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# kids & media

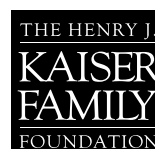
@ the new millennium

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**A Comprehensive  
National Analysis  
of Children's  
Media Use**



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## I. INTRODUCTION

Of the many technological innovations the U.S. has witnessed during the latter half of the 20th century, arguably none has been more important in the lives of children and adolescents than the emergence and evolution of the new communication technologies. In a little over 50 years, we have moved from a media environment dominated by local newspapers and radio stations to one characterized by an almost continual diet of highly vivid, on demand, audio-visual images, many with interactive capabilities.

Readers of this report who are nearing retirement age likely recall a childhood media environment consisting of magazines and newspapers, radio (drama, game shows, music, 5-minute news broadcasts), possibly a phonograph, and an occasional Saturday matinee at a neighborhood movie theater – with two or three television channels perhaps joining the mix during adolescence. In contrast, most of today’s high school students cannot recall a time when the universe of television channels was fewer than three dozen (even without cable or satellite, many homes can receive more than 20 broadcast channels), and their younger siblings have never known a world without interactive video games, personal computers, and the World Wide Web. Most graybeards can remember when chocolate syrup dabbed on a shirt sleeve served as blood in Gene Autry westerns; today’s teens take for granted films and video games in which blood, gore, and severed limbs complete with spasmodic nerve endings, are the norm. Some of us can still recall a time when adults were assumed to be advertisers’ only targets and companies such as 3M and General Electric sponsored *The Mickey Mouse Club*. Today’s teenagers, who spent in excess of \$94 billion of their own money in 1998 ([www.teenageresearch.com](http://www.teenageresearch.com), 1999), have never known a time

when they were not viewed as consumers, thus when substantial portions of media and media content were not tailored expressly for them (Pecora, 1998).

In this modern media environment, how much time do American children devote to each of the different media? What content do they encounter? Select? Ignore? What are the social conditions under which they consume different kinds of media content? Do media-use patterns differ within different sub-groups of youngsters? Do different sub-groups select different media mixes?

The importance of such seemingly straightforward questions cannot be underestimated. Until we have an accurate mapping of children’s and adolescents’ patterns of media use, we can never fully understand the role of mass mediated messages in the lives of youth. At bottom any statement about how media content affects what youngsters believe and how they act rests on an assumption that those youngsters are exposed to the message. But what is the basis for such an assumption? Do we really have an accurate picture of children’s and adolescents’ patterns of media use?

Literally hundreds of empirical studies conducted over the past half century leave little doubt that, given exposure, media content can and does influence youngsters’ beliefs, attitudes, and behaviors. Indeed, the evidence is so ample that few mass communication scholars hesitate to list mass media as equal in importance to most other socialization agents (e.g., parents, schools, churches) in the lives of contemporary U.S. children (see, for example, Christenson & Roberts, 1998; Comstock with Paik, 1991; Roberts, in press). This same body of research also tells us that the nature and degree of media influence depends on a wide array of factors, not the least of which are the various facets of media use characterized in the questions posed above: media choices, media

mix, media time, content selection, consumption conditions, subgroup characteristics.

What is surprising, given the growing concern with the role of media in children's lives and the large number of empirical studies examining children and media, is the absence of comprehensive, current information about overall media use patterns among contemporary U.S. youth. Surprising though it may seem, no study in the public domain has ever examined the full pattern of media use among a representative sample of U.S. youth, let alone how children have accepted, adopted, and begun to use the proliferation of new media that have become available over the past few years.

**The changing media landscape.** The media environment of children has changed in several ways, each of which has affected the kinds of information available and/or how youth interpret that information and integrate it into their belief systems. Changes include increases in both the number and kinds of media available, in the number of choices each medium offers, in the fidelity with which symbols and images can be experienced, and in the degree of privacy with which each medium can be experienced.

Clearly the kinds of media through which youngsters acquire information has exploded. The first large-scale examinations of children's media use in North America, conducted in the late 1950s and 1960s (e.g., Lyle & Hoffman, 1972; Schramm, Lyle & Parker, 1961; Steiner, 1963) needed to survey only a few media: television, radio and records, print (newspapers, magazines, books), and movies. By the 1980s, however, the media landscape looked quite different. It now included broadcast, cable, and satellite television, the TV remote control, the VCR, a growing number of books and magazines aimed specifically at children and adolescents, numerous audio media (e.g., radio, stereo systems, portable radios, tape and CD players), video games, and the personal computer (see Dorr & Kunkel, 1990). As the century draws to a close, the media environment continues to change. Video games have become miniaturized and highly portable; the personal computer now includes CD-Rom capabilities and serves as a gateway to the Internet, and seemingly unlimited access to any and all human information. And, we are told, portable telephones are about to merge with the World Wide Web and mainstream virtual reality media loom just ahead.

Not only have new media appeared, but older media have evolved, offering more channels more vividly than ever before. In the mid-1950s, major television markets typically boasted five or six broadcast channels; today, cable and satellites make literally hundreds of channels a possibility in even the most isolated locations. At the half-century mark, a few of our larger cities hosted as many

as eight or ten A.M. radio stations; today, the radio guide in San Francisco lists 27 AM and 46 FM stations. In the early 1950s *Billboard* magazine reported separate charts for 3 categories of music recordings; *Billboard* today charts more than 20 music genres. As recently as 1985, most personal computers were limited to whatever software one loaded on them; today they serve as portals to a world wide network of content so vast and fluid that it is impossible to describe.

Along with rapid growth in media channels, digital technology is dramatically altering media experiences, providing sights and sounds that equal – some would argue surpass – reality. Today's audiences hear orchestras in their own homes with the fidelity of the concert hall; they experience space travel in movie theaters so real that it can engender motion sickness; almost any screen they turn to can portray violence and mayhem so vividly that it leaves viewers ducking to avoid being splattered. And finally, the new interactive media have transformed listening and viewing audiences into active participants. Children no longer simply watch actors shoot at each other; they now take part in the action, blasting anything on-screen that moves.

