁰ In a key study demonstrating the developmental advance during middle childhood, Thomas Robertson and John Rossiter questioned first-, third-, and fifth-grade boys about their understanding of commercials. Only half of the first-grade boys understood the persuasive intent of commercials, as against 87 percent of third graders and 99 percent of fifth graders.¹¹¹

Product requests and purchases. What aspects of exposure to commercial messages lead to product requests? Researchers have found that repetition, in particular, increases children's requests for, and purchases of, specific food, beverage, and toy products.¹¹²

One study, for example, measured three- to eleven-year-old children's overall exposure to advertisements at home and to specific advertisements in their laboratory. They then had children visit a mock grocery store with a parent. Children who were exposed to more overall advertisements at home and who were most attentive to advertisements in the laboratory setting made the most requests for the advertised products.¹¹³

Another purported, though rarely studied, outcome of children's commercial exposure is an increased emphasis on materialism among younger children.

Premiums—bonus toys and treats that accompany the product—also increase children's product requests. For instance, Charles Aitkin found that 81 percent of mothers thought that premiums influenced their children's cereal selections. The more children watched Saturday morning television programs, which are saturated with cereal commercials, the more children wanted the cereals that contained premiums.¹¹⁴ Free downloads such as screen savers serve similar functions in newer technologies, but researchers have not yet fully examined the effects of such practices.

Does Exposure to Advertising Affect Children's Behavior?

Exposing children to commercial messages can lead to negative outcomes, including parent-child conflict, cynicism, obesity, and possibly materialistic attitudes.

For both younger and older children, not every request for a product leads to a purchase. Being denied a product can lead to conflict between parent and child.¹¹⁵ For instance, Aitkin found that when parents denied children's requests for products, children who were heavy viewers argued about the purchase 21 percent of the time, while light viewers argued only 9 percent of the time.¹¹⁶ Advertisers call this the "nag factor."

In a review of research, one study found a causal relationship between children's viewing of television commercials and their pestering parents in the grocery store.¹¹⁷ As suggested by the model created by Valkenburg and Cantor, "pester power" seems to be a preferred tactic of young children.¹¹⁸ For example, four- to six-year-olds rely on nagging, crying, and whining to get their parents to buy them products.¹¹⁹

Children can also become cynical as they begin to understand the underlying persuasive messages of advertisements. For example, sixth and eighth graders who understand more about commercial practices, such as using celebrity endorsements, are more cynical about the products.¹²⁰ Even so, children who are repeatedly exposed to attractive messages about "fun" products still want them, even if they are aware of advertiser selling techniques.¹²¹ The implication is that even though children—and adults too, for that matter—may know that something is not what it seems, that does not stop them from wanting it.

Because so many advertisements targeted to children are for foods that are high in calories and low in nutritional value, concerns have been raised that food advertisements are partly to blame for children being overweight and obese.¹²² A comprehensive review of

the empirical literature on food advertising, conducted by a National Academies panel that was charged by Congress to investigate the role of marketing and advertising in childhood obesity, concluded that television food advertisements affect children's food preferences, food requests, and short-term eating patterns. The panel was unable, however, to conclude that television food advertising had causal effects on child obesity, because the data were, by necessity, correlational, not causal—one cannot ethically conduct research to cause some children to become overweight and obese.¹²³ Research on the effect of newer forms of food marketing on obesity, such as practices that take place online, is notably lacking.

Another purported, though rarely studied, outcome of children's commercial exposure is an increased emphasis on materialism among younger children. Preadolescent girls, for example, are now purchasing more and more clothing, make-up, and other products that were formerly targeted to an adolescent teen market.¹²⁴ An American Psychological Association task force has argued that heavy advertising and marketing campaigns are leading to the sexualization and exploitation of young girls.

The Potential Mediating Role of Families and Parents

Children, particularly young children, are exposed to advertising and marketing primarily within the family home. Moreover, parents provide the financial resources that allow their children to purchase products.¹²⁵ How parents handle their children's exposure to advertising and their requests for products can be influential in shaping the way their children respond to advertised products and how advertising affects children's developmental outcomes.

Parents can be involved in their children's television viewing in three ways. In *coviewing*, parents simply watch programs with their children without discussing content; in *active mediation* (also called *instructive guidance*), parents discuss the program with their children to help them understand the content or the intent of advertisements; and in *restrictive mediation*, parents control the amount or kind of content that their children view.¹²⁶

Although studies are sparse, researchers have demonstrated that both active mediation and restrictive mediation can reduce children's requests for advertised products. One study, for example, manipulated mothers' use of information to influence eight- to ten-year-old children's interest in advertised products. Mothers responded to their sons' exposure to toy commercials using power-assertion (restrictive mediation), reasoning (active mediation), and no information (*coviewing*). Mothers had little influence over boys' choices regarding highly attractive advertised products regardless of which response they made to their children's exposure to advertising. By contrast, those mothers who used reasoning techniques were able to affect whether the boys chose moderately attractive products. In short, all forms of parental mediation appear powerless in the face of a child's choice of a highly attractive product, but reasoning, an active mediation approach, can affect the choice of a moderately attractive product.¹²⁷

Restrictive mediation, in which parents enforce rules about television use, can also diminish children's requests for products. For example, Leonard Reid found that children whose parents restricted their television viewing made fewer requests at home for advertised products, presumably because they had learned that their requests would

be denied.¹²⁸ Put another way, families create tacit rules about television advertising beyond the commercial itself, and those rules influence how children behave.

Coviewing with children does not appear to be effective in countering the effect of advertising. One study explains that when parents view the content with their children, children take their parents' silence as an implicit endorsement of the content.¹²⁹ Parents thus need to influence actively how their children, particularly young children, perceive advertisements. But apathy, rather than vigilance, appears to be the norm for parents when children are viewing television commercials.¹³⁰

Marketing in Schools

Because the proliferation of media channels has reduced the average audience size for children's programs, marketers have turned to schools as a way to maximize their audience for commercial messages.¹³¹ And many financially strapped schools are open to multibillion dollar contracts with businesses.¹³² Neither schools nor states typically regulate commercial activities in schools.¹³³

Principals, who are often the gatekeepers to their schools, generally see commercialism as a way to improve their schools, as well as their students' educational outcomes. For example, one study found that high school principals in North Carolina did not believe that their students were unduly influenced by corporate advertising in their schools. Moreover, most principals said that they would continue the relationship with their corporate sponsor even if funds were available for school activities.¹³⁴

The commercialization of schools includes such practices as in-school advertisements, the sale of "competitive" foods (those

from vending machines, fast food outlets, and school fundraisers that compete with cafeteria food), and corporate-sponsored educational materials. Efforts to counter the effects of commercial messages are limited by children's age and cognitive level. Schools have used media literacy programs with some success for older children, but the messages of these programs may be muted when they are embedded in a heavily commercialized school environment.

