Children and media: Social change and its consequences for families

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The development of new technologies has transformed the ways families live and work. This transformation has been most notable for children and adolescents, who grow up in a world most adults could not have imagined a few decades ago. Communication has become ubiquitous as the use of typewriters, mail, and the telephone line are replaced by digital word processing, e-mail, and cell phones. Even television time has fallen as other forms of media make inroads into the entertainment center of American homes. In this brief article we report on changes in American children's use of technology at home from the late 1990s to 2008, as well as research that we have conducted on the potential consequences and pitfalls for families in this new era. The focus is on 10–12 year-old children, first because this age group is apparently in the front line for the types of changes in media that have occurred. This is the age of the large increase in use. These are early adopters. Second, this is the age group for which we have complete information on changes in media time over the full 1997–2008 period.

Home Computing and Video Gaming

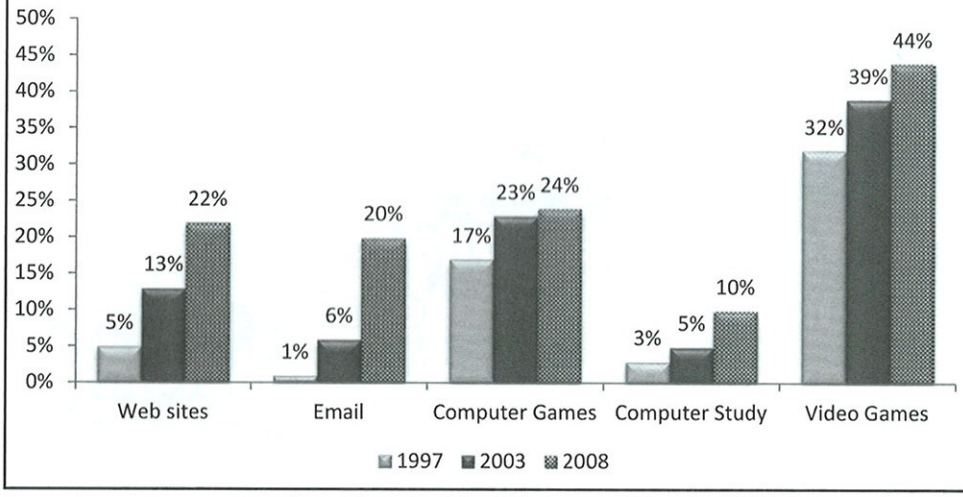
What are the major uses of technology by children from 1997 through 2008? The absolute increase in the amount of time spent over the period was remarkable. In 1997, children aged 10–12 spent about 3 hours per week (2.84 hours) in five electronic media activities consisting of surfing web sites, reading and sending e-mail, playing computer and video games, and using the computer to study. This was still a small amount of time compared with the 15 average weekly hours spent watching television. However, by 2008, children doubled their media time, averaging 6.11 hours per week in these activities compared with 13 hours spent watching television. (These are primary times spent in the activity, not including times doing these activities while doing something else as the primary activity. So total daily hours in all primary activities sum to 24 hours per day, 168 hours per week.)

Changes Between 1997 and 2008

The use of computers at home increased dramatically between 1997 and 2008 for elementary school–aged children. Compared to 23% in 1997, 32% of children aged 10–12 used the computer for any reason at home in an average week in 2003; that rose to 55% by 2008. It is illuminating to examine specific uses. Figure 1 shows the percentage of children engaged in specific electronic media activities from 1997 to 2008. In 1997 the only substantial use (17%) of the computer was for playing games. Almost no children used it for web surfing, e-mail, or studying. Between 1997 and 2008 this changed. In 2008, 22% of children aged 10–12 used the computer to look at web sites, 20% used it for e-mail, 24% used it to play games, and 10% used it to study. Although overall home computer use increases with age, the type of activity also changes. Among adolescents 16–18 in 2008, 29% used a home computer for surfing the web, 40% for sending e-mail, 12% for playing games, and 20% for studying (not shown).