There is also good reason to believe that the proliferation and miniaturization of communication devices themselves is changing the social context of media use, turning what was once a family experience into an activity that, for many youngsters, is more and more private. The data we will report in this study show that almost nine out of ten U.S. households (88%) have two or more television sets (60% have three or more), and about half of all children (53%) have a television in their bedroom. Similarly, it is a rare adolescent who does not own a radio, and a CD or tape player, also typically used in private, whether in the bedroom, the automobile, or through personal headphones. Nearly 7 out of ten (69%) households with children under 18 own a computer, and just under half (45%) have Internet access. Often youngsters sit at the computer terminal alone, many in the privacy of their bedroom. In other words, although it has always been possible for youth, especially adolescents, to engage in various kinds of media use with some degree of privacy, the new media appear to have given today's kids a great deal more autonomy in their media selection, and a great deal more freedom from adult supervision of or comment about the messages they receive than in even the very recent past.

For much of the latter half of the 20th century then, and particularly during the last two decades, North American children's media environment has undergone revolutionary change. Today's youth have access to more media with more channels or outlets within each medium, offering more (and more varied) content, more vividly than even the most "outlandish" mid-century science

fiction novels once predicted. And perhaps most important, technological changes and contemporary social trends may be combining to create a media environment in which youth use these media largely independent of adult supervision or comment – indeed, often absent adult awareness.

**Children and media: A history of concern.** Expressions of concern about children and media – or more accurately, about content from “outside” that media make available to children – can be traced back at least to Plato’s defense of censorship in *The Republic*, and have continued with the introduction of each new medium. Regardless of historical period, whenever children have acquired access to “stories from outside,” (whether from a storyteller, a book of fairy tales, or a screen of any kind), parents, educators, and social critics have worried (Roberts, in press; Starker, 1989). Concern mounted significantly, however, with the introduction of electronic media (e.g., motion pictures; radio), especially the introduction of television in the 1950s. Electronic media, but particularly television, gave children both physical and psychological access to a much wider array of content than ever before available. Between 1948, when there were barely 100,000 television receivers in the United States, and the end of 1959, when seven out of eight homes (about 50 million) had acquired a set, youth entered a new world – new in terms of the amounts and kinds of information, ideas, and images easily available, and in terms of their growing “information independence” – that is, their ability to access and process such information more free from adult supervision than in any previous period. In the course of that single decade, the media environment changed from one in which parents could serve as relatively effective gatekeepers, to one in which the gates began to leak at ever more alarming rates.

Prior to television, parents could exert at least some control over children’s access to messages. The seven or eight years it took most children to learn to read provided time for parents to establish the “cognitive templates” which their offspring used to interpret the meaning of print and audio symbols. Television was different. With its easily accessed, easily interpreted audio-visual symbols, it created a new kind of symbolic environment. Once in the home, television was on much of the time (in some homes, most of the time). It provided even very young children both physical and psychological access (three year-olds can operate the TV set and have little difficulty making some kind of sense of audio-visual symbols) to numerous stories from “outside” the home well before parents had time to establish baseline definitions of the world. (Although motion pictures were available to youngsters before 1950, it was an unusual child who spent more than a couple of hours a week in a

movie theater, and it was a time when most youngsters still asked for permission and money to attend the movies.) Small wonder that parental worry about the potential impact of content over which they had little or no control increased substantially during television’s first ten years (Roberts, in press), and continues to this day (Kaiser Family Foundation, 1998).

Small wonder, too, that this same decade saw the real beginning of what has become a long tradition of scientific study on children and media. Although the 1930s had witnessed a brief spate of research activity concerned with motion pictures and youth (Charters, 1933), it was not until television had moved into a majority of U.S. households that sustained scientific examination of whether and how constant audio-visual images might influence youth took hold. Over the ensuing half century, literally hundreds of studies have examined how children and youth use and respond to mass media. The research has demonstrated quite clearly that media messages can and do influence children’s and adolescents’ beliefs, attitudes, and behavior across a wide range of topic areas. Moreover, numerous experimental studies now document how different attributes of particular content (e.g., is an act portrayed as rewarded or punished? is there repetition?), particular audience members (e.g., are they boys or girls? children or adolescents? similar or dissimilar to the actors? from family environments that encourage or discourage exploration of new ideas?), and particular reception conditions (e.g., does the child watch alone? with peers? with parents? in a public or private venue?) interact with each other to mediate different effects of media use. In short, when all of the political rhetoric is cut away, there is ample empirical evidence that media messages play a significant role in the socialization of youth (for reviews see: Christenson & Roberts, 1983, 1998; Comstock, et al, 1978; Comstock with Paik, 1991; Federman, Carbone, Chen & Munn, 1996; Huston, Donnerstein, Fairchild, Feshbach, et al., 1992; Paik & Comstock, 1994; Roberts, 1993; Roberts & Maccoby, 1985; Wartella & Reeves, 1987; Wilson, Kunkel, Linz, Potter, et al., 1996).

**Previous research on children’s media use.** Surprisingly, in the midst of this growing body of research there remain significant questions about real-world patterns of media use among youth – questions about which kids encounter which messages, how often, from which sources, and under what conditions. Even more important given the explosion in new communication technologies and the evidence provided by our eyes that youth are often among the early adopters of these new technologies, we know very little about how kids mix and balance the wide array of media available to them today (e.g., might a youngster’s fascination with the World Wide Web lead to a reduction in television viewing time?).

