

## 4. USE OF INDIVIDUAL MEDIA

This chapter examines young people's exposure to each of the different individual media for leisure or recreational purposes (i.e., unless specifically indicated, time spent with media for school or for work is not included). For convenience, we have grouped similar media together. Subsections deal with screen media, print media, audio media, and interactive (digital) media. We begin with screen media, which includes TV, video recordings (both self-recorded and commercially produced videotapes or DVDs), and movies. This is followed by sections examining exposure to print media (books, magazines, and newspapers), audio media (radio, tapes, CDs, and MP3s), and interactive digital media (computers and video games). Within each of the groupings, we look at use of and exposure to each of the individual media, as well as overall use of that general type of medium. Thus, for example, in the following section we present results for TV, for video recordings, and for movies, as well as total exposure to all noninteractive screen media combined.

### Screen media

In spite of the growing presence and popularity of new, interactive communication technologies, older forms of screen media still dominate young people's media exposure. By "screen media" we mean TV, videos/DVDs (both self-recorded and commercially produced), and movies – that is, all audio-visual systems that deliver content that *does not* depend on *directive* responses from the viewer.<sup>13</sup>

Table 4-A illustrates that screen media are important to U.S. children. Average TV exposure among 8- to 18-year-olds exceeds three hours daily, and when all screen media are combined, average daily exposure climbs to 4¼ hours. TV dominates both in terms of the time it consumes (in excess of three hours) and in terms of the proportion of kids who watch in any given day (more than 80% of young people). Movies account for the lowest amount of daily screen exposure (0:25) because so few young people (13%) go to movies on any given day. Average daily exposure

to videos and DVDs is just over ¾ of an hour, with 42% of 8- to 18-year-olds watching some type of recording in a typical day.

Because of speculation that the emergence of DVRs and more easily operated VCRs might be changing the way kids watch TV by enabling much more convenient ways to time-shift shows, we also compared kids' exposure to self-recorded TV shows with exposure to commercially originated videos and DVDs.<sup>14</sup> We found that on any given day, 21% of U.S. kids watch a self-recorded program while 39% watch a commercially produced video or DVD. In line with these proportions, the same kids report 14 minutes daily spent watching self-recorded ("time-shifted") programs versus 32 minutes spent watching rented or purchased recordings.

Early adopters of the DVR engage in more time-shifting of TV programs. The 34% of our sample reporting a DVR in the home spend 22 minutes daily watching time-shifted TV programs, while those without a DVR watch prerecorded TV 11 minutes daily (the difference is significant). Perhaps more interesting, those with a DVR in the home watch real-time TV 3:33 daily compared to 2:46 per day for those without a DVR (the difference is significant). We suspect several factors play a role here. First, the increased ease of time-shifting that the DVR makes possible probably increases the amount of time-shifting that occurs. But perhaps equally important, it appears that early adopters of DVRs include a great many people who are particularly interested in TV; they tend to watch more TV, regardless of whether time-shifted or in real time.

Table 4-A also indicates that screen media exposure is related to age. In general, older kids report less exposure than younger kids. For example, adolescents age 15–18 watch almost ¾ of an hour less TV daily than either of the two younger groups, a difference approaching statistical significance ( $p < .08$  in both cases). Older kids are significantly less likely to watch any TV on a given day, and less likely to spend more than one hour viewing TV. They are also less likely than 8- to 10-year-olds to spend time

TABLE 4-A

## Screen Media Exposure by Age

Medium	8- to 18- year-olds	8- to 10- year-olds	11- to 14- year-olds	15- to 18- year-olds
<b>A. Average daily use of each screen medium</b>				
TV	3:04	3:17	3:16	2:36
Videos/DVDs	0:47	0:53	0:46	0:44
Movies	0:25	0:31	0:23	0:21
All screen media	4:15	4:41 <sup>a</sup>	4:25 <sup>a</sup>	3:40 <sup>b</sup>
<b>B. Proportion who used each screen medium the previous day</b>				
TV	81%	86% <sup>a</sup>	83% <sup>a</sup>	73% <sup>b</sup>
Videos/DVDs	42	53 <sup>a</sup>	42 <sup>b</sup>	34 <sup>b</sup>
Movies	13	15	13	12
<b>C. Proportion who watched TV 1+ and 5+ hours the previous day</b>				
More than 1 hour TV	66%	68% <sup>a</sup>	71% <sup>a</sup>	56% <sup>b</sup>
More than 5 hours TV	20	23	22	17

Note: Only those items in each row that do not share a common superscript differ from one another with statistical reliability. Those items without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

watching any kind of video recording. When all screen media are combined, the oldest adolescents report an hour less daily exposure than 8- to 10-year-olds, and  $\frac{3}{4}$  of an hour less than 11- to 14-year-olds (both statistically significant differences).

In addition to variations related to age, substantial differences in exposure to screen media also emerge for race. Table 4-B reveals that African American youths are substantially more likely to use screen media on any given day, and that they spend more time with screen media (5:53) than either their Hispanic (4:37) or White (3:47) counterparts.

African American kids watch all screen media combined over an hour more per day than Hispanic kids, and over two hours more than White kids. The difference between White and Black kids is large and consistent across all screen media. African American kids average 1:20 more than White kids of daily TV exposure, 15 minutes per day more video/DVD exposure, and 31 minutes per day more with movies – all statistically significant differences. Average exposure for Hispanic kids typically falls between the other two groups (differing significantly from both only in average exposure). The overall result is that Hispanic kids differ significantly from both White and African American kids in total screen exposure, viewing more than White kids and less than Black kids. On any given day, significantly higher proportions of African American kids than White kids watch videos/DVDs and attend movies, with the proportion of