Sandra Hofferth

Figure 1: Percentage Engaged, Children 10-12



Video game playing increased 22% between 1997 and 2003, from 32% to 39%, and only 12% across the 2003–2008 period, from 39% to 44%. This is also reflected in a smaller increase in weekly hours over the most recent period compared to the earlier one, suggesting that video game playing may have peaked.

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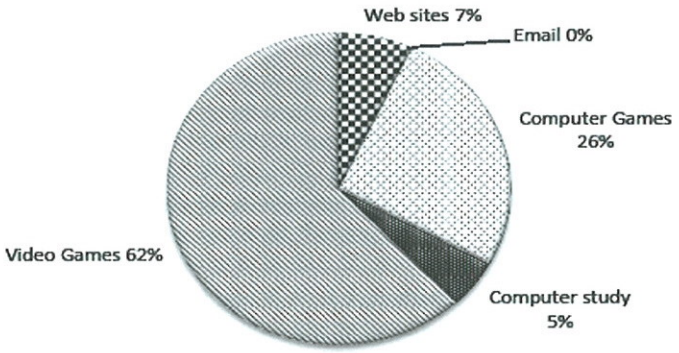
Of their electronic media time (excluding television), computer games and video games were the primary technology activities of children 10–12 in 1997 (Figure 2). By 2008 (Figure 3), that had shifted so that video and computer games were a relatively smaller proportion and e-mail and web surfing had increased their share of total electronic time, with study time a relatively minor contributor.

Figure 2: Percentage of Weekly Media Time, 1997 Children 10-12



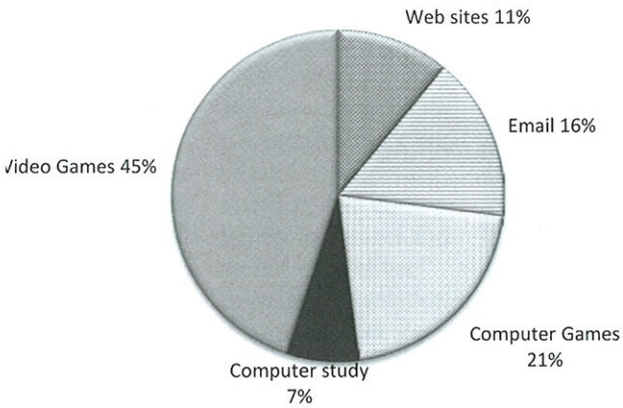
In 2003, television remained the dominant medium in middle childhood, with viewing averaging about 15 hours per week for 10–12-year-olds (not shown). Even though no decline was noted in television use between 1997 and 2003, its use declined between 2003 and 2008, to about 13 hours. In 2003 there were few tradeoffs between television viewing and new media; today, however, new media have begun to make inroads into television viewing time.

Consequences

Following up on other research into children's time, we set out to explore whether the increased use of media such as computers and video games was having a detrimental effect on children's achievement or causing increased behavior problems such as aggression or withdrawal. In spite of concern by parents about too much screen time leading to increased isolation from peers, increased aggressive behavior, or neglect of schoolwork, most of the fears were not realized. The reading and math achievement of White girls who increased their computer use and the reading and problem-solving scores of African American boys who increased their computer use improved. Additionally, playing more on the computer was associated with reduced withdrawal problems for White girls. These results were reported for 1997 to 2003 (Hofferth, 2010) and confirmed in follow-up research from 2003 to 2008 (Hofferth & Moon, 2012a).

One reason parents and experts expected dire consequences for children's achievement was that they expected new media to displace not old media but activities such as reading, studying, playing sports, being active out-of-doors, and socializing with peers—activities that are good for children's achievement and behavior. This study found, instead, that displacement did not occur for computers.

Figure 3. Percentage of Weekly Media Time, 2008 Children 10-12



Computer time was compatible with studying and reading; therefore, the study found mostly positive effects of computer use on achievement, with one exception—White boys who spent more time looking at web sites or using e-mail had slightly lower achievement scores.