Even though children and media have been a research focus for almost half a century, and even though a full understanding of the role of media in the lives of youth requires careful documentation of how they use each different medium, most of our information about children's media use patterns comes either from relatively small, non-representative samples of U.S. children, or from studies that have focused on a relatively few media. Although a few recent national sample surveys have asked a few questions about children's use of a few media (e.g., Horatio Alger Foundation, 1997; Kaiser Family Foundation, 1998; Stanger & Gridina, 1999; *Television in the Home*, 1997), these are more the exception than the rule. The majority of academic studies of children's media use tend to focus on just a few media (e.g., television, radio, newspapers) and to use small, and/or non-representative samples of young respondents. Thus we often base conclusions on studies of junior high school students in the southeast (Brown, et al., 1990), 9th and 10th graders from Michigan (Greenberg, et al., 1986), high school students from the San Francisco Bay Area (Roberts & Henriksen, 1990), or 6-12 year-olds from Portland, Oregon (Christenson, 1994). We have found no study in the public domain that has surveyed a large, representative sample of U.S. youth and that has included items concerning a full array of media and media behaviors – that is, questions about amount of use, content selection, the social context in which use occurs, and the inter-relationships among television (broadcast and cable), videos, motion pictures, radio, CDs and tapes, print (newspapers, magazines, books), video games, and the computer (including games and the Internet).

Although these and similar studies of children and adolescents have produced relatively consistent findings with regard to the relationship between media use and various social and demographic variables, they have left several important gaps in our knowledge about children's media use. For example, many studies report the average amount of time children spend with one or another medium, but these averages conceal a great deal of variation. Some children watch no television on an average day, others view more than eight hours. Some children have no access to a computer, others spend much of their free time online. Some children may hear one or two top-40 songs while being driven to soccer practice, while for others Walkman earphones serve as a standard part of the wardrobe and the latest hip hop hits wash over them continually. More interesting than either averages or the fact that children differ greatly in how they use media, however, is that much of the variation in children's media use is predictable. That is, the

amount of time kids spend viewing, listening, or going online – as well as what they watch, hear, or access – is related to a wide variety of social and demographic factors, as well as certain conditions within the household.

In addition, large disparities often exist among different estimates of the total amount of time children devote to the various media. For example, within any ten-year period estimates of children's daily television viewing may range from about two hours (e.g., *Television in the Home*, 1997) to over five hours (e.g., Brown, et al, 1990). Similarly, different studies have found that different media dominate. That is, although some researchers report that adolescents devote more time to television than to music media (e.g., Brown, et al., 1990; Horatio Alger Association, 1997), others argue just the reverse (e.g., Roberts & Henriksen, 1990; Christenson & Roberts, 1998). Large gaps also exist in our knowledge of total media budgets and of the inter-relationships among all of the various media.

In short, although previous empirical studies have touched on a few of the important facets of children's and adolescent's media use, and have provided us with very good evidence that children devote a lot of time to all of the mass media, several factors limit the generalizations that can be drawn from these studies of children's media use. Among these limiting factors:

- relatively few studies have used nationwide probability samples that are truly representative of U.S. children;
- those studies with representative samples have tended to focus on one particular medium, and include only a few questions about other media for comparative purposes;
- sampling procedures that would promote studying media use within various racial/ethnic groups have been neglected;
- questions assessing use of a full complement of available media have been ignored, in favor of focusing on one or two media;
- the variety of measurement techniques that has been used precludes meaningful comparisons among different studies.

As a result, there exists little public information about how the emergence of new media has influenced the overall media mix for different children, about whether recent changes in the media environment have changed how much time youth devote to different media, and about how they use those media as we enter the 21st century. The goal of this study is to fill in many of these gaps in our knowledge, to provide a more solid base on which to build future research concerning the effects of media on young people, and to help develop strategies for the proactive use of media to communicate with and inform America's youth.



## II. METHODS

**Overview.** In order to paint a comprehensive picture of children's media environment and media use patterns, the Kaiser Family Foundation worked with Stanford University Professor Donald F. Roberts, Ph.D., and staff at Harris Interactive, Inc. (formerly Louis Harris and Associates), to design a national study of the media environment and media habits of U.S. children ages 2 through 18 years. Harris Interactive collected all data, and the results were analyzed by Foundation staff and Professor Roberts.

The report includes results for two nationally representative samples totaling 3,155 children ages 2 through 18 years, including over-samples of both Black and Hispanic children. Data concerning media availability and media use the previous day were collected from all of these children. In addition, week-long media use diaries were collected from 621 of these children.

A nationally representative sample of 2,065 children in the 3rd through 12th grades provided their own data about their media use via written questionnaires administered in school. In addition, parents (or primary caregivers) of a nationally representative sample of 1,090 children aged 2 through 7 years provided data on young children via face-to-face interviews administered in the home. Finally, 487 children in 3rd grade or above completed week-long diaries about their media use, and 134 parents completed identical diaries about the media use of their 2-7 year-old children, providing a sample of 621 supplementary diaries.

Except where noted, the findings reported here are based on the survey questionnaires. Data from the diaries were used primarily for verification, to examine media use patterns among individual children over the course of a week, and to collect additional information about media genres.

The following briefly describes the study's methodology. In addition, Appendix A presents full details on sampling, questionnaire administration, interviewer training, and statistical levels of confidence. Appendix A also provides further information on questionnaire and item design.

**Samples.** The data for this study come from two different national samples, each drawn using different sampling procedures:

- a nationally representative sample of 1,090 children aged 2 through 7 years;
- a nationally representative sample of 2,065 students in grades 3 through 12 (8-18 years).

The sample of younger children was obtained using an area probability sampling procedure based on a U.S. Census list of 225,000 block groups in the continental United States. The sample of school children (3rd through 12th graders) employed a stratified, two-stage national probability sample in which, at stage 1, schools were randomly selected from a list of approximately 80,000 public, private, and parochial schools in the United States, and at stage 2, grades and classes within grades were randomly selected to participate. Both the in-home (younger) and the in-school (older) samples included an oversampling of Black and Hispanic children. The final samples were weighted to insure that they were nationally representative (see Appendix A). The margin of error is +/- 3% for results based on the combined sample, +/- 3% for the in-school sample, and +/- 5% for the at-home sample.