TABLE 4-B

## Screen Media Exposure by Race

Medium	White	Black	Hispanic
<b>A. Average daily use of each screen medium</b>			
TV	2:45 <sup>a</sup>	4:05 <sup>b</sup>	3:23 <sup>b</sup>
Videos/DVDs	0:45 <sup>a</sup>	1:00 <sup>b</sup>	0:44 <sup>b</sup>
Movies	0:17 <sup>a</sup>	0:48 <sup>b</sup>	0:29 <sup>c</sup>
All screen media	3:47 <sup>a</sup>	5:53 <sup>b</sup>	4:37 <sup>c</sup>
<b>B. Proportion who used each screen medium the previous day</b>			
TV	79%	84%	83%
Videos/DVDs	40 <sup>a</sup>	51 <sup>b</sup>	44 <sup>ab</sup>
Movies	10 <sup>a</sup>	22 <sup>b</sup>	16 <sup>ab</sup>
<b>C. Proportion who watched TV 1+ and 5+ hours the previous day</b>			
More than 1 hour TV	64%	74%	69%
More than 5 hours TV	17	31	23

Note: Only those items in each row that do not share a common superscript differ from one another with statistical reliability. Those items without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

Hispanic kids falling between these two groups. Interestingly, the proportion of kids from each racial category using TV on a given day does *not* differ significantly. Thus, although the three groups are equally likely to watch TV, average viewing times indicate that African American kids stay with it longer.

Because differences in socioeconomic status also tend to be related to race and ethnicity, we further examined the race-based results (i.e., both the proportion of kids viewing TV the previous day and the average amount of daily TV exposure) within each level of parent education and income. In general, neither variable changed the overall patterns. That is, at each level of parent education and at each level of income, the proportion of kids from each race group reporting TV use the preceding day stayed relatively constant,<sup>15</sup> and the pattern of African American kids reporting the highest amount of TV exposure, Hispanic kids

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the second highest, and White kids the least, continued to hold. In short, socioeconomic differences play a relatively minor role in differences located by race/ethnicity. Other things being equal, race is related to substantial differences in the likelihood of using and in the amount of exposure to screen media, and as has been reported in several earlier studies, African American kids seem particularly attached to them

– especially TV (cf. Roberts, et al., 1999; Roberts & Foehr, 2004; Tangney & Feshbach, 1988; also see Albarran & Umphrey, 1993; Blosser, 1988; Huston, Donnerstein, Fairchild, Feshback, Katz, Murray, et al., 1992).

### Box 4.1 Screen Media: 2004 vs. 1999

Screen media exposure has stayed remarkably constant over the past five years. In 1999, 8- to 18-year-olds reported 3:05 daily TV exposure and 4:04 daily exposure to all screen media combined. In 2004, the comparable numbers were 3:04 for TV exposure and 4:15 for daily screen exposure. The 11 minute, overall increase in exposure came entirely from small (nonsignificant) increases in amount of exposure to videos and DVDs (both prerecorded and commercially produced) and to movies. It is worth noting that occasional claims that computers and video games are drawing young people's attention away from screen media – especially TV – receive little support from our findings. As we shall see in Chapter 5, screen media in general and TV in particular account for about half of young people's total media exposure, a pattern that has changed little over the past five years.

#### Young People's Exposure to Screen Media in 2004 and 1999

Screen medium	2004	1999
<b>A. Average daily use of each medium</b>		
TV	3:04	3:05
Videos/DVDs	0:47	0:42
Movies	0:25	0:18
All screen media	4:15	4:04

<b>B. Proportion who used each medium the previous day</b>		
TV	81%	85%
Videos/DVDs	42	46
Movies	13	10

Unlike earlier studies that have reported negative relationships between TV and/or screen exposure and indicators of socioeconomic status (see, for example, Brown, et al., 1990; Roberts & Foehr, 2004; Schramm et al., 1961; Tangney & Feshbach, 1988), our data reveal no relationship between income and screen exposure, and somewhat surprisingly, a curvilinear relationship between parent education and screen exposure, with the lowest levels of screen exposure emerging for kids whose parents have some college education. Table 4-C shows that average amount of screen exposure among kids whose parents have the most education is highly similar to that among kids whose parents completed no more than high school, and kids whose parents have some college report significantly less exposure than kids whose parents completed college. Although the curvilinear pattern is not significant for individual media, kids whose parents completed college watch significantly more videos/DVDs and movies than do kids whose parents have less education. It should also be noted that the proportion of kids from each parent education subgroup who use each of the screen media on a given day do not differ significantly. Thus, while kids from all three parent education subgroups are equally likely to use screen media, those from the low- and high-education subgroups appear to watch for longer periods.

TABLE 4-C

### Screen Media Exposure by Parent Education

Medium	High school	Some college	College or more
<b>A. Average daily use of each screen medium</b>			
TV	3:12	2:48	3:03
Videos/DVDs	0:44 <sup>ab</sup>	0:42 <sup>a</sup>	0:51 <sup>b</sup>
Movies	0:26 <sup>ab</sup>	0:17 <sup>a</sup>	0:26 <sup>b</sup>
All screen media	4:23 <sup>a</sup>	3:46 <sup>b</sup>	4:20 <sup>a</sup>
<b>B. Proportion who used each screen medium the previous day</b>			
TV	82%	75%	81%
Videos/DVDs	42	39	44
Movies	13	11	14
<b>C. Proportion who watched TV 1+ and 5+ hours the previous day</b>			
More than 1 hour TV	69%	62%	64%
More than 5 hours TV	23	16	19

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Gender locates no differences in the likelihood of using any of the three types of screen media on any given day, nor is it related to differences in amount of exposure.

**What they watch.** As noted in Chapter 2, our measure of TV viewing asked respondents to circle any shows they watched the previous day on “TV grids” (i.e., typical programming guides listing all shows available in a given area for each 30-minute time-slot the previous morning, afternoon, and evening). We classified the selected shows into one of 18 genres (see Appendix 2.3). Children's programs were further divided into two sub-categories – those conceived as children's “entertainment” programming (e.g., *Pokemon*, *Jackie Chan*) and those conceived as “educational” programming (e.g., *Sesame Street*, *The Magic School Bus*). Several of the predefined genres attract little or no youth viewing. We report results only for those program types that, on any given day, are viewed by at least 10% of one of the demographic subgroups we have been examining. Table 4-D presents the resulting list of 11 TV genres and the proportion of young viewers who watch each.