In contrast, video game play was incompatible with most other activities. As video game time went up, reading and studying went down. Because video game play time was so much greater for boys, an association between increased video game play and reduced achievement was expected for them. Unexpectedly, no positive or negative associations with achievement for boys were found. Previous research had identified video games as potentially increasing aggressive behavior because so many video games are violent and aggressive. For both White and African American boys, this study found that greater time spent playing video games between 1997 and 2003 was indeed associated with increased aggressive behavior, though the association was quite small. In contrast, there was a positive association for girls; African American girls who played video games increased their math problem-solving score.

Finally, this study documented a continuing digital divide in computer use, with the levels of use of African American children one quarter to one third those of White children in 2003, with a slightly smaller gap by 2008. It also suggested that African American children's achievement could benefit from more access to computers at home.

Cell or Mobile Phone Use

The device that has had the most impact on family life since the mid-2000s is the mobile or cell phone. As every American parent knows, the cell phone has become the modal form of adolescent communication. According to one study, 75% of U.S. 12–17 year olds owned a cell phone in 2010, compared with 45% in 2004 (Lenhart, Ling, Campbell & Purcell, 2010). Cell phones are becoming more common at the elementary school level as well; in 2008, almost 60% of 10–12-year-olds had access to a cell phone (Hofferth & Moon, 2012b). Children are enthusiastic users of cell phones. Parents also benefit from the additional security of being in touch with their child and knowing the child's location. But having a family cell phone contract is not cheap, amounting to several hundred dollars a month for a family, limiting its accessibility. Because of the young ages at

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which children begin to use such phones, the amount of time spent, and the disparity in access across socioeconomic groups, it is important to understand the link between cell phone use and the development of traditional literacy skills, a core schooling goal for preteens and teens.

One key difference between cell phone compared to landline phone use is that cell phone users communicate through sending text messages, often written in an abbreviated language called "textese." The authors set out to determine whether parents should be concerned about the amount of communication over the phone or the number of text messages sent or both. We believed that it was likely that communicating by text would have a positive association with the child's reading comprehension because of practice in the use and decoding of written language, whereas there was no reason to think that the same would hold for verbal communication. Most studies indicated that, in contrast to what most parents believe, youth are quite capable of distinguishing when textese is appropriate, such as in their communications with peers and not in written materials for teachers or supervisors. We found that the hours spent in verbal communication had a small negative association with reading comprehension, whereas the number of text messages had a positive association with reading comprehension. Both associations, though statistically significant, were small (e.g., $p < .10$); the effects of family variables included in the model, in contrast, had much larger effect sizes (e.g., 0.50). Race/ethnicity was a particularly strong predictor of test scores. After race/ethnicity, the number and employment status of parents and maternal education were the most important factors affecting children's reading. The maternal score on the same reading comprehension test was controlled to adjust for confounding influences on both reading score and frequency of text messaging.

Although this study did not focus on other social and familial benefits of cell phone use in families, such as staying in touch and coordination, or potentially hazardous (e.g., while driving) or socially reprehensible (e.g., social intimidation) uses, it provides important information to parents in their decisions about when to provide children with mobile devices. In spite of what parents hear, not all 10–12-year-olds have cell phones. As always, parental guidance is crucial. In addition, the particular types of phones children were using at the time of our study were not the smart phones in widespread use today. As in any rapidly changing landscape, research lags behind the reality. However, we find that as computer use becomes standard in American homes and children begin using computers and other smart devices even in middle childhood, there is very little evidence of harm. It is safe to say that we are not going to reverse the trend toward increasing use of electronic devices in middle childhood and that, with some exceptions, children's achievement and adjustment generally benefit from it. ■

Note

This research project, supported by grant R24-HD041041 from the Eunice Kennedy Shriver National Institute for Child Health and Human Development (NICHD), analyzed data from a nationally representative survey of 3,563 children under age 13 and their parents that was collected by the University of Michigan in 1997, with follow-ups in 2003 and 2008. A typical week was constructed for each child using complete 24-hour diaries of children's activities on a weekday and a weekend day. The activities of age groups of children were compared across two or three waves. More than 1,000 children were tested in 1997 and again in 2003 and in 2008 using standardized tests of achievement and parental reports of behavior.

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