Respondents in both samples were invited to continue participation in the study by completing a seven-day media diary in the home, a procedure which provided a self-selected diary sample consisting of 621 children (see Appendix B for further details).

Students in the school-based samples completed their own diaries; parents kept the diaries for the younger children.

**Survey questionnaire administration.** Children in the school-based sample completed self-administered questionnaires in their classrooms. Questionnaires were designed to require about 40 minutes to complete. Different reading abilities in younger and older school-aged children required the use of different versions of the in-school questionnaire. 7th-12th graders responded to more questions than 3rd-6th graders. Appendix C contains all versions of the questionnaires. For the in-school questionnaires, trained interviewers were present in each classroom to answer any questions and provide assistance to students.

Given our interest in obtaining information about the media habits of even very young children, in combination with the comprehensive nature of the questionnaire, it was impossible to administer questionnaires directly to the 2-7 year-olds. Thus, information about the younger sample is based on individual, face-to-face interviews conducted with parents and caregivers. Because information on 2-7 year-olds is based on parent-proxy interviews, comparisons between responses of the youngest children and their school-based counterparts should be approached with some caution.

There is good reason to expect parental responses to be somewhat more conservative than children's responses. Parents frequently are not present when their children are engaged in media activities, so they may be unaware of how much of which media and what content their children consume under what conditions. Moreover, particularly in light of recent and ongoing public discussion of the role of media in children's lives, many parents may be inclined to give "socially desirable" responses to some of the media questions. In short, parents may well provide relatively conservative estimates of their young children's media behavior.

**Survey questions.** Insofar as possible given time constraints, questionnaires were developed to enable us to fully describe contemporary U.S. children's media environments and media habits. Items were designed to obtain estimates of the kinds and numbers of media available within children's homes and within their bedrooms, the amount of time children are exposed to each of the various media, the kinds of media content they consume, the social conditions of media consumption (who they are with; where they use media), as well as a good deal of background information.

*Demographic and background items* include such things as children's ages and school grade, gender, race/ethnicity, household characteristics (e.g., single- or two-parent family; number of sib-

lings; etc.), level of parent education, and for school children, self-reports of school grades.

In addition to information obtained directly from children or parents, some demographic information was obtained from external sources. For example, determination of whether children lived in an urban, suburban, or rural area was based on information contained in sample files of where older children's schools and younger children's households are located.

Income represents perhaps the most problematic demographic measure in the study. Because it is extremely difficult to obtain accurate estimates of household income from school-aged youth, we turned to federal estimates of median household income in the zip code area of each participating school (for the school-based sample) or of each participating household (for the in-home sample). However, there is no question that some students from higher income households attend schools located in low income zip code areas, and that some students from lower income households attend schools located in relatively higher income zip code areas. Similarly, some high income households may be located in "low income zip codes," and vice versa. In other words, our measure of income is far from perfect; it is not a measure of income associated with each individual household. Thus, it is important to keep in mind that comparisons based on income provide rough estimates. Nevertheless, our data reveal that similar patterns of results are produced by several different variables that have been demonstrated to correlate with more direct measures of individual and/or household income (e.g., parent education, single-parent vs. two-parent family composition). Such results increase our confidence in the findings for various sub-group comparisons based on our proxy measures of income. Furthermore, we collected additional information about the school as further proxy for the socioeconomic status of the student body (percent of kids at schools that are eligible for federally funded school meal programs, and whether or not the school is eligible for Title 1 funds).

Finally, a small battery of items designed to assess children's *social/psychological well-being* was also included. These consisted of four-point scales assessing agreement with statements such as "I am often bored," "I have a lot of friends," and "I have been happy at school this year." These items were combined to form a "Contentedness Index" for 8-18 year-olds, and the resulting distribution of scores was subdivided to form three groups, with children scoring in roughly the bottom and top 15% comprising the low and high groups respectively, with the remaining youngsters (approximately 70%) making up the middle group.

*The media environment* was assessed by asking how many of each of the following media were to be found in the child's house-

hold and bedroom: television, VCR, radio, tape players, CD players, video game systems, computers, cable/satellite TV connections, premium cable channel subscriptions, computers with CD-Rom drives, and computers with Internet connections. Additional items were included to assess whether the child’s household was one in which an operating television was a relatively constant part of the environment (e.g., questions asking how often the TV set was usually on, and usually on during meals), as well as an item asking if there were family rules regarding television watching.

*Amount of media use* was assessed by asking children to estimate the amount of time they spent, in minutes and hours, exposed to each of the following media *on the previous day*: magazines, newspapers, books for personal enjoyment (students in grades 7 through 12 were also asked about book reading for school homework), television, videotapes, movies, video games, CDs and tapes, radio, and computer (both in and out of school, and for such different activities as school work, e-mail, looking at Web sites, playing games, etc.). Questionnaire administration was spread across the days of the week so that “time spent yesterday” refers proportionally to each of the seven days. Appendix A provides further detail on time-estimate items.

*Media content consumed.* Any time a youngster indicated that he or she had used magazines, books, videos, movies, CDs, tapes, video games, or computer games the previous day, they were also asked to indicate what kinds of content they had consumed by marking a list of content genres typically associated with each medium (e.g., for CDs and tapes, genres included alternative rock, top-40 rock, rap/hip hop, salsa, and so forth). All content genres for all media are included in Appendix D. Assessment of television content consumed was based on specific programs that children indicated they had watched; each TV program was classified as belonging to one of the television genres included in Appendix D.

*Social context of media use.* Respondents who indicated using television, videos, movies, video games, and/or computers were further asked whether they used the medium alone or in the company of others, and to identify any “others.” Unfortunately, time constraints precluded including similar items about print media and audio media.

*Media use diaries.* In addition to information obtained from the survey questionnaires, a self-selected sub-sample of children completed relatively demanding, 7-day media use diaries. The diaries asked children to respond to four primary questions for each

half hour of each day, beginning at 6:00 am and finishing at 12 midnight. The four primary questions were:

- What kind of media [if any] were you using?
- Where were you [when using any medium]?
- Who was with you?
- What else were you doing?