Situation comedy is the preferred type of TV program among young people, regardless of demographic characteristics. Thirty-seven percent (37%) of 8- to 18-year-olds watched at least one situation comedy the preceding day, and there is little variation in relation to age. Indeed, comedy is the only program genre that consistently attracts a third or more of young viewers regardless of age, gender, race or socioeconomic status.

Children's programming accounts for the next largest proportion of viewers, with 25% watching children's educational programming and 24% children's entertainment programming.

TABLE 4-D

## TV Genre Preferences by Age

Of children who watched TV the previous day, the proportion viewing each type of programming

TV genres	8- to 18-year-olds	8- to 10-year-olds	11- to 14-year-olds	15- to 18-year-olds
Comedy	37%	39%	36%	34%
Educational children's	25	47 <sup>a</sup>	21 <sup>b</sup>	8 <sup>c</sup>
Children's	24	45 <sup>a</sup>	22 <sup>b</sup>	8 <sup>c</sup>
Movie	22	15 <sup>a</sup>	26 <sup>b</sup>	21 <sup>ab</sup>
Reality	17	12 <sup>a</sup>	17 <sup>ab</sup>	21 <sup>b</sup>
Entertainment/variety	16	7 <sup>a</sup>	22 <sup>b</sup>	17 <sup>b</sup>
Drama	15	12 <sup>a</sup>	13 <sup>a</sup>	22 <sup>b</sup>
Sports	12	9	14	13
Documentary	11	9	11	12
Music video	8	3 <sup>a</sup>	11 <sup>b</sup>	10 <sup>b</sup>
News	6	4 <sup>a</sup>	4 <sup>a</sup>	10 <sup>b</sup>

Note: Only those items in each row that do not share a common superscript differ from one another with statistical reliability. Those items without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

Attention to these program types, however, is highly related to age. In a typical day, just under half of 8- to 10-year-olds report viewing one or the other type of children's program, just over 20% of 11- to 14-year-olds view them, and fewer than 10% of 15- to 18-year-olds watch either kind. Of the remaining program types, one is selected by more than 20% of the total sample (movies are selected 22% of the time) and five more types are viewed by between 10% and 20% on any given day: reality (17%), entertainment/variety (16%), drama (15%), sports (12%), and documentary (11%). In general, young children (8- to 10-year-old) are less likely to view each of these genres than are their older counterparts, with some variation in whether they differ statistically from the middle or older age group (see Table 4-D). The two remaining program types, music videos and news, attract 8% and 6%, respectively, of 8- to 18-year-olds, with 10% or more of the 11- to 18-year-olds watching music videos and 10% of 15- to 18-year-olds watching news on a typical day.

Only three program types are related to any of the other demographic characteristics we have been examining (see Appendix 4.2). Gender accounts for two of the relationships. A substantially higher proportion of girls than boys watch situation comedies, and a substantially higher proportion of boys than girls watch sports. Finally, a significantly higher proportion of low-income children than either middle- or high-income children watch movies on TV.

### Print media

We assessed leisure (i.e., outside of school or work) print exposure by asking respondents how much leisure time they spent the

TABLE 4-E

## Print Media Exposure by Age

Print medium

#### A. Average daily time with each print medium

Print medium	8- to 18-year-olds	8- to 10-year-olds	11- to 14-year-olds	15- to 18-year-olds
Books	0:23	0:27	0:21	0:24
Magazines	0:14	0:12	0:15	0:13
Newspapers	0:06	0:04 <sup>a</sup>	0:05 <sup>a</sup>	0:07 <sup>b</sup>
All print	0:43	0:44	0:41	0:45

#### B. Proportion who read at least 5 minutes the previous day

Print medium	8- to 18-year-olds	8- to 10-year-olds	11- to 14-year-olds	15- to 18-year-olds
Books	46%	63% <sup>a</sup>	44% <sup>b</sup>	34% <sup>c</sup>
Magazines	47	35 <sup>a</sup>	54 <sup>b</sup>	47 <sup>b</sup>
Newspapers	34	21 <sup>a</sup>	35 <sup>b</sup>	43 <sup>b</sup>
All print	73	73	75	71

#### C. Proportion who read 30 minutes or more the previous day

Print medium	8- to 18-year-olds	8- to 10-year-olds	11- to 14-year-olds	15- to 18-year-olds
Books	30%	40% <sup>a</sup>	27% <sup>b</sup>	26% <sup>b</sup>
Magazines	22	16 <sup>a</sup>	25 <sup>b</sup>	21 <sup>ab</sup>
Newspapers	7	7	7	8
All print	47	51	48	43

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previous day reading books, magazines, and newspapers. Table 4-E shows that books account for the most time, followed by magazines, with newspapers running a distant third. On any given day, 73% of kids spend at least a few minutes reading one of the three print media and 47% spend at least 30 minutes engaged in some kind of leisure reading. However, on any given day, no single print medium garners attention from as many as 50% of kids, and fewer than 20% read for pleasure more than an hour daily. The average daily time devoted to all leisure reading by 8- to 18-year-olds is 43 minutes, of which more than half is devoted to books (23 minutes) and a quarter to magazines (14 minutes). The remaining six minutes are spent with newspapers.

Table 4-E also indicates that the likelihood of engaging in leisure reading is related to age in different ways for each of the individual print media but that, with one exception, amount of reading is not. Younger kids (8- to 10-year-olds) are less likely than the two older groups to have read either magazines or newspapers the previous day, but they are substantially more likely to have read books. Indeed, with each successive increase in age, both the proportion of kids who engage in leisure book reading and the proportion who read books for at least 30 minutes decreases significantly. We suspect this has to do with older children being required to read more for school, thus reducing the attractiveness or likelihood of additional reading for pleasure. Newspapers, to which kids devote relatively little time, produce the only statistically significant age differences in amount of lei-