Television and Internet Advertisements in the Classroom

Established in 1990, Channel One broadcasts ten minutes of news designed specifically for adolescents as well as two minutes of commercial messages (86 percent of the messages are for commercial products, 14 percent for public service announcements) into 370,000 classrooms every school day.¹³⁵ In exchange for a captive audience of approximately 8 million U.S. school children,¹³⁶ Channel One provides free video equipment and satellite connections to each classroom in participating schools, many of which would be unable to pay for such technology otherwise.¹³⁷ Early on, Channel One was banned by several states, including California, Massachusetts, North Carolina, and Washington, for promoting a commercial atmosphere in schools.¹³⁸ But students in some 12,000 schools, 38 percent of all U.S. middle and high schools, now view Channel One, and 1,000 more schools expect to begin airing Channel One in the next few years.¹³⁹ An associated website, Channelone.com, is also available.¹⁴⁰

An early content analysis of Channel One television advertisements, conducted by Tim Wulfemeyer and Barbara Mueller, found that the most frequently advertised products were jeans, candy, shampoo, make-up, gum, razor blades, breath mints, acne cream, deodorant,

athletic shoes, corn chips, catsup, movies, and cough drops. The food products were all low in nutritional value. Classroom observations, however, revealed that students paid little attention to the advertisements and chose instead to talk, joke, and look around the room.¹⁴¹

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Other studies, however, have found that commercials on Channel One do affect students. Bradley Greenberg and Jeffrey Brand compared high school students who had been exposed to Channel One for a year and a half with a control group who had not been so exposed. They found that the students who had viewed Channel One commercials in their classrooms evaluated the advertised products more favorably, stated that they intended to purchase them more (though they did not in reality do so), and had more materialistic attitudes than the control students who did not watch Channel One. The findings suggest that viewing Channel One commercials does influence the audience, though the effects seem to be more on student attitudes about the products than on their purchasing behaviors.¹⁴²

According to Claire Atkinson, Channel One's advertising revenue has been declining of late, dropping 11 percent in 2003 and an ad-

ditional 12 percent in 2004. The declines are attributable in part to the decision by Kraft Foods to eliminate all in-school marketing effective July 2003. In part because of the nation's obesity epidemic, food marketers such as Kraft Foods and Kellogg's are repositioning their portfolios and messages to more healthful ones, thereby undermining the financial base of Channel One. Although still profitable, Channel One faces the additional financial pressure of upgrading to digital equipment.¹⁴³

The company Zap Me offers middle schools and high schools fifteen computers plus Internet connections, printers, and access to educational websites in exchange for using the equipment for a minimum of four hours daily. In 2000, Zap Me had been installed in approximately 9 percent (1,800) of U.S. secondary schools. Advertisements are shown on the computer screen, and tracking equipment is available on the computers.¹⁴⁴ As soon as students log into the computer, the system knows the user's age, sex, and zip code.¹⁴⁵ Students' privacy is an issue as marketers are able to gather very explicit information about individual product preferences, though Zap Me claims to look at data only in an aggregate form.¹⁴⁶ Because of the commercial aspects of Zap Me, some school districts refuse the free equipment.¹⁴⁷

Competitive Foods

Competitive foods from vending machines, snack bars, and school fundraisers are available in schools but are not part of the federal school lunch, school breakfast, or after-school snack program. Although a major source of revenue for schools, competitive foods are often high in calories and low in nutritional value, thereby creating concerns that these marketing practices contribute to the current obesity epidemic.¹⁴⁸ Pouring contracts,

in which specific companies have exclusive rights to sell soda, other beverages, and snacks in vending machines, are a controversial practice in schools.¹⁴⁹

Some three-quarters of high schools, half of middle schools, and one-third of elementary schools have exclusive pouring contracts with a company. In return, the schools receive a specific share of sales or incentives such as equipment once they reach a certain level of sales. Obtaining maximum benefits from a pouring contract thereby contributes to an increasingly commercial school atmosphere.¹⁵⁰

Fast-food restaurants also negotiate contracts to sell food to youth in school. Branded fast-food restaurants such as Taco Bell, Pizza Hut, and Subway operate in about 20 percent of high schools.¹⁵¹ One study found that in addition to negotiating contracts within schools in Chicago, fast-food chains placed restaurants within easy walking distance to schools. Such placements, according to the study, expose children to foods of poor nutritional quality, because youth consume more fat, sugars, and sugared drinks and fewer fruits and vegetables on days when they eat at fast-food restaurants.¹⁵²

Fundraisers whose proceeds allow students to purchase uniforms or go on school trips are also part of the marketing landscape of everyday school life, as are the logos that companies place on uniforms, school billboards, and athletic scoreboards in exchange for donating resources to schools.

Although pouring contracts, fast-food restaurant contracts, and fundraisers generate substantial income and are common in middle and high schools, some state legislatures and school districts, such as those in California, have outlawed them or have

created nutritional standards for competitive foods.¹⁵³ Some school districts now have more stringent food standards than do federal or state laws.¹⁵⁴

Commercial Educational Classroom Materials

A final marketing practice within schools involves the content that children read. Specifically, businesses donate industry-sponsored educational materials to schools to supplement the curriculum.¹⁵⁵ For example, students may encounter industry-sponsored content such as Domino's Pizza Encounter Math or the Oreo Cookie Counting Book.¹⁵⁶ Such material often provides biased or incomplete information on a topic, making it misleading at best when presented as educational material.

Media Literacy Training Programs

Media literacy training involves school-based efforts to teach children to understand media conventions, such as advertising techniques. The programs are effective with older children, but not with children younger than age eight, who do not understand persuasive intent.¹⁵⁷

In one effective consumer education program created by Donald Roberts and several colleagues, fourth, sixth, and eighth graders viewed either *The Six Billion \$\$\$ Sell* or a control film. Children who viewed the treatment film, which taught advertising techniques, were more skeptical about advertisements immediately after viewing the film and were more sophisticated in understanding and applying advertising techniques one week later. The researchers found similar, though somewhat less strong, effects for second, third, and fifth graders who viewed *Seeing through Commercials* compared with students who viewed a control film.¹⁵⁸

Using strategies from mediation research, another study examined an alcohol-related media literacy program. Third graders who were exposed to the program understood the persuasive intent of the commercials, were less interested in imitating the characters, and had more negative views of drinking alcohol than did those in the control group.¹⁵⁹

Regulation of Marketing Practice

Because of age-based limits in children's ability to understand advertiser intent, the Federal Communications Commission has placed safeguards into the television advertising marketplace to protect young child audiences. Among the guidelines is the separation principle, which consists of three components. First, the transitions between an advertisement and the program content must be distinct; the program must use a constant production convention, such as "After these messages, we'll be right back," to separate program and commercial content. Second, "host selling" is not allowed. That is, the main characters on a television program cannot sell products during that program or during blocks of commercial time adjacent to it. And, third, products being sold cannot be integrated into program content (a practice that resembles the common practice of product placements).¹⁶⁰ In addition, the FCC has limited the time allocated to commercial content during a given hour of children's programs. It also requires "tombstone shots" that show the unadorned product in a still frame shot without all the extra toys that can be purchased with it.¹⁶¹

While the FCC is charged with regulating media, the Federal Trade Commission (FTC) is charged with regulating advertising.¹⁶² The Children's Advertising Review Unit (CARU), a voluntary regulatory organization created by the advertising industry, enforces broadcast

standards for the industry, in part to prevent governmental interference. Although CARU has made some attempt to regulate the newer interactive technology marketing practices, many of its rules have not carried over to the Internet, video games, or cell phones. For example, websites attempt to create "sticky sites" where users spend long periods of time with branded characters.¹⁶³ Such sites feature Tony the Tiger from Kellogg's Frosted Flakes or Chester the Cheetah for Frito-Lay and create content focused solely on commercially branded products.¹⁶⁴

Early studies of online marketing practices documented the use of deceptive practices that invaded the privacy of children. For instance, popular media characters, such as Batman, would ask children for personally identifying information for a census that was being taken in Gotham City.¹⁶⁵ Did children even understand that Batman was not real? No research has been conducted to answer that question, yet the developmental literature from the television area suggests that young children may not understand that such characters are not really interacting with them.