Finally, at the end of each day, diary respondents were asked to estimate about how much time they spent on each of the following activities:

- being in school
- working at a job
- doing chores
- doing homework
- participating in sports, a hobby, or a club
- being in child care or a before- or after-school program

Appendix B provides further detail on diary design and administration, as well as sample pages from the diary.

**Analysis.** Findings discussed in this report are analyzed using standard statistical tests of significance including analysis of variance and difference in population proportion tests. Standard levels of significance are applied at the  $p < .05$  level.

In all tables in this report, a system of superscripted letters is used to indicate statistically significant differences between proportions or means. Proportions or means that share *any* superscripted letter **do not** differ significantly. Hence, numbers with *no* superscripted letters in common *differ reliably*.

For example, according to the rules set out above, in the first set of numbers listed below, the first proportion (20%) differs significantly from 35% *and* 48%; 35% also differs from 48%. None of the numbers have superscripted letters in common.

In example 2, the first proportion (12%) differs significantly from the second (30%); the third proportion (17%) does not differ from either the first or the second proportion.

In the third example, the first proportion, 10% differs significantly from the second proportion (33%), but 10% and 14% do not differ significantly. The second proportion (33%) differs significantly from the third proportion (14%).

Example 1:	20% <sup>a</sup>	35% <sup>b</sup>	48% <sup>c</sup>
Example 2:	12% <sup>a</sup>	30% <sup>b</sup>	17% <sup>ab</sup>
Example 3:	10% <sup>a</sup>	33% <sup>b</sup>	14% <sup>a</sup>



### III. THE MEDIA ENVIRONMENT

**Household media.** The parents and children in our sample made it abundantly clear that today's youth live in a media-rich environment, with access to information and entertainment fare seldom dreamed of a few decades ago. It is unusual for a child to live in a household that does not contain a television and a VCR, a radio, and a CD or tape player – and most have two or more of each. The large majority of children also live in homes with computers and video game players. Indeed, the only kinds of media that fewer than half of children have access to are premium cable channel subscriptions (44%) and the Internet (45%).

In the midst of such media abundance, television remains the dominant medium. As Table 1 illustrates, virtually all (99%) children live in homes with at least one television set and 97% have a VCR. In addition, 74% of children live in homes with subscriptions to cable or satellite television, and 44% to premium channels. But television is only one of many media. Over 90% of

children live in homes that have radios, tape players, and CD players; more than two thirds have video game players and more than two thirds have computers – 59% with CD-Rom drives and 45% with Internet access. Moreover, the majority of children live in homes that contain at least two of each of these media, with the exception of computers (21% of children reporting two or more) and video game players (38% with two or more). Indeed, 60% report three or more televisions and 63% claim three or more radios. Using averages as a convenient way to summarize these data, the typical American child enters the 21st century living in a household with 3 television sets, 2 VCRs, 3 radios, 3 tape players, 2 CD players, a video game player, and a computer.

Of course, such averages often hide as much as they reveal. Media availability varies depending on such things as child's age, gender, race/ethnicity, family socioeconomic status, and so forth, since different economic resources, motivations, interests, and

TABLE 1

#### Media Availability in Children's Homes: Children 2-18

Medium	Average	Percent of Children Who Live in Homes...		
		with 1 +	with 2 +	with 3 +
Television	2.9	99%	88%	60%
VCR	1.8	97	58	21
Radio	3.1	97	85	63
Tape Player	2.6	94	71	47
CD Player	2.1	90	59	35
Video Game Player	1.4	70	38	18
Computer	1.0	69	21	6
Cable/Satellite TV		74		
Premium Cable Channels		44		
Internet Access		45		
CD Rom		59		

TABLE 2

## Media Availability in Children's Homes by Age

Medium	Percent of Children Who Live in Homes...				Percent of Children Who Live in Homes...			
	2-7 Years		8-18 Years		8-13 Years		14-18 Years	
	with 1 +	with 3 +	with 1 +	with 3 +	with 1 +	with 3 +	with 1 +	with 3 +
Television	100%	45%	99%	69%	99%	69%	99%	71%
VCR	96	12	98	26	97	23	99	30
Radio	98	48	97	71	96	63	98	82
Tape Player	90	26	97	61	96	56	98	68
CD Player	83	14	94	50	92	40	97	59
Video Game Player	52	5	82	25	82	27	81	22
Computer	62	3	73	8	69	8	79	9
Cable/Satellite TV	73		74		74		74	
Premium Cable Channels	40		46		49		41	
Internet Access	40		48		44		54	
CD-Rom	52		63		58		69	

abilities located by these attributes may make one or another medium more or less preferable to others. Table 2, for example, shows the percent of children who live in homes that own various media, broken out by age of the children. Although television, VCRs, and radios reach saturation levels regardless of a child's age, access to music media (tape and CD players), video game players, computers, and computers with CD-Roms and/or Internet connections continues to increase with the child's age. These trends are best illustrated by the responses of 2-7 year-olds, 8-13 year-olds, and 14-18 year-olds presented in Table 2. For example, 62% of children 2-7 year-olds have computers, 69% of 8-13 year-olds, and 79% of 14-18 year-olds live in homes with computers. Relatively large differences also appear as a function of age when we examine multiple instances of each medium within households. For example, 45% of children 7 years and under live with three or more television sets, but 69% of children 8 years and older report three or more sets; similarly, where 48% of the 7-and-unders live in homes with three or more radios, 63% of 8-13 year-olds and 82% of 14-18 year-olds report three or more radios.

With one exception, there do not appear to be meaningful gender differences in access to in-home media. As Table 3-A illustrates, the proportions of girls and boys with access to the various media seldom differs by more than one or two percentage points. Only video game player ownership is related to gender, with 77% of the boys and 64% of the girls reporting at least one such system in their home, the difference increasing when homes with multiple video game players are considered.