TABLE 4-F

## Print Media Exposure by Parent Education

Print medium	High school or less	Some college	College or more
<b>A. Average daily time with each print medium</b>			
Books	0:17 <sup>a</sup>	0:23 <sup>ab</sup>	0:28 <sup>b</sup>
Magazines	0:11 <sup>a</sup>	0:14 <sup>ab</sup>	0:15 <sup>b</sup>
Newspapers	0:05 <sup>a</sup>	0:06 <sup>ab</sup>	0:07 <sup>b</sup>
All print	0:32 <sup>a</sup>	0:43 <sup>b</sup>	0:50 <sup>b</sup>
<b>B. Proportion who read at least 5 minutes the previous day</b>			
Books	42%	40%	49%
Magazines	45	51	47
Newspapers	31	39	36
All print	71	74	75
<b>C. Proportion who read 30 minutes or more the previous day</b>			
Books	23% <sup>a</sup>	27% <sup>ab</sup>	35% <sup>b</sup>
Magazines	17 <sup>a</sup>	27 <sup>b</sup>	22 <sup>ab</sup>
Newspapers	5	7	8
All print	39 <sup>a</sup>	50 <sup>ab</sup>	51 <sup>b</sup>

Note: Only those items in each row that do not share a common superscript differ from one another with statistical reliability. Those items without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

sure reading. As they get older, kids spend more time reading the newspaper. When the different proportions and amounts of time associated with each print medium are combined, overall leisure reading time does not vary with age.

Level of parent education is strongly related to the amount of time devoted to leisure reading. Table 4-F reveals that both for overall leisure reading and for each of the individual print media, kids with college-educated parents spend substantially more time reading than those whose parents completed no more than high school; kids whose parents completed some college fall between. Interestingly, parent education is not related to the likelihood of engaging in at least a few minutes of leisure reading on any given day, but it strongly predicts the likelihood of reading for more than a few minutes. In particular, kids whose parents have no more than a high school education are significantly less likely than those whose parents have completed college to spend 30 minutes or more reading (the proportion of those whose parents completed some college falls in between). In other words, when young people whose parents have at least some college engage in leisure reading, they tend to read for extended periods of time; this is not the case for kids whose parents have less education.

Girls and boys are equally likely to engage in overall leisure reading and in reading of each of the three types of print media. However, girls devote significantly more time than boys to books (28 minutes vs. 19 minutes). Neither race nor income level predict differences in reading.

TABLE 4-G

## Audio Media Exposure by Age

Audio medium	8- to 18-year-olds	8- to 10-year-olds	11- to 14-year-olds	15- to 18-year-olds
<b>A. Average daily time with each audio medium</b>				
Radio	0:55	0:29 <sup>a</sup>	0:57 <sup>b</sup>	1:15 <sup>c</sup>
CDs/tapes/MP3s	0:49	0:30 <sup>a</sup>	0:45 <sup>b</sup>	1:09 <sup>c</sup>
Total audio	1:44	0:59 <sup>a</sup>	1:42 <sup>b</sup>	2:24 <sup>c</sup>
<b>B. Proportion who listened at least 5 minutes the previous day</b>				
Radio	74%	63% <sup>a</sup>	78% <sup>b</sup>	79% <sup>b</sup>
CDs/tapes/MP3s	68	59 <sup>a</sup>	68 <sup>ab</sup>	75 <sup>b</sup>
Total audio	85	74 <sup>a</sup>	87 <sup>b</sup>	90 <sup>b</sup>
<b>C. Proportion who listened more than one hour the previous day</b>				
Radio	21%	8% <sup>a</sup>	21% <sup>b</sup>	30% <sup>c</sup>
CDs/tapes/MP3s	18	10 <sup>a</sup>	16 <sup>a</sup>	29 <sup>b</sup>
Total audio	44	26 <sup>a</sup>	44 <sup>b</sup>	60 <sup>c</sup>

Note: Only those items in each row that do not share a common superscript differ from one another with statistical reliability. Those items without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

In general, then, there is good news and bad news about leisure reading. Our data provide little support for claims that young people no longer engage in recreational reading. Three quarters of 8- to 18-year-olds report spending at least five minutes with one or another of the print media on any given day. On the other hand, fewer than a third spend more than 30 minutes with any one of the print media, fewer than half spend 30 minutes or more with all print media, and on any given day, only one-fifth devote more than an hour to leisure reading.

**Audio media**

For the most part, audio media are synonymous with music media. Although our earlier study showed that kids devote a few minutes daily listening to news or to talk radio, and that younger children sometimes listen to recorded stories, for the most part listening to radio, tapes, CDs, and MP3s means listening to music (Roberts, et al., 1999), particularly among adolescents (also see Christenson & Roberts, 1998). Thus, we view time spent with radio, tapes, CDs, and MP3 players as almost synonymous with music exposure.

Average daily exposure to music and proportions of young people using each of the various audio media on any given day are summarized in Table 4-G. Clearly, music plays an important role in children's and particularly adolescents' lives. On any given day, 85% of U.S. 8- to 18-year-olds spend at least a few minutes listening to one of the audio media, and 44% spend in excess of an hour. U.S. kids average 1¾ hours per day with music media, with the time almost equally divided between radio and various recorded media (tapes, CDs, MP3s).

TABLE 4-H

## Audio Media Exposure by Gender

Audio medium	Boys	Girls
<b>A. Average daily time with each audio medium</b>		
Radio	0:45 <sup>a</sup>	1:06 <sup>b</sup>
CDs/tapes/MP3s	0:44 <sup>a</sup>	0:54 <sup>b</sup>
Total audio	1:29 <sup>a</sup>	2:00 <sup>b</sup>
<b>B. Proportion who listened at least 5 minutes the previous day</b>		
Radio	69% <sup>a</sup>	80% <sup>b</sup>
CDs/tapes/MP3s	63	72
Total audio	81	89
<b>C. Proportion who listened more than 1 hour the previous day</b>		
Radio	15% <sup>a</sup>	27% <sup>b</sup>
CDs/tapes/MP3s	16	21
Total audio	38 <sup>a</sup>	51

Note: Only those items in each row that do not share a common superscript differ from one another with statistical reliability. Those items without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

Not surprisingly, music media grow in importance as children become older. For example, on any given day, 74% of 8- to 10-year-olds, 87% of 11- to 14-year-olds, and 90% of 15- to 18-year-olds spend at least a few minutes with audio media. Moreover, 60% of the oldest kids report spending more than an hour daily with audio media (and 24% listen in excess of three hours daily). The amount of time kids spend with radio, with recordings, and with all audio media follows suit. That is, music listening increases substantially with each increment in age, from an average of 0:59 for 8- to 10-year-olds, to 1:42 among 11- to 14-year-olds, to 2:24 by late adolescence.