Such practices led Congress to pass the Children's Online Privacy Protection Act (COPPA) of 1998, which placed rules on online marketing techniques to protect the privacy of children under age thirteen.¹⁶⁶ The new law, which went into effect in 2000, authorized the Federal Trade Commission to create and enforce rules for data collection practices at children's websites and to disclose privacy policies about data collection techniques as well as about how that information was to be used.¹⁶⁷

After COPPA was implemented, several agencies, including the FTC, the Center for Media Education, and the Annenberg Public

Policy Center, conducted an evaluation of website practices.¹⁶⁸ All these studies found that the majority of websites linked their home page to their privacy policy. But the studies found fewer efforts to obtain parental consent or to inform parents about how the data collected on the site would be used.¹⁶⁹

Although researchers now have a reasonably good idea of what takes place on online websites, they still know little about how children perceive, understand, or participate when asked for personally identifying information. No database as yet documents such information on the part of child consumers of different ages.

Spyware in which an outside agent installs a program on a user's hard drive, collects information about that user's behaviors without his knowledge, and then sends that information back to a marketer also poses risks that may one day cause spyware to be subjected to regulation by the FTC.¹⁷⁰ Spyware invades privacy, poses security risks, including identity theft, and can cause computers to crash, be subject to barrages of pop-up ads, and run slowly.¹⁷¹

Regulators should also address the issue of whether and how to make the regulation of newer online marketing activities consistent with traditional television and film guidelines. Such existing television standards as clear separation of commercial from program content, rules about host selling, consideration of age-based skills in understanding marketer intent, tombstone shots of the unadorned product when the camera shot is still, and limits on the amount of time children can spend seeing marketed content should be considered in the context of newer media. Product placement, the emerging and perhaps preferred replacement of the fifteen- or thirty-second

commercial, is also in need of additional study and regulation. With convergence increasingly bringing the varying forms of technologies together under one umbrella, it is sensible to have uniform standards for marketing to children across varying media platforms.

Ultimately, though, all of these practices have some protection because of the First Amendment guarantee of freedom of speech. Although advertisers do not enjoy the same freedom as everyday citizens in their right to speak as they wish, they have considerable leeway to present the content that they wish, and it is up to advocacy groups to demonstrate that any regulation is necessary. Indeed, the Central Hudson Test, the primary legal argument for limiting commercial speech, has been interpreted in recent years as calling for the least amount of interference in the advertisers' right to speak as they wish.¹⁷² Moreover, in many cases the online environment is not even constrained by U.S. law. Setting up an online shop in a different country, for example, can insulate users from prosecution for violating a number of laws that they would have to follow within the United States.¹⁷³

Conclusion

Marketing to children and adolescents is a way of life in the United States. Children have both their own disposable income and influence over what their parents buy, and marketers attempt to determine how those dollars are spent. Television now reaps most of the advertising dollars, but newer technologies are providing new ways for marketers to reach children. Marketing practices such as repetition, branded environments, and free prizes are effective in attracting children's attention, making products stay in their memory, and influencing their purchasing choices. Immature cognitive development, however,

limits the ability of children younger than eight to understand the persuasive intent of commercials. Thus, public policy regulates how advertisers can interact with children via television. Online environments are now and

probably always will be less heavily regulated than more traditional media. Although marketing and advertising fuel the U.S. economy, the cost of that economic success requires considerable scrutiny.

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Children's Media Policy

Amy B. Jordan

Summary

Amy Jordan addresses the need to balance the media industry's potentially important contributions to the healthy development of America's children against the consequences of excessive and age-inappropriate media exposure.

Much of the philosophical tension regarding how much say the government should have about media content and delivery stems from the U.S. Constitution's First Amendment protection against government interference in free speech, including commercial speech. Courts, Jordan says, have repeatedly had to weigh the rights of commercial entities to say what they please against the need to protect vulnerable citizens such as children. This balancing act is complicated even further, she says, because many government regulations apply only to broadcast television and not to non-broadcast media such as the Internet or cable television, though Congress has addressed the need to protect children's privacy online.

The need to protect both free speech and children has given rise to a fluid media policy mix of federal mandates and industry self-regulation. Jordan describes the role of the three branches of the federal government in formulating and implementing media policy. She also notes the jockeying for influence in policymaking by industry lobbies, child advocacy groups, and academic researchers. The media industry itself, says Jordan, is spurred to self-regulation when public disapproval grows severe enough to raise the possibility of new government action.

Jordan surveys a range of government and industry actions, from legislatively required parental monitoring tools, such as the V-Chip blocking device on television sets, to the voluntary industry ratings systems governing television, movies, and video games, to voluntary social website disclosures to outright government bans, such as indecency and child privacy information collection. She considers the success of these efforts in limiting children's exposure to damaging content and in improving parents' ability to supervise their children's media use.

Jordan concludes by considering the relevance and efficacy of today's media policy given the increasingly rapid pace of technological change. The need for research in informing and evaluating media policy, she says, has never been greater.

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Amy B. Jordan is director of the Media and the Developing Child sector of the Annenberg Public Policy Center of the University of Pennsylvania. She thanks Jordan Grossman and Katlin Esposito for research assistance, Angela Campbell for comments on an earlier version of this manuscript, and the participants at the Future of Children conference for their input and ideas.

In American society, freedom of speech sometimes comes into conflict with the need to protect children. On the one hand, Americans highly value the First Amendment, which guarantees media makers' right to free speech. On the other hand, Americans recognize that exposure to much of this protected speech—for example, graphic sex or gratuitous violence—can be detrimental to children's psychological, social, and physical well-being. In this article, I consider the national effort to balance media rights and responsibilities to protect the healthy development of children. I lay out the impetus for and philosophical underpinning of government media policies and industry self-regulation and consider the success of these efforts both in limiting children's exposure to harmful content and in improving parents' ability to supervise children's experience with media. I conclude by showing how the rapid evolution of media technology may affect media policymaking and by highlighting the important role of research in designing, implementing, and evaluating media policy for children.