Table 3-B shows that there are several differences in household media according to the race/ethnicity of the child. First, Caucasian youth are more likely than either African American youth or Hispanic youth to live in homes with a CD player (92%, 83%, and 86%, respectively). Second, many more African

American kids live in homes that subscribe to premium cable channels (55%) than do either Caucasian (41%) or Hispanic (42%) kids. But the most striking difference located by race/ethnicity occurs in computer ownership. Seventy-eight percent (78%) of Caucasian kids come from homes with at least one computer, substantially more than African American (55%) or Hispanic (48%) youngsters. White children are also more likely than minority youth to have access to computers with a CD-Rom drive (Caucasian: 68%; African American: 42%; Hispanic: 37%) and to computers with Internet access (54% to 29% and 24%, respectively). Finally, race/ethnicity also locates differences in whether or not children live in homes with multiple instances of each medium. White youngsters are more likely than either African Americans or Hispanics to report three or more radios, and they are more likely than Hispanic kids to live with three or more tape players. African American kids are more likely than Caucasians or Hispanics to report three or more television sets; and they are more likely than Caucasians to report three or more video game systems.

The story is similar for children who go to school in or live in zip code areas with different median incomes. Given the near-saturation levels for most media noted above, it is not surprising that regardless of income measures, there is little difference in children's access to at least one television, radio, or tape player. Income measures do, however, locate differences in the likelihood that children come from homes equipped with CD players, video game systems, and most especially, computers. Forty-nine percent (49%) of youngsters who go to school in or live in zip codes in which the median household income is \$25,000 or less per year report having a computer at home; 66% of youngsters from zip codes earning between \$25,000 and \$40,000 report having a computer; 81% of youngsters from zip codes where median household

TABLE 3 - A

Media Availability in Children’s Homes by Gender

Medium	Average	Boys Media in home			Average	1 +	Girls Media in home		
		1 +	2 +	3 +			1 +	2 +	3 +
Television	2.9	99%	89%	61%	2.9	99%	87%	60%	
VCR	1.8	97	55	20	1.9	97	60	20	
Radio	3.1	97	85	62	3.2	97	84	63	
Tape Player	2.5	94	72	47	2.6	94	72	48	
CD Player	2.1	90	58	34	2.2	90	61	36	
Video Game Player	1.6	77 <sup>a</sup>	46	21	1.1	64 <sup>b</sup>	29	12	
Computer	1.0	67	19	5	1.1	71	24	6	
Cable/Satellite TV		75				72			
Premium Cable Channels		44				44			
Internet Access		46				44			
CD-Rom		58				59			

The system of superscripted letters (shown in the table to the left) used to indicate statistical significance between proportions or mean times applies to all subsequent tables in this report. Numbers that share any superscripted letter **do not** differ significantly. Hence, numbers with *no* superscripted letters in common *differ reliably*.

For example, in the first set of numbers listed below, the first proportion (20%) differs significantly from 35% and 48%; 35% also differs from 48%. None of the numbers have superscripted letters in common.

In example 2, the first proportion (12%) differs significantly from the second (30%); the third proportion (17%) does not differ from either the first or the second proportion.

In the third example, the first proportion, 10% differs significantly from the second proportion (33%) but 10% and 14% do not differ significantly. The second proportion (33%) differs significantly from the third proportion (14%).

Example 1:	20% <sup>a</sup>	35% <sup>b</sup>	48% <sup>c</sup>
Example 2:	12% <sup>a</sup>	30% <sup>b</sup>	17% <sup>ab</sup>
Example 3:	10% <sup>a</sup>	33% <sup>b</sup>	14% <sup>a</sup>

Note: Proportions of youngsters in each gender group reporting one instance of a medium are compared; within each row, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

TABLE 3 - B

Media Availability in Children’s Homes by Race/Ethnicity

Medium	Average	Caucasian Media in home			Average	African American Media in home			Average	Hispanic Media in home		
		1 +	2 +	3 +		1 +	2 +	3 +		1 +	2 +	3 +
Television	2.9	99%	88%	59%	3.2	99%	92%	70%	2.7	100%	85%	51%
VCR	1.9	98	60	21	1.8	95	57	23	1.6	96	46	15
Radio	3.4	98	89	69	2.8	97	80	55	2.6	98	75	46
Tape Player	2.7	95 <sup>a</sup>	74	50	2.5	93 <sup>ab</sup>	68	44	2.2	90 <sup>b</sup>	63	37
CD Player	1.6	92 <sup>a</sup>	63	39	1.8	83 <sup>b</sup>	53	26	1.8	86 <sup>b</sup>	46	24
Video Game Player	1.3	70	36	16	1.6	74	46	24	1.2	67	32	16
Computer	1.2	78 <sup>a</sup>	25	7	.8	55 <sup>b</sup>	14	3	.7	48 <sup>b</sup>	13	3
Cable/Satellite TV		75				74				71		
Premium Cable Channels		41 <sup>a</sup>				55 <sup>b</sup>				42 <sup>a</sup>		
Internet Access		54 <sup>a</sup>				29 <sup>b</sup>				24 <sup>b</sup>		
CD-Rom		68 <sup>a</sup>				42 <sup>b</sup>				37 <sup>b</sup>		

Note: Proportions of youngsters in each race/ethnicity sub-group reporting one instance of a medium are compared; within each row, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