Gender also locates substantial differences both in the likelihood of exposure to one of the music media and in the amount of time devoted to them. Table 4-H shows that slightly higher proportions of girls than boys report spending at least a few minutes each day with one of the audio media, and significantly higher proportions of girls than boys spend more than an hour with radio (12 percentage points more) and with all audio media combined (13 percentage points more). Consistent with differences in the proportion of girls and boys using audio media, girls also spend substantially more time with them. Girls listen 31 minutes more daily than boys (21 minutes more with radio and 10 minutes more with recordings), a pattern that largely replicates the findings from our earlier study (Roberts, et al., 1999).

Parent education is the only other variable related to audio exposure. The relationship is curvilinear and holds only for radio listening (see Appendix 4.4). That is, parent education locates no significant differences in the likelihood of a child listening to any of the audio media on a given day, nor is it related to the

likelihood of listening for more than an hour. Moreover, amount of exposure to recordings is identical at all three levels of parent education (50 minutes daily). Only time spent with radio (hence with total audio) varies in relation to parent education; kids whose parents completed some college report the highest average exposure (1:10), kids whose parents completed college report the lowest (0:50 – a significant difference); and kids whose parents completed no more than high school fall between (0:58). Whatever the reason, youngsters in the middle education group tend to spend more time with radio.

Neither race nor income is related to the amount of audio media exposure. These patterns of audio exposure are similar to those found five years ago (cf. Roberts, et al., 1999).

**What they listen to.** Students in grades 7–12 who indicated that they had listened to tapes, CDs, and/or MP3s the previous day were also asked to indicate all of the types of music they had listened to. The list of possible music genres included Alternative Rock, Classic Rock, Classical, Country/Western, Gospel/Christian, Hard Rock/Heavy Metal, Jazz/Blues, Latin/Salsa, Rap/Hip Hop, Rave/Techno, Reggae, Rhythm and Blues/Soul, Ska/Punk, Soft Rock, Top 40, and Other.

Table 4-I presents the proportion of 7th- to 12th-graders who listened to each type of music for those genres that attracted at least 10% of one of the demographic categories we have been examining. Rap/Hip Hop account for most of adolescent music listening: on any given day, 65% of junior and senior high school kids reporting listening — over twice the portion that listens to any other single type of music. The next closest genre is Alternative Rock, listened to by 32% of young people on a typical day, followed by Hard Rock/Heavy Metal selected by 27%, and Ska/Punk named by 23% of adolescents. No other type of music attracts as much as 20% of the young audience in any given day. Classical, Jazz or Blues, and Latin or Salsa are named by fewer than 10% of young listeners, with the caveat that fully a third of Hispanic kids listen to Latin/Salsa on a typical day (see Table 4-I), and 13% of African American youth listen to Jazz or Blues.

Because it is such a strong predictor of music tastes, Table 4-I also includes the proportion of listeners for each music genre in relation to race. Rap/Hip Hop is the preferred music type among African American, Hispanic, and White youths by a wide margin, easily outdistancing any other genre within each of the three groups. Well over half of the young people in each of the three groups listen to Rap/Hip Hop (no other genre exceeds 40% listenership within any group), its selection more than doubles the next most popular type among African Americans and among

TABLE 4-1

## Music Genre Preferences

Among 7th- to 12th-graders who listened to audio recordings the previous day, the proportion who listened to each genre

Music genres	Total	White	Black	Hispanic
Alternative Rock	32%	38% <sup>a</sup>	9% <sup>b</sup>	16% <sup>b</sup>
Classic Rock	16	21 <sup>a</sup>	6 <sup>b</sup>	8 <sup>b</sup>
Country/Western	18	26 <sup>a</sup>	3 <sup>b</sup>	6 <sup>b</sup>
Gospel/Christian	11	10 <sup>a</sup>	19 <sup>ab</sup>	4 <sup>b</sup>
Hard Rock/Metal	27	33 <sup>a</sup>	7 <sup>b</sup>	20
Jazz/Blues	8	7	13	5
Latin/Salsa	8	2 <sup>a</sup>	2 <sup>a</sup>	33 <sup>b</sup>
Rap/Hip Hop	65	60 <sup>a</sup>	81 <sup>b</sup>	70 <sup>ab</sup>
Rave/Techno	13	12	6	8
Reggae	14	9 <sup>a</sup>	24 <sup>b</sup>	17 <sup>ab</sup>
Rhythm & Blues/Soul	12	5 <sup>a</sup>	33 <sup>b</sup>	11 <sup>b</sup>
Ska/Punk	23	29 <sup>a</sup>	6 <sup>b</sup>	14 <sup>b</sup>
Soft Rock	12	12	6	9
Top 40	17	18	11	13

*Note: Respondents checked all types of music to which they listened; therefore, columns total to more than 100%. Does not include radio listening. Only those items in each row that do not share a common superscript differ from one another with statistical reliability. Those items without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.*

Hispanic kids, and it is chosen by a full 22 percentage points more White kids than its next closest competitor.

Although Rap/Hip Hop is the most popular genre among all three ethnic groups, African Americans are still significantly more likely than Whites or Hispanic kids to listen to it. Over three-quarters of African American kids report listening to Rap/Hip Hop (81%), vs. 60% of Whites and 70% of Hispanics. In addition to Rap/Hip Hop, African American teens listen significantly more than White or Hispanic kids to genres dominated by Black performers and expressive of Black culture. In addition to Hip Hop, on any given day a third of African American kids report listening to Rhythm and Blues or Soul, and a quarter listen to Reggae. Moreover, the next two most selected music types, Gospel/Christian (19%) and Jazz or Blues (13%) are also heavily influenced by African American performers and culture. In short, Black youth's music listening focuses heavily on those genres generally thought of as "Black music."