Government Action

Government media policymakers are in the unenviable position of walking the fine (and often moving) line between the best interests of a capitalist, speech-protected society and the best interests of the vulnerable, developing child. Unlike many other public policy debates, issues related to children and media do not typically have clear partisan boundaries. A liberal Democrat is as likely as a conservative Republican to participate in public discourse about the problems and potential of media. For example, Senators Hillary Clinton (D-N.Y.), Joseph Lieberman (Ind.-Conn.), and Samuel Brownback (R-Kan.) recently cosponsored the Children and Media Research Advancement Act (CAMRA)

to authorize new funding to build a comprehensive, long-term research program to study the effects of media on children, and their bill received unanimous Senate approval.¹

Public action regarding media policy has several triggers. One is an upwelling of serious public concern about the media that comes to the attention of lawmakers—as, for example, when a national poll reveals that parents are worried about too much violence on television.² Another is the discovery of new scientific evidence suggesting a direct causal connection between the media and a negative outcome—as, for example, when a long-term study finds that heavy television viewing in the preschool years leads to greater aggression in the teenage years.³ Yet another is a focusing event that creates a greater sense of urgency for change—as, for example, the massacre at Columbine High School that some commentators believed was linked to obsessive video game playing.⁴

Who Shapes Government Policy?

Once a problem gains lawmakers' full attention, it tends to generate study groups, congressional hearings, and new legislation for regulation or research funding. All these steps involve a community of key stakeholders—academic researchers, child advocates, and industry lobbyists, among others—who work with or against policymakers as they hammer out the fine points of the legislative agenda.

The pluralist tradition of policymaking is marked by sharp competition for influence by interest groups (including industry and advocacy groups as well as governing philosophies).⁵ As the scope, reach, and impact of the media have grown over recent decades, so too has the number of media-related pressure groups in society. Action for

Children's Television, a grassroots advocacy group headed by a Boston mother, exerted influence on Congress and the Federal Communications Commission (FCC) for several decades before it disbanded with its "mission accomplished" in the late 1990s.⁶ More recently, the conservative Parents Television Council has been a key influence on legislation to increase fines for broadcast indecency through its regular reports of sex, violence, and profanity in television and its frequent complaints filed with the FCC.⁷ Industry lobbying groups, including the National Association of Broadcasters, provide a countervailing force against advocacy groups, touting the sufficiency of their own efforts at self-regulation and advocating for their First Amendment right not to have the government interfere with their speech—a constitutional guarantee that increasingly protects not only political or religious speech, but also speech delivered by commercial entities.⁸ In the midst of this give and take, policy is made.

Within the U.S. government itself, all three branches of government shape media policy. Presidential administrations can and do take up children's media issues by appointing like-minded executive agency heads or by using the bully pulpit to express their expectations or concerns. President Ronald Reagan, for example, appointed FCC Chair Mark Fowler, who, reflecting the Reagan doctrine of a *laissez-faire* government, shifted its regulatory philosophy and dropped proposals that had been in the works for years that would have required broadcasters to provide more educational programming for children.⁹ A decade later, President Bill Clinton hosted a White House Summit on Children and Media, and his FCC chair, Reed Hundt, became a critical force in defining the broadcasters' public interest obligations under the

Children's Television Act of 1990, in part by reinstating the policies eliminated under President Reagan.¹⁰

The judicial branch shapes media policy by determining the constitutionality of media law. Most challenges come on the grounds that the regulation violates the First Amendment rights of media makers. In the United States, the First Amendment prohibits the federal legislature from making laws that infringe on freedom of speech or freedom of the press. In 1978, for example, the U.S. Supreme Court affirmed the FCC's authority to restrict the public broadcast of indecent language. In this case, the FCC had fined Pacifica Foundation for the radio broadcast of George Carlin's "Seven Dirty Words" routine, which contained sexual and excretory words that the FCC considered "patently offensive."¹¹ Today's courts have also been asked to weigh in on FCC fine policies. In 2007, for example, the Court of Appeals for the Second Circuit in New York determined that FCC fines for "fleeting expletives" levied against FOX television were "arbitrary and capricious" and sent the case back to the commission saying that the indecency test is undefined and constitutionally vague.¹² Thus, interpretations and reinterpretations of the constitutionality of media policy—in particular, whether federal policy infringes upon free speech—occur with regularity in a society that grapples with how best to navigate the best interests of its citizens.

The work of legislating media policy cuts across numerous congressional committees, including the Senate Subcommittee on Science, Technology, and Innovation; the Senate Transportation Committee; and the House Subcommittee on Telecommunications and the Internet. Often, too, appropriations committees, which allocate funds to support

Table 1. Federal Children’s Media Policies

| Policy title | Source | Action |
|---|---|--|
| Children’s Television Act of 1990 | Passed by Congress Implemented by the FCC | Mandates educational television for children on commercial broadcast stations. Reestablishes commercial time restrictions. Bans host selling. |
| Three-Hour Rule (1997) | FCC processing guideline MM Docket No. 93-48 | Expects three hours a week of educational programming to qualify for expedited license renewal. Provides guidelines for allowable air times, length, on-air identification. Also clarifies the definition of educational children’s programming. |
| Telecommunications Act of 1996 | Passed by Congress | Requires television sets to include a “V-Chip” to block programs with content parents find objectionable. Requires industry to design a ratings system to work in conjunction with the device. |
| Broadcast Decency Enforcement Act (2006) | Passed by Congress Implemented by the FCC | Stations may be penalized \$325,000 for airing “patently offensive” content (sexual or excretory words) between 6 a.m. and 10 p.m. |
| Communications Decency Act (1996) | Passed by Congress Implemented by the FCC | Though much of the act has been overturned, current law imposes criminal sanctions on those who knowingly transmit obscene materials to children under eighteen; Section 230 protects websites from defamation and violation of privacy lawsuits when the material is created by others. |
| Children’s Online Privacy Protection Act (1998) | Implemented by the FTC | Requires operators of websites and online services directed to children or heavily used by children under age thirteen to obtain verifiable parental consent and keep confidential information disclosed from parents. |

authorized programs, reflect the federal government’s implicit role in shaping media culture—for example, by subsidizing the Corporation for Public Broadcasting, which provides funding to Public Broadcasting Service (PBS) and National Public Radio (NPR) stations, or by providing new grants for studying the effect of media on children, such as the Children and Media Research Advancement Act.

Table 1 outlines current federal media policies, including both congressionally enacted laws and federal agency processing guidelines related to children and media. The policies in place today reflect a legislative philosophy in which rulemaking focuses primarily on the medium (for example, television or the Internet) as a means of regulating content (for example, profanity or explicit sex). The

Telecommunications Act of 1996, the massive overhaul of the 1934 Communications Act, structures policy on a medium-by-medium basis in much the same way as the original law.¹³ For example, broadcast media (stations such as ABC and CBS, which air their programs over the nation’s free public airwaves) do not enjoy the same First Amendment protections as the Internet or even cable television. The reason: the limited broadcast spectrum historically meant that the federal government provides licenses for stations to use a particular part of the spectrum to avoid signal confusion and disruption.¹⁴ Until recently, the only way for a television or radio signal to reach household receivers was through what is known as the analogue spectrum—a limited resource that federal policy determined could not be “owned” but instead “leased” from the government. As

a result, broadcasters apply for and receive licenses on the basis that they will “serve the public interest, convenience, and necessity” and be subject to governmental oversight.