TABLE 3 - C

Media Availability in Children’s Homes by Community Income

Medium	Average	Community income Under \$25,000 Media in home			Average	Community income \$25,000-\$40,000 Media in home			Average	Community income Over \$40,000 Media in home		
		1 +	2 +	3 +		1 +	2 +	3 +		1 +	2 +	3 +
Television	2.8	99%	86%	57%	3.0	99%	89%	63%	3.0	99%	89%	60%
VCR	1.7	94 <sup>a</sup>	51	16	1.8	97 <sup>ab</sup>	57	21	1.9	98 <sup>b</sup>	61	22
Radio	2.7	97	77	50	3.1	97	86	63	3.4	98	88	70
Tape Player	2.2	91	64	37	2.6	95	74	48	2.7	95	76	52
CD Player	1.8	84 <sup>a</sup>	49	25	2.1	89 <sup>a</sup>	59	36	2.3	93 <sup>b</sup>	65	40
Video Game Player	1.4	71 <sup>ab</sup>	39	19	1.5	74 <sup>a</sup>	40	19	1.3	67 <sup>b</sup>	34	15
Computer	.6	49 <sup>a</sup>	8	2	1.0	66 <sup>b</sup>	19	6	1.3	81 <sup>c</sup>	30	8
Cable/Satellite TV		71				73				77		
Premium Cable Channels		48				45				41		
Internet Access		23 <sup>a</sup>				42 <sup>b</sup>				58 <sup>c</sup>		
CD-Rom		36 <sup>a</sup>				57 <sup>b</sup>				71 <sup>c</sup>		

Note: Proportions of youngsters in each zip code income sub-group reporting one instance of a medium are compared; within each row, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

earnings exceed \$40,000 report a computer in their home. Not surprisingly, the pattern holds for computers with CD-Rom drives (36%, 57%, and 71% of lower, middle, and higher income communities, respectively) and for computers with Internet access (23%, 42%, and 58%, respectively). In addition, youngsters who go to school in or live in high income zip codes are more likely than those from low income areas to report owning a CD player. On the other hand, youngsters from high income zip codes are less likely to live in households with video game systems than are their middle income counterparts. Community income level is also related to the likelihood that children live in households that have multiple instances of each medium. Although the percentage differences in homes with multiple televisions and VCRs are trivial, as income level goes up, there is a consistent increase in the likelihood that a child lives in a household with multiple instances of radios, tape and CD players, and computers.

**Personal media.** Not only do today's children live in media saturated households, but there is also a significant amount of privatization of media in the sense that many youngsters report having one or more media in their own bedrooms – media that they control and can use in private. Table 4 presents the proportion of all youngsters and of various age groups reporting each medium in their bedroom. It reveals that half or more of all children have bedrooms that contain a television (53%), a radio (70%), a tape player (64%), and/or a CD player (51%); 33% of children have video game systems, 29% have VCRs, and 16% are equipped with computers in their bedrooms.

Table 4 also reveals that the likelihood of most of these media being in a child's bedroom is strongly related to age. Children 7 years and younger are much less likely to have any of the media in their bedrooms than are their older counterparts. Nevertheless, a substantial proportion of even very young children have access to some media: a quarter of 2-4 year-olds have bedroom television sets, and almost a third have radios and/or tape players. Age is clearly related to when different media move to the child's room. Televisions, radios, and tape players begin to appear in children's rooms very early. Televisions, VCRs, video game players, and computers seem to have largely completed their migration to the child's room by the time a youngster reaches 13 years (that is, there is little increase beyond 13 years). The percentage of children with radios, tape players, and CD players in their bedrooms, however, continue to increase throughout later adolescence, no doubt a testament to the growing importance of popular music in adolescent lives.

As was the case for media in the home, the only notable gender difference in media in the child's bedroom relates to video game players. Table 5-A shows that boys are almost twice as likely as girls to have a video game system in their bedroom (43% to 23%).

Somewhat surprisingly, our income measures locate relatively few differences in the likelihood of a child having each of the various media in his or her bedroom (see Table 5-C). Moreover, the few differences that do occur reveal that children from the highest income category are least likely to report a bedroom equipped with a television set (44% of children who live in or attend schools in zip codes where the median income is over \$40,000 vs. 61% of children from zip codes with a median income under \$25,000 per year), a VCR (high income zip codes: 25%; low income zip codes: 34%), or a video game system (high income zip codes: 27%; low income zip codes: 38%). A similar pattern is produced for television in relation to parent education (Table 5-D): that is, children with a parent who completed college are less likely to have a television in their bedroom (46%) than are children whose parents had some college (58%) or who completed high school or less (59%). Children of parents with a college education are also less likely than those in either other group to have a CD player in their bedrooms, but more likely to have a radio or a tape player. They are more likely than kids whose parents completed no more than high school to have a computer in their bedroom.

Finally, echoing the findings for household media, Table 5-B reveals that race/ethnicity is also related to the likelihood that children have one or more of these media in their bedroom. White children are substantially less likely than either African American or Hispanic children to report a television in their bedroom (48%, 69%, and 60%, respectively), and Caucasians and Hispanics (both 27%) are slightly less likely than African Americans (35%) to have a VCR or a cable or satellite connection (23% versus 33%). Caucasian children are less likely than African American children to receive premium channels in their bedrooms. White children are more likely than either African American or Hispanics to inhabit bedrooms equipped with CD players, and are more likely than Hispanic youngsters to have radios and tape players. African American children are more likely than Caucasian children to report a video game system in their bedroom. There are no differences among these groups in the likelihood that there is a computer in the child's bedroom (14%, 18%, and 15% for Caucasian, African American and Hispanic youngsters, respectively).



**Constant television households.** In the late 1970s, Elliott Medrich (1979; Medrich, Roizen, Rubin & Buckley, 1982) demonstrated that children from households where television was usually playing in the background regardless of whether anyone was explicitly watching – what he called “constant television households” – typically watched more television than did their counterparts from homes where the television did not serve as background. Our study included two items designed to enable us to discriminate between households where television provides a relatively constant background versus those where it does not. Children were asked whether the television is on in their homes even if no one is watching “most of the time,” “some of the time,” “a little of the time,” or “never,” and whether or not a television is usually on during meals in their homes. A third item assessed household controls on television viewing, asking whether or not the child’s family had any rules about watching television.