White teens, on the other hand, tend to spread their listening across a broader range of music types. At least 10% of White teens listen to one of ten different genres on a typical day. In addition to Rap/Hip Hop, White kids tend to focus on various subcategories of Rock:<sup>16</sup> Alternative Rock (38%), Hard Rock/Heavy Metal (33%), Ska/Punk (29%), Classic Rock (21%), Rave/Techno (12%), and Soft Rock (12%). Over a quarter (26%) listen to Country/Western, 18% choose Top 40, and 10% select Gospel/Christian.<sup>17</sup>

Finally, Hispanic kids' listening, while not as varied as that of White kids, seems more diverse than that of African American kids, and in some ways more eclectic than the choices of either of the other two groups. Eight different music types were listened to by at least 10% of Hispanic teens. After Rap/Hip Hop, Latin/Salsa is the most popular type of music, chosen by a third of Hispanic kids on a typical day. These two genres are joined by two other music types reflecting Black culture (Reggae: 17%; Rhythm and Blues: 11%), and by four "White" music genres (Hard Rock/Heavy Metal: 20%; Alternative Rock: 16%; Ska/Punk: 14%; Top 40: 13%). In other words, with the exception of Rap/Hip Hop, the dominant favorite of kids from all three race groups, African American kids tend to listen to Black music, White kids tend to listen to White music, and Hispanic kids tend to listen to all kinds of music – Latin, Black, and White, much the same pattern noted in our earlier report (Roberts, et al., 1999).

Somewhat surprisingly, gender locates very few differences in music tastes. Contrary to Warner's (1984) suggestion that the music industry might well junk its current taxonomy in favor of a system that distinguishes simply between music with "male appeal" (characterized by music with a hard, raw-edged sound) and "female appeal" (softer types of popular music), and to a number of studies from the 1980s and 1990s that seemed to support this proposition, we found only two music types to which significantly different proportions of boys and girls listen: Country/Western, named by 13% of boys and 22% of girls, and Top 40, named by 12% of boys and 22% of girls. Although higher proportions of boys than girls listen to Alternative Rock and Heavy/Metal (two genres with a "hard sound"), more girls than boys name Ska/Punk (another hard-edged sound), and none of the differences is statistically significant.

### Interactive media

The term interactive media includes both computers and video games – the two interactive platforms about which we asked questions. This section examines young people's use of computers and video games separately. However, given strong similarities between games played on either of the two platforms, we also look at overall use of interactive games (i.e., combining computer-based games and other video games).

**Computers.** Our examination of young people's time spent using a computer is limited to *recreational* computer use; time spent using a computer for school or for work-related activity *is not* included. Respondents were asked to estimate how much time they spent the previous day using a computer for each of six (recreational) activities: playing games (including

### Box 4.2 Computer Use: 2004 vs. 1999

A combination of increased access to computers and the emergence of new, highly popular computer activities has resulted in more than a doubling of the amount of time U.S. kids spend with computers compared with the previous five years. As noted in Chapter 3, in 1999, 73% of 8- to 18-year-olds reported a personal computer in their home; today, 86% report in-home access to a PC. Similarly, the 21% of 8- to 18-year-olds who reported having a computer in their bedroom in 1999 has now grown to 35% reporting either a bedroom computer or their own laptop. At the same time computer penetration has increased, so too have the computer activities that attract young people. Five years ago we did not ask about time spent playing games online, about various graphics programs or about time spent instant messaging. Since then, each of these activities has begun to claim substantial computer time from kids. The result is that the average amount of time young people devote to various computer activities has climbed from 0:27 daily to 1:02 daily (the proportion of kids using a computer at all has grown from 47% to 54%, and the proportion using a computer for more than an hour has climbed from 15% to 28%).

The following table reveals that only two computer activities, visiting chat rooms and sending e-mail, have remained fairly constant in terms of the time devoted to them. Time spent visiting Web sites has doubled (from seven to 14 minutes daily). Time spent with computer games has increased from 0:12 in 1999 to 0:19 in 2004, a change that we believe is at least partly a result of increased availability of online, multiplayer games. And perhaps most striking, a computer activity that did not warrant a question five years ago now claims as much time as visiting chat rooms (working with graphics programs = 0:04), and an activity that barely existed among kids five years ago now ranks as the second most time-consuming computer activity (instant messaging = 0:17).

#### Young people's use of computers in 2004 and 1999

Computer activity	2004	1999
Playing games	0:19 <sup>‡</sup>	0:12
Visiting Web sites	0:14 <sup>‡</sup>	0:07
Visiting chat rooms	0:04	0:05
E-mail	0:05	0:04
Instant messaging	0:17	NA
Graphics	0:04	NA
Total computer time	1:02 <sup>‡</sup>	0:27

<sup>‡</sup> Differs statistically from the average time spent in 2004. Data are for recreational computer use only.

online games),<sup>18</sup> visiting Web sites, visiting chat rooms, sending/receiving e-mail, instant messaging, and using some form of computer graphics (e.g., Powerpoint, photo editing, design). Total computer time is the sum of each youngster's estimate for each individual activity.<sup>19</sup>

Table 4-J summarizes the average amount of time devoted to each computer activity and the proportion of kids engaged in each activity, both for the total sample and for each of three age groups. Slightly over half of U.S. 8- to 18-year-olds (54%) report using the computer for recreational purposes on any given day, and 28% report spending more than one hour daily engaged in recreational computer use. The result is that U.S. kids average just over an hour per day using the computer for recreational purposes (1:02) of all kinds, more than doubling the 27 minutes per day reported in 1999 (Roberts, et al., 1999; Roberts &