Who Implements Media Policy?

Once laws are passed by Congress, the responsibility for implementing and enforcing them is given to independent federal oversight agencies. The two key regulatory bodies for media policy are the Federal Communications Commission (FCC) and the Federal Trade Commission (FTC). Both agencies are made of up five commissioners nominated by the president and confirmed by the Senate. Only three commissioners may be members of the same political party (usually that of the president who nominates them), and one commissioner serves as chairperson. The FCC has jurisdiction over policies related to the media industry, including restrictions on content and the structure of ownership. The FTC is charged with consumer protection, for example, ensuring that advertising and marketing practices are not harmful or misleading.

Federal Communications Commission

As of this writing, the Federal Communications Commission is charged with implementing several key federal media policies related to children—most notably, the regulations involving children’s television and broadcast indecency.

After a decade when the landscape of children’s television became increasingly bleak and commercialized, Congress unanimously passed the Children’s Television Act (CTA) of 1990.¹⁵ The CTA reestablished the commercial time limits applicable to children’s programming that had been eliminated during the Reagan administration. Stations are fined by the FCC if their advertising during children’s television programming exceeds

10.5 minutes an hour on weekends and 12 minutes an hour on weekdays. The CTA also required broadcast stations, including ABC, CBS, and NBC, to increase significantly their educational offerings for children. In the years following implementation of the CTA, most stations did report airing educational programming for children. But an analysis by Dale Kunkel and Julie Canepa published in 1994 revealed that broadcasters were making dubious claims about the educational value of their programs, saying, for example, that the cartoon show *The Jetsons* was educational because it taught children about the future.¹⁶ In addition, an examination of the 1995–96 broadcast season by the Annenberg Public Policy Center showed that few of the truly educational programs (such as *Bill Nye, the Science Guy*) were being aired at times when children were likely to be awake and in the audience (they were being shown, for example, at 5 a.m. on a Saturday).¹⁷

By 1996, the political climate was ripe for reform. In their bid for reelection, Bill Clinton and Al Gore made children’s media policy an agenda item. Simultaneously, the television industry was undergoing significant economic restructuring, and government agencies were carefully watching to see if media companies would continue to willingly “serve the public interest” while morphing into multimedia, mega-conglomerates. Though negotiations between policymakers, advocates, academics, and the industry were tense, all parties ultimately agreed to a “clarification” of the CTA of 1990, which set three hours as the minimum amount of educational programming to be aired by commercial broadcasters each week.¹⁸ The industry, wanting to remain in the good graces of the FCC, promised not to challenge on First Amendment grounds the constitutionality of the so-called Three-Hour Rule.

Strictly speaking, the Three-Hour Rule is not a rule but a processing guideline that the FCC can use in determining whether a station's license should be renewed.¹⁹ Airing three hours a week of educational programs guarantees stations an expedited review of their license renewal application. Because children's educational programming is essentially the only public interest obligation checked by the FCC, adhering to the mandate virtually guarantees the rubber stamping of the application for license renewal. Thus, the federal policy provides strong economic incentives to adhere to FCC guidelines while maintaining the literal boundaries of the First Amendment by not intervening directly in content matters.

The FCC also has the legal jurisdiction to enforce restrictions on indecent material on network broadcasting, including radio and television. Obscene material is not allowed at all on broadcast stations, and profanity and indecency are restricted to the hours of 10 p.m. until 6 a.m., when children are less likely to be in the audience.²⁰ Currently, the FCC can penalize a broadcast station a maximum of \$325,000 per incident for airing "patently offensive" content (articulated as "sexual" or "excretory" content). The penalties can be applied to multiple instances of indecency in a single show, potentially pushing the fines into the millions of dollars.²¹

The current indecency regulations, however, do not apply to non-broadcast media such as the Internet or cable television because they are not part of the limited spectrum owned and regulated by the U.S. government.²² (That is, they do not reach audiences through the nation's free airwaves.) Though the Communications Decency Act (CDA), passed by Congress in 1996, imposes criminal sanctions on anyone who transmits *obscene* materials

to people known to be under age eighteen, provisions in the law regulating *indecent* content were invalidated almost immediately by the Supreme Court.²³ (Recent congressional attempts to protect children from Internet pornography, such as the Children's Online Protection Act of 1998, have similarly been struck down.²⁴) A key provision of the CDA has remained in place, however. Section 230 of the CDA protects websites from defamation and violation of privacy lawsuits when the material is created by others, a protection that non-Internet publishers do not enjoy.²⁵ From these rulings, it would appear that the courts view the Internet more as a "common carrier" (like FedEx or the phone company) and less as a medium (like newspapers or television).²⁶

The Federal Trade Commission

The primary responsibility of the Federal Trade Commission is consumer protection. The FTC has often acted to protect the interests of the child consumer, primarily by regulating (or threatening to regulate) advertising content. Advertising is protected as free speech, however, and the FTC must restrict its regulatory activities to ad content that is clearly harmful to the developing child or that exploits the vulnerabilities of a less-sophisticated audience.²⁷ The FTC's efforts to broaden its oversight have not been regarded favorably by Congress. In the 1970s, the FTC undertook a multi-year deliberation to consider the possible need for government intervention to regulate advertising directed at children. At the time, scientists were increasingly concerned about sugar consumption and dental caries, and television was the primary medium through which children learned about sugary foods and beverages. These health concerns, combined with the social concern that young children could not tell the difference between advertising and program

content, led the FTC to propose a rulemaking process that would either restrict or ban advertising to children. The proposal raised the hackles of many lawmakers, even leading some to suggest disbanding the agency. As reported by an Institute of Medicine study, "Congress subsequently objected to intrusions on private-sector advertising and pressured the FTC to withdraw its proposed rule and to conclude that evidence of adverse effects of advertising on children was inconclusive."²⁵ Today, the FTC hosts seminars and writes fact-finding reports, but broad regulatory debates take place in other arenas.

Media companies tend to be on the alert for signs of public disapproval and potential new federal actions. If they see new policymaking on the horizon, they will propose new self-regulatory measures.