TABLE 4-J

### Computer Use by Age

Medium	8- to 18- year-olds	8- to 10- year-olds	11- to 14- year-olds	15- to 18- year-olds
<b>A. Average daily time with each computer activity</b>				
Games	0:19	0:20	0:17	0:19
Web sites	0:14	0:08 <sup>a</sup>	0:13 <sup>b</sup>	0:19 <sup>c</sup>
Chat rooms	0:04	0:03	0:04	0:03
E-mail	0:05	0:02 <sup>a</sup>	0:05 <sup>b</sup>	0:06 <sup>b</sup>
Instant messaging program	0:17	0:03 <sup>a</sup>	0:18 <sup>b</sup>	0:27 <sup>b</sup>
Graphics	0:04	0:02 <sup>a</sup>	0:04 <sup>b</sup>	0:05 <sup>b</sup>
Total computer	1:02	0:37 <sup>a</sup>	1:02 <sup>b</sup>	1:22 <sup>c</sup>
<b>B. Proportion engaging in each activity the previous day</b>				
Games	35%	37%	37%	29%
Web sites	34	21 <sup>a</sup>	34 <sup>b</sup>	45 <sup>c</sup>
Chat rooms	10	8	11	9
E-mail	25	11 <sup>a</sup>	26 <sup>b</sup>	36 <sup>c</sup>
Instant messaging program	26	10 <sup>a</sup>	26 <sup>b</sup>	39 <sup>c</sup>
Graphics	12	9	13	14
Any computer use	54	42 <sup>a</sup>	55 <sup>b</sup>	61 <sup>b</sup>
<b>C. Proportion who used a computer more than 1 hour the previous day</b>				
Any computer use	28%	18% <sup>a</sup>	26% <sup>b</sup>	37% <sup>b</sup>

Note: Data are for recreational computer use only. Only those items in each row that do not share a common superscript differ from one another with statistical reliability. Those items without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

Foehr, 2004). Box 4.2 further examines changes in computer time from 1999 to 2004.

Games account for 19 minutes of computer time daily, followed by instant messaging (17 minutes), and visiting Web sites (14 minutes). Sending e-mail, visiting chat rooms, and using some form of computer graphics, each account for no more than five minutes daily, on average. Just over one-third of U.S. kids report spending at least a few minutes playing games or visiting Web sites on any given day. Perhaps more interesting, a quarter of young people use instant messaging programs daily.

Both overall amount of recreational computer use and various individual computer activities also vary with age (see Table 4-J). Total time spent with the computer increases substantially with each successive age increment, from 0:37 among 8- to 10-year-olds, to 1:02 among 11- to 14-year-olds, to 1:22 among 15- to 18-year-olds. Not surprisingly given such increases in average time spent, the proportion of kids devoting any time to recreational computer activities and the proportion devoting more than an hour is also positively related to age.

The significant increment in overall computer time as age increases is mirrored in the averages for Web sites and instant messaging. A similar pattern emerges for e-mail and computer graphics, with the caveat that the two older age groups do not



TABLE 4-K

## Computer Use by Gender

Activity	Boys	Girls
<b>A. Average daily time with each computer activity</b>		
Games	0:22 <sup>a</sup>	0:15 <sup>b</sup>
Web sites	0:12 <sup>a</sup>	0:16 <sup>b</sup>
Chat rooms	0:03	0:04
E-mail	0:04 <sup>a</sup>	0:06 <sup>b</sup>
Instant messaging program	0:14 <sup>a</sup>	0:20 <sup>b</sup>
Graphics	0:04	0:03
Total computer	1:00	1:04
<b>B. Proportion engaging in each activity the previous day</b>		
Games	38%	31%
Web sites	34	33
Chat rooms	9	10
E-mail	20 <sup>a</sup>	31 <sup>b</sup>
Instant messaging program	23	29
Graphics	12	13
Any computer use	53	54
<b>C. Proportion who used a computer more than 1 hour the previous day</b>		
Any computer use	27%	28%

*Note: Data are for recreational computer use only. Only those items in each row that do not share a common superscript differ from one another with statistical reliability. Those items without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.*

differ from each other. Neither time spent in chat rooms nor time spent playing computer games is related to age; chat rooms receive a few minutes from each age group and computer games are consistently popular with all age groups.

Boys and girls are equally likely to use a computer on any given day, and they devote similar amounts of time to computer activities. With the exception of e-mail, which attracts a higher proportion of girls on any given day, the two genders are also equally likely to devote at least a few minutes per day to each of the various computer activities. However, as Table 4-K shows, the two genders distribute most of their computer time quite differently. Boys spend significantly more time than girls with games; girls spend significantly more time than boys visiting Web sites, using e-mail, and instant messaging. We suspect that much of the difference is attributable to the greater social orientation generally manifested by girls, leading them to make more use than boys of the social capabilities of the computer.

White youths are significantly more likely to use a computer (57%) than either African American (44%) or Hispanic (47%) youths on any given day (see Appendix 4.6). However, there is no reliable difference in the amount of time kids from the different

race groups spend with the computer (Whites = 1:02; African Americans = 0:52; Hispanics = 0:54). Differences in specific computer activities related to race emerge only for Internet games and instant messaging. Significantly fewer African American kids (14%) than White or Hispanic kids (25% and 27%, respectively) play Internet games. Similarly, significantly fewer African American kids (15%) than White kids (29%) use instant messaging on any given day (23% of Hispanic kids use instant messaging). Not surprisingly, then, African American kids spend substantially less time each day than Whites engaged in instant messaging (4 minutes vs. 19 minutes), with Hispanic kids again falling between (14 minutes).

The likelihood of using a computer on any given day is related to both of our measures of socioeconomic status (see Appendix 4.6). Forty-seven percent (47%) of kids whose parents completed no more than a high school education, compared to 51% of those whose parents completed some college, and 62% of those whose parents completed college report using a computer the previous day (the lowest and highest parent education groups differ significantly). Similarly, 47% of kids classified as low income, 50% of those classified as middle income, and 63% of those classified as high income, used a computer the preceding day. Amount of time spent with the computer, however, is related only to level of parent education. Kids whose parents finished college spend 17 minutes more daily than kids whose parents completed no more than high school using a computer (1:12 vs. 0:55, respectively). As the tables in Appendix 4.6 show, kids classified as high income spend a bit more time visiting Web sites, sending e-mail, and instant messaging.

### Video games are clearly gender-typed.

Boys are much more likely than girls to play video games on any given day.

**Video games.** We asked separate questions about console video games (i.e., games played on a device connected to a TV such as an X-box, GameCube, or

PlayStation), and handheld video games. Interestingly, video game use is related to all but one of our demographic indicators; only income fails to predict video gaming. Table 4-L summarizes the results for console and handheld games and for total time spent with video games both for the entire sample and for each of the separate age groups we have been examining. Just over half (52%) of 8- to 18-year-olds play some kind of video game on an average day, with 41% reporting that they use a video game console and 35% a handheld video game. The result is that U.S. kids spend 49 minutes daily playing video games of one kind or another, with console games garnering roughly twice the amount of time as handheld games.

TABLE 4-L

## Video Game Exposure by Age

	8- to 18-year-olds	8- to 10-year-olds	11- to 14-year-olds	15- to 18-year-olds
<b>A. Average daily time with video games</b>				
Console	0:32	0:42 <sup>a</sup>	0:32 <sup>a</sup>	0:23 <sup>b</sup>
Handheld	0:17	0:23 <sup>a</sup>	0:20 <sup>a</sup>	0:10 <sup>b</sup>
Total video games	0:49	1:05 <sup>a</sup>	0:52 <sup>a</sup>	0:33 <sup>b</sup>
<b>B. Proportion using each type of video game the previous day</b>				
Console	41%	51% <sup>a</sup>	44% <sup>a</sup>	29% <sup>b</sup>
Handheld	35	42 <sup>a</sup>	40 <sup>a</sup>	23 <sup>b</sup>
Total video games	52	59 <sup>a</sup>	57 <sup>a</sup>	39 <sup>b</sup>
<b>C. Proportion who play video games more than 1 hour per day</b>				
Console	13%	15%	13%	10%
Handheld	6	8	7	4
Total video games	22	27 <sup>a</sup>	23 <sup>a</sup>	15 <sup>b</sup>

Note: Only those items in each row that do not share a common superscript differ from one another with statistical reliability. Those items without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

Video gaming is negatively related to age. Table 4-L indicates that substantially fewer 15- to 18-year-olds (39%) than either 8- to 10-year-olds (59%) or 11- to 14-year-olds (57%) use video games on any given day, and that they spend significantly less time using games (there is no significant difference in the proportion of the two younger age-groups that use video games nor in the amount of time devoted to them).

Video games are clearly gender-typed. Boys are much more likely than girls to play video games on any given day (63% vs. 40%, respectively), and to spend more than an hour daily with video games (31% vs. 11%). Boys spend almost three times as much time as girls playing video games (1:12 vs. 0:25). Although boys dominate both kinds of games, the gender difference is larger for console games than handheld games. That is, twice the proportion of boys than girls play console video games (55% vs. 27%), while the difference for handheld games is only 10 percentage points (40% vs. 30% for boys and girls, respectively). Similarly, boys spend triple the time that girls spend playing console games (48 minutes vs. 14 minutes), but just double the time for handheld games (24 minutes vs. 11 minutes) (see Appendix 4.8).

African American kids are more likely than White kids to play handheld video games, and to spend substantially more time playing either kind of game. Hispanic kids consistently fall between, not differing significantly from either of the other two race groups (see Appendix 4.8).

Finally, of our two socioeconomic indicators, only parent education is related to video gaming. That relationship is curvilinear, with kids whose parents completed some college reporting signifi-

TABLE 4-M

## Total Interactive Game Playing

	Average time	Proportion playing any video or computer game	Proportion playing 1+ hours
<b>Total sample</b>	1:08	59%	30%
<b>Age</b>			
8- to 10-year-olds	1:25 <sup>a</sup>	65 <sup>a</sup>	34 <sup>a</sup>
11- to 14-year-olds	1:09 <sup>a</sup>	63 <sup>a</sup>	31 <sup>ab</sup>
15- to 18-year-olds	0:52 <sup>b</sup>	49 <sup>b</sup>	24 <sup>b</sup>
<b>Gender</b>			
Boys	1:34 <sup>a</sup>	68 <sup>a</sup>	41 <sup>a</sup>
Girls	0:40 <sup>b</sup>	51 <sup>b</sup>	18 <sup>b</sup>
<b>Race</b>			
White	1:03 <sup>a</sup>	61	28
Black	1:26 <sup>b</sup>	60	37
Hispanic	1:10 <sup>c</sup>	55	29
<b>Parent education</b>			
High school or less	1:09 <sup>a</sup>	59 <sup>ab</sup>	30
Some college	0:50 <sup>b</sup>	52 <sup>a</sup>	24
College graduate	1:16 <sup>a</sup>	63 <sup>b</sup>	31
<b>Income</b>			
Under \$35,000	0:59	58 <sup>ab</sup>	31
\$35,000 – \$50,000	1:09	56 <sup>b</sup>	28
Over \$50,000	1:13	65 <sup>b</sup>	30

Note: Includes both computer games and video games. Within each cluster, only those items in each column that do not share a common superscript differ from one another with statistical reliability. Those items without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

cantly less time with video games than either kids whose parents completed no more than high school or those whose parents completed college (see Appendix 4.8).

**Overall interactive game playing.** Although the delivery systems vary, a good case can be made that in the eyes of most young people, there is little or no difference between computer games and video games. Indeed, many of the same games are played on each platform and the game experience is highly similar regardless of whether a game is played on a computer or a video game console. For this reason we also examine overall interactive game playing, combining kids who play either computer games and/or video games.

The summary of interactive game playing presented in Table 4-M indicates that 59% of the sample play some kind of interactive game on any given day (27% play only video games, 7% play only computer games, and 25% play both kinds of games), and that 30% play for more than an hour. The end result of combining time spent with computer games and video games into a

measure of total interactive gaming is to reveal that interactive games consume more than an hour daily of U.S. 8- to 18-year-olds' time. As with computer games and video games considered separately, time spent with interactive games decreases as youngsters grow older, boys spend more time than girls with interactive games, and African American kids spend more time than White kids with interactive games. The same curvilinear relationship found between video game playing and parent education (i.e., children whose parents completed some college play video games

less than those whose parents had no more than a high school education and than those whose parents completed college) also emerges for interactive games overall. It appears, then, that many young people do not limit themselves to just one kind of interactive game platform, and that when all interactive gaming is taken together, gaming occupies a substantial portion of U.S. children's media time (see Chapter 5).

Given these findings for each of the individual media, the next chapter turns to patterns in overall media use.