The 1998 Children's Online Privacy Protection Act (COPPA) was the result of the efforts of advocacy groups, including the Center for Media Education, that were alarmed by the extent to which websites had been collecting information about their child users.²⁹ The law, which addressed privacy and security risks created when children under thirteen years of age are online, is enforced by the FTC. As noted in table 1, COPPA imposes requirements on operators of websites and online services directed to children, as well as other operators who knowingly collect personal information from children. Websites that do not comply with COPPA are fined by the FTC.³⁰

Industry Self-Regulation

Signs of renewed governmental regulatory activity often stir the industry to preemptive self-censorship. Media companies are loathe to risk FTC or FCC action and certainly do not want to jeopardize their broadcast licenses. Yet they also do not want the government to become involved in censoring their content. As a result, they tend to be on the alert for signs of public disapproval and potential new federal actions. If they see new policymaking on the horizon, they will propose new self-regulatory measures. Some scholars call this dynamic "regulation by raised eyebrow."³¹

Ratings

Nowhere is self-regulation more evident than in the voluntary ratings that media makers provide for their products. Movies, television, video and computer games, and music each provide the public with an indication of the content or age appropriateness, or both, of its titles for children. Industry rating efforts have virtually always followed episodes of heightened public concern, with government threatening to take action if the industry does not. Each medium has handled the application of ratings differently, however, with television and music producers determining ratings and film and video and computer game titles submitting to an independent but industry-funded board. Their codes and symbols differ too, leading one scholar to describe the result as "alphabet soup"³² and many advocates to call for a uniform ratings system.³³

Movie ratings came first, in 1968, after dramatic social upheavals, including the sexual revolution, Vietnam War protests, and assassinations of U.S. public figures, led policymakers and the larger public to scrutinize the contribution of media to the problems of the culture.³⁴ The structure of

Table 2. Ratings for Motion Pictures and Television

| Motion pictures | Television |
|---|------------------------------------|
| G: general audience | G: general audience |
| PG: parental guidance suggested | TV-Y: all children |
| PG-13: parents strongly cautioned | TV-Y7: directed to older children |
| R: restricted, under seventeen requires accompanying parent or adult guardian | TV-14: parental guidance suggested |
| NC-17: no one seventeen and under admitted | TV-MA: mature audience only |

Sources: www.mpa.org and www.tvguidelines.org.

the Motion Picture Association of America’s (MPAA) age-based ratings has been modified over the years, with greater distinctions made and ratings justifications provided. During the 1980s and 1990s, the ratings PG-13 and NC-17 were added to refine the four basic age recommendations of G (for a general audience), PG (for parental guidance suggested), R (for restricted), and X (for no one under seventeen admitted), eliminating the need for the X rating.

More recently, ratings have appeared on television shows other than news and sports. With the passage of the Telecommunications Act of 1996, the government required the industry to devise a ratings system or let the government provide one for it. One justification for the ratings was that parents needed a classification system to program the V-Chip blocking device on television sets mandated by the 1996 act.³⁵ Table 2 provides an overview of the age-based ratings for film and television.

Pressure from advocacy groups has led most television stations to add content descriptors to the age-ratings. These content ratings include markers for fantasy violence on children’s programs (FV), sexual content (S), violent content (V), harsh language (L), and sexual dialogue (D). The film industry also provides content descriptors. Examples include “crude and sexual humor,” “drug

references,” and “comic violence.” The 2005 Warner Bros. Pictures’ movie *Harry Potter and the Goblet of Fire*, for example, was rated PG-13 “for sequences of fantasy violence and frightening images.”³⁶

Video and computer games also are packaged to show their ratings. Similar to the film industry ratings board, the gaming industry examines titles that are voluntarily submitted and rates them for both age and content (see table 3).

Table 3. Computer and Video Game Ratings

EC (Early Childhood): contains content that may be suitable for ages three and older. Contains no material that parents would find inappropriate.

E (Everyone): contains content that may be suitable for ages six and older. Titles in this category may contain minimal cartoon, fantasy, or mild violence or infrequent use of mild language, or both.

E10+ (Everyone 10 and Older): contains content that may be suitable for ages ten and older. Titles in this category may contain more cartoon, fantasy, or mild violence; mild language; and minimal suggestive themes.

T (Teen): contains content that may be suitable for ages thirteen and older. Titles in this category may contain violence, suggestive themes, crude humor, minimal blood, simulated gambling, or infrequent use of strong language.

M (Mature): contains content that may be suitable for persons ages seventeen and older. Titles in this category may contain intense violence, blood and gore, sexual content, or strong language.

AO (Adults Only): contains content that should only be played by persons ages eighteen and older. Titles in this category may include prolonged scenes of intense violence, graphic sexual content, and nudity.

Source: www.esrb.org.

During the late 1990s, the Parents' Music Resource Center admonished the music industry for its increasingly violent, sexual, and misogynistic lyrics. The group, made up primarily of wives of prominent Washington lawmakers led by Tipper Gore, argued that such lyrics had negative effects on the psychological well-being of listeners.³⁷ After a series of Senate hearings and an extensive public debate, which weighed the well-being of children against the free-speech rights of musicians, the Recording Industry Association of America agreed to ask its members to participate voluntarily in a system of labeling their recordings and offering less explicit versions of lyrics alongside the original versions (see www.riaa.org). Today, the Parental Advisory Label system alerts parents with a warning label, voluntarily placed on recordings by producers and distributors.

Advertising Self-Regulation

Over the years, the federal government has considered and reconsidered the notion of regulating advertising directed at children

(see table 1). Today just two clear advertising laws pertaining specifically to children are in place for broadcast and cable television: commercial time limits during children's television shows and a ban on "host selling," which prohibits characters from a television show from appearing in commercials that air adjacent to or during that show.³⁸ Though the Federal Trade Commission examines complaints of deceptive or harmful advertising, most restraints on advertising to children come from within the industry, through an association funded by commercial companies. The Children's Advertising Review Unit (CARU) of the Council of Better Business Bureaus provides guidelines and evaluates consumer complaints.³⁹ For example, CARU guidelines say, "Advertisements should not convey to children that possession of a product will result in greater acceptance by peers or that lack of a product will result in less acceptance by peers." Advertisers are also admonished not to advertise products "that pose safety risks to them, i.e., drugs and dietary supplements, alcohol, products

Table 4. Food Company Pledges for Self-Regulation, Summer 2007

| Company | Pledge highlights |
|-------------------------|---|
| Cadbury Adams, USA, LLC | Cease advertising and product placement of Bubblicious brand of gum to children under twelve |
| Campbell's Soup | Advertise only products that are "sound" food choices, including lower-sodium soups and portion-controlled packages of crackers |
| Coca-Cola North America | No advertising to children under twelve; limit beverages in schools to water, 100 percent juice, and milk for elementary and middle school students |
| General Mills | Advertise only Health Dietary Choices (12 grams or less of sugar per serving) to children under twelve; license Nickelodeon characters (SpongeBob SquarePants, Dora the Explorer) to frozen and canned vegetables |
| Hershey Company | No in-school advertising or brand licensing for use on educational materials; no television advertising aimed at children under twelve |
| McDonald's USA, LLC | Advertising directed at children under twelve will be limited only to meals with less than 600 calories (for example, the four-piece chicken nugget meal) |
| Unilever | No advertising to children under age six; advertising to children aged six to twelve will meet criteria for "Eat Smart-Drink Smart" logo |
| Kraft Foods | No advertising to children under six, advertising of "Sensible Solution" products to children aged six to eleven |

Source: Children's Advertising Review Unit, Council of Better Business Bureaus.

labeled, “Keep out of the reach of children.”

Mass media marketing to children of “junk food” (foods high in calories and low in nutrition) has come under increasing scrutiny by lawmakers and advocates in light of the sharp uptick in childhood obesity rates in America. Several academic studies have linked exposure to unhealthful food advertising with childhood overweight.⁴⁰ And content analyses reveal the ubiquity of junk food advertising on the programs watched by and the websites frequented by children.⁴¹ In 2007, Congress and the FCC formed a joint task force on marketing and childhood obesity. With new regulatory action looming, more than a dozen of the nation’s largest food manufacturers pledged to limit junk food marketing and promote healthy lifestyles (see table 4).

Similarly, in 2007, the Motion Picture Association of America announced that it would consider smoking when it rates movies. “Depictions that glamorize smoking or movies that feature pervasive smoking outside of an historic or other mitigating context” may lead to a higher rating by the industry panel that decides whether a film deserves a G, a PG, a PG-13, or an R.⁴² Smoking joined violence, sex, profanity, and drug use as a red flag used by raters to judge the age-appropriateness of films. Why smoking? Why now? The historic “Master Settlement” of 1998 required the big tobacco companies such as R. J. Reynolds and Phillip Morris to pay hundreds of billions of dollars to states to spend on prevention programs. It also prohibited tobacco companies from targeting youth with ads, promotions, and marketing, such as paid-for product placements on TV and in movies. But researchers tracking the prevalence of smoking in film since 1998 found that tobacco use went up

after the settlement by 50 percent and began pressuring Congress to act.⁴³ Rather than have to respond to government inquiry and sanction, the MPAA decided to take preemptive action.

Protecting Children from Online Predators

Though no one knows for certain the extent to which children are sexually harassed or exposed to sexual predators online, the increasing popularity of social networking sites such as MySpace and Facebook has raised public and lawmaker concerns about children’s Internet-related vulnerabilities. In 2007, Senators John McCain (R-Ariz.) and Charles Schumer (D-N.Y.) introduced the Keeping the Internet Devoid of Sexual Predators Act of 2007, known as the KIDS Act, which would require convicted sex offenders to submit e-mail addresses, instant message addresses, or other identifying Internet information to law enforcement to be placed on the National Sex Offender Registry.⁴⁴ Within months of the bill’s announcement, MySpace agreed to turn over to state attorneys general the names of convicted sex offenders who had been using the site.⁴⁵

Successes and Failures of Media Policy for Children

Judgments about the success or failure of media policy to empower parents to more effectively direct children’s media use or limit exposure to potentially harmful content depend, in large part, on where one stands. Evaluations of the implementation of federal mandates suggest that the media industry will follow the letter of the law. In the case of television, for example, television manufacturers began including the computer V-Chip device in television sets sold after January 2000 to comply with the Telecommunications Act of 1996. Programmers provided ratings information for television shows to comply

with the V-Chip mandate. Broadcast networks listed the minimum three hours a week of educational programming for children in their FCC filings under the Three-Hour Rule. But did children's exposure to the "bad" of television decrease, and did their viewing of the "good" of television increase? Research says "not really."

Some observers argue that media companies live up to the letter but not the spirit of the law.⁴⁶ As a result, the usefulness of federal regulations has been widely viewed as limited in the current media environment. A study conducted by the Annenberg Public Policy Center in the year following implementation of the V-Chip mandate found that less than 10 percent of parents consistently used the device, even when they were shown how to use it.⁴⁷ Why? Post-experiment interviews with mothers revealed that many found the device difficult to locate (it was buried five menus into the RCA model provided) and confusing to program. Research at the Kaiser Family Foundation also suggests that the ratings are too complex to be effective for parents. A full decade after the V-Chip ratings were introduced, only 11 percent of parents know that "FV" is an indicator of violent content in children's programming.⁴⁸

The Three-Hour Rule has also had limited success in changing parents' practices regarding the television set. A study by the Annenberg Public Policy Center conducted two years after the mandate went into effect found that few parents knew that broadcasters were airing educational and informational programming for children.⁴⁹ Two critical obstacles appeared to block parental awareness. First, the programs considered educational by the broadcasters (for example, *Saved by the Bell*, a comedy about high school teens) were not considered educational by parents, who held a

more traditional conception of "educational." Second, parents did not recognize or understand the on-air symbol "E/I" used by broadcasters to denote educational programming.

Several years of content analyses of the commercial broadcasters' educational offerings reveal that broadcasters continue to make dubious claims about the educational value of their programs. The Annenberg Public Policy Center has consistently found that roughly one in five of the commercial broadcasters' "FCC-friendly" programs contains no discernable educational lesson. In addition, the majority of the network-provided programs are "pro-social"—they teach children lessons such as loyalty, honesty, and cooperation rather than teaching curriculum-based lessons such as science, math, or reading.⁵⁰

Though the Federal Communications Commission does not routinely screen programs to make judgments about whether a program is educational, it does act on complaints it receives. In 2005, the United Church of Christ raised concerns about commercial broadcast network Univision's educational programming lineup. After reviewing the complaint, the FCC fined Univision affiliates \$24 million for listing rebroadcasts of steamy and violent *telenovelas* (such as *Complices al Rescate*) as educational programming for children.⁵¹

Broadcast networks have also been fined for violating federal policy related to indecency. The infamous case of Janet Jackson's "wardrobe malfunction" raised the concern of lawmakers and catalyzed Congress to pass the Broadcast Decency Enforcement Act of 2005, which raised fines tenfold from \$32,500 to \$325,000 for violations. In its aftermath, FOX stations were heavily fined when Nicole Richie used profanity during the live broadcast of the Billboard Music Awards. A federal

appeals court, however, found the rule “arbitrary and capricious” and ordered the FCC to reconsider its policy on “fleeting expletives.”⁵² Indecency definitions, often vague, have frustrated broadcasters and social observers. George Carlin’s famous “Seven Dirty Words” monologue highlights the challenges in legislating language, as does the inherent contradiction of punishing stations for profanity, which virtually no studies have shown to be harmful to children, but not for gratuitous violence, which dozens, possibly hundreds, of studies have shown to be problematic.⁵³ (Lawmakers and the Federal Communications Commission have recently argued that indecency definitions should include graphic violence, particularly in the wake of the blood, gore, and torture in popular programs such as FOX’s *24*.⁵⁴)

The Federal Trade Commission, the agency charged with enforcing the Children’s Online Privacy Protection Act, has also found itself in the position of fining flagrant violators of the congressional mandate. In 2006, the FTC fined the website Xanga \$1 million, alleging that the site collected personal information from children whom it knew to be under thirteen years of age without having first obtained the requisite verifiable parental consent.⁵⁵ According to the FTC, the website stated that children under thirteen were not allowed to join. But despite this disclaimer, Xanga allowed 1.7 million visitors who submitted information indicating that they were younger than thirteen to create accounts on the website. The FTC further alleged that Xanga had not provided sufficient notice on the website of how information regarding children would be used, had failed to provide direct notice to parents about the information it was collecting and how the information would be used, and had failed to allow parents access to and control over their children’s information.

Violations of the industry’s self-regulatory practices are less widely known, primarily because investigations are not widely publicized by the industry-funded groups that track them. Some academic research has been conducted on the voluntary ratings systems, however. In one study, researchers recruited parents to rate the content of computer and video games, movies, and television programs.⁵⁶ Raters felt that industry labels were “too lenient” when compared with what parent coders would find suitable for children. Nor are ratings well understood. Perhaps because of ratings’ inconsistencies, or perhaps because parents are not fully aware of the information offered by media, many parents do not consistently use the ratings to guide their children. Though 78 percent of parents say they have used movie ratings to direct children’s movie viewing, only about half say they use music advisories, video game ratings, and television program ratings (54 percent, 52 percent, and 50 percent, respectively).⁵⁷ Even among parents who report using industry-provided ratings and advisories, most do not find them to be “very useful,” according to a Kaiser Family Foundation survey.⁵⁸

Advocacy groups such as Children Now, the Center for Science in the Public Interest, and the National Center for Missing and Exploited Children keep a watchful eye. The Campaign for a Commercial-Free Childhood, for example, sent a letter to the Federal Trade Commission decrying the heavy marketing of the PG-13-rated movie *Transformers* to young children through toy and food promotions. Citing CARU’s lack of disciplinary action, it asked the FTC to intervene. And unlike industry self-regulatory units, advocacy groups have, as part of their mission, the goal of informing the public about industry misdeeds.⁵⁹

New Media Forms and the Policy Challenges They Present

A multitude of forces shape the contours of children's media policy in U.S. society. Regulatory efforts reflect societal beliefs about the need to protect children from the harmful effects of media and society's strong interest in respecting the First Amendment rights of media makers. These tensions have tended to result in a combination of laws and voluntary self-regulation, which have the simultaneous goals of encouraging the offerings of "good" content, such as educational programming and age-appropriate choices, and limiting exposure to "bad" content, such as profanity and online predators.

Of all the many challenges facing policymakers who use regulation to empower parents and protect children, perhaps the greatest is the rapid evolution of media technology.

Congressional mandates and self-regulation must be implemented in good faith by the industry and used effectively by the public to have a serious impact on the media landscape. But, as noted, the system has kinks. Research conducted by the Annenberg Public Policy Center, the Kaiser Family Foundation, advocacy groups, and even federal agencies suggests that policies and guidelines often do not produce dramatic changes in what is available, in what children see, hear, or play, or in how parents supervise. Some observers might argue that simply holding the line on content and access—keeping violence on

television from escalating, for example, or keeping junk food ads from increasing—is a sign of policy success. Others might argue that technological solutions such as the V-Chip were never intended to be used by all homes but rather by a minority of mothers and fathers who want to be able to monitor carefully their children's media exposure.

Of all the many challenges facing policymakers who use regulation to empower parents and protect children, perhaps the greatest is the rapid evolution of media technology. Congressional leaders do not interact with new media technologies in ways that provide great insight into their capacity for good and harm. In 2006, for example, Senator Ted Stevens (R-Alaska), then chairman of the Senate Committee on Commerce, Science, and Transportation, was ridiculed on *The Daily Show with Jon Stewart* and in other public forums for trying to describe the Internet as a "series of tubes" and comparing the Web to a "dump truck." The tubes and truck metaphors seemed to highlight the policymaker's weak grasp of the technology he was charged with overseeing.⁶⁰

Though the Stevens gaffe may exaggerate the disconnect between the "real world" and the "Washington world," it does highlight the need to form clearer links between the policymakers and the communities they are meant to serve. It also suggests that parents, too, have difficulty understanding the media their children use. In a world where parents ask their children to fix a misbehaving computer, program the television remote control, or set up their cell phone ring tones, it is understandable that parents would see blocking filters like the V-Chip as a low hurdle for children to clear and an ineffective tool for managing media. It is not yet clear whether today's youthful media users will carry their

technological savvy into their adult years, when they can be more effective mediators than their parents. In all likelihood, the media will continue to evolve rapidly, and their children will become the new “early adopters,” leaving the generation gap as wide as ever.

Evolving media technologies also present a new set of challenges for regulators who have, historically, made policy on the basis of the vehicle of delivery (for example, broadcast television, movie, and newspaper). In the new media environment, vehicles or “platforms” have converged, so that one can watch episodes of *Desperate Housewives* on the computer through the network’s website or on an iPod through an iTunes download. Cell phones, which are carried by most children over the age of ten,⁶¹ allow Web access and can receive spammed text messages, which can be quite salacious or pornographic. The distinctions that regulators make between these platforms, particularly between television channels, are not necessarily made by the viewing public. Do parents understand why the FOX broadcast channel content is held to a different (higher) set of standards than its sister network FX on cable? Do they care? Such questions may be overshadowed by the larger First Amendment concerns that might arise if policymakers begin to regulate content instead of platforms, however.

It is likely that in the decade to come, regulators will need to rethink the original premise of much of what has driven media policy. Some observers have argued that channel and outlet proliferation means that it is no longer valid to justify government regulation of broadcast media on the basis that it is a “scarce resource.”⁶² Yet rulings suggest that the public interest obligation to children remains in place and, indeed, will be extended. In a 2004 FCC ruling, known as

the FCC 2004, the commission increased the core programming benchmark (three hours a week) for digital broadcasters “in a manner roughly proportional to the increase in free video programming offered by the broadcaster on multicast channels.”⁶³

A final challenge facing media policymakers lies in the increasing personalization and portability of technologies. In a society where children have ownership over media devices and determine the content that appears on their screens, the “protecting the children” argument for restricting mass media content may be difficult to achieve from afar. Youth today idiosyncratically select, edit, and create their own media content to consume and share, and they make few distinctions between what is their media and what is adult media. Indeed, there may one day be few objects of regulation, as production becomes decentralized and producers become increasingly anonymous. Wikipedia (www.wikipedia.org) is a salient example of user-generated content carried over the Internet and widely used by the public with very light administrative oversight. Efforts to hold Internet service providers (ISP) responsible for problematic content are currently unenforceable under section 230 of the Communications Decency Act.

Though the future of media policy in a changing media environment is not yet clear, the importance of unbiased and systemic research has never been more so. Politicians often rely on surveys of public opinion to justify taking action in a particular arena, in part because the general public rarely weighs in on media policy matters.⁶⁴ Careful, objective research into parents’ views of media, media policy, and media practices is essential both to inform policy debates and to aid in shaping media policies that are useful to parents. This

means pilot testing potential legislation with a representative sample of families to ensure the understandability and usability of the information and tools.

Once in place, media policies must be routinely and objectively evaluated for efficacy. Federal regulatory agencies are neither mandated nor funded to routinely assess how their policies are followed. In 2004 FCC chair Michael Powell wrote in a *New York Times* op-ed, "We are not the federal Bureau of Indecency. We do not watch or listen to programs hoping to catch

purveyors of dirty broadcasts. Instead, we rely on public complaints to point out potentially indecent shows."⁶⁵ Academic researchers have a unique opportunity to inform policymakers about the efficacy of public policy. Ultimately, societal awareness and use of media-related information and technology and the effect of the policy on media use by children and families are distinct avenues of inquiry that promise to contribute much to the discussion of whether and how media policy can contribute to the positive role of media in the developing child's life.

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