As Table 6 illustrates, an operating television provides a constant background for a substantial proportion of children. Over 40% of our sample indicate that regardless of whether or not anyone is watching, the television is on in their homes “most of the time,” and almost 60% say it is usually on during meals. The only one of our demographic predictors to which this “constant television environment” is not related is gender. Constant television increases with the age of the child responding, 35% of younger viewers and 47% of older viewers saying a television is on in their home most of the time. This difference should be viewed with caution, however. As noted earlier in the discussion of methods, items such as those designed to identify “constant television households” are precisely the kinds of questions on which parents might under-report the amounts of time.

Our two most direct measures of socioeconomic status, median income of the zip code area in which the child’s school or household is located and highest level of parent education, are

TABLE 4

Media Availability in Children’s Bedrooms by Age

Medium	2-18 years	2-7 years	8-18 years	2-4 years	5-7 years	8-13 years	14-18 years
Television	53%	32% <sup>a</sup>	65% <sup>b</sup>	26% <sup>a</sup>	39% <sup>b</sup>	65%	65%
VCR	29	16 <sup>a</sup>	36 <sup>b</sup>	14	18	34	38
Radio	70	42 <sup>a</sup>	86 <sup>b</sup>	32 <sup>a</sup>	53 <sup>b</sup>	81 <sup>a</sup>	94 <sup>b</sup>
Tape Player	64	36 <sup>a</sup>	81 <sup>b</sup>	32 <sup>a</sup>	41 <sup>b</sup>	74 <sup>a</sup>	89 <sup>b</sup>
CD Player	51	14 <sup>a</sup>	75 <sup>b</sup>	9 <sup>a</sup>	18 <sup>b</sup>	64 <sup>a</sup>	88 <sup>b</sup>
Video Game Player	33	13 <sup>a</sup>	45 <sup>b</sup>	7 <sup>a</sup>	18 <sup>b</sup>	47	42
Computer	16	6 <sup>a</sup>	21 <sup>b</sup>	4 <sup>a</sup>	9 <sup>b</sup>	23	19
Cable/Satellite	24	14 <sup>a</sup>	30 <sup>b</sup>	10 <sup>a</sup>	18 <sup>b</sup>	28	32
Premium Cable Channels	11	5 <sup>a</sup>	15 <sup>b</sup>	4	5	15	15
Internet Access	7	2 <sup>a</sup>	10 <sup>b</sup>	1	2	9	12
CD-Rom drive	10	3 <sup>a</sup>	15 <sup>b</sup>	1 <sup>a</sup>	5 <sup>b</sup>	14	16

Note: Within each row and age sub-group, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

TABLE 5 - A

Media Availability in Children’s Bedrooms by Gender

Medium	Boys	Girls
Television	56%	50%
VCR	31	27
Radio	69	70
Tape Player	62	66
CD Player	49	54
Video Game Player	43 <sup>a</sup>	23 <sup>b</sup>
Computer	16	15
Cable/Satellite TV	26	22
Premium Cable Channels	12	11
Internet Access	8	5
CD-Rom	12	9

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

TABLE 5 - B

## Media Availability in Children's Bedrooms by Race/Ethnicity

Medium	Caucasian	African American	Hispanic
Television	48% <sup>a</sup>	69% <sup>b</sup>	60% <sup>b</sup>
VCR	27 <sup>a</sup>	35 <sup>b</sup>	27 <sup>ab</sup>
Radio	72 <sup>a</sup>	65 <sup>ab</sup>	64 <sup>b</sup>
Tape Player	66 <sup>a</sup>	59 <sup>ab</sup>	54 <sup>b</sup>
CD Player	54 <sup>a</sup>	45 <sup>b</sup>	43 <sup>b</sup>
Video Game Player	30 <sup>a</sup>	43 <sup>b</sup>	34 <sup>ab</sup>
Computer	14	18	15
Cable/Satellite TV	23 <sup>a</sup>	33 <sup>b</sup>	23 <sup>a</sup>
Premium Cable Channels	10 <sup>a</sup>	16 <sup>b</sup>	13 <sup>ab</sup>
Internet Access	7	6	5
CD-Rom	10	11	8

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

TABLE 5 - C

## Media Availability in Children's Bedrooms by Community Income

Medium	Less than \$25,000 yr.	\$25,000-\$40,000 yr.	Over \$40,000 yr.
Television	61% <sup>a</sup>	58% <sup>a</sup>	44% <sup>b</sup>
VCR	34 <sup>a</sup>	30 <sup>a</sup>	25 <sup>b</sup>
Radio	67	71	70
Tape Player	61	64	65
CD Player	51	53	51
Video Game Player	38 <sup>a</sup>	36 <sup>a</sup>	27 <sup>b</sup>
Computer	13	16	16
Cable/Satellite TV	26	25	22
Premium Cable Channels	14	12	9
Internet Access	5	7	8
CD-Rom	8	11	11

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

TABLE 5 - D

## Media Availability in Children's Bedrooms by Parent Education

Medium	High School or less	Some College	College or more
Television	59% <sup>a</sup>	58% <sup>a</sup>	46% <sup>b</sup>
VCR	27	29	29
Radio	64 <sup>a</sup>	65 <sup>a</sup>	74 <sup>b</sup>
Tape Player	56 <sup>a</sup>	58 <sup>a</sup>	71 <sup>b</sup>
CD Player	52 <sup>a</sup>	54 <sup>a</sup>	42 <sup>b</sup>
Video Game Player	33	34	31
Computer	10 <sup>a</sup>	13 <sup>a</sup>	19 <sup>b</sup>
Cable/Satellite TV	22	28	24
Premium Cable Channels	12	10	12
Internet Access	4 <sup>a</sup>	4 <sup>a</sup>	9 <sup>b</sup>
CD-Rom	8 <sup>a</sup>	10 <sup>ab</sup>	13 <sup>b</sup>

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

TABLE 6

## Indicators of “Constant” Household Television

Comparison Groups	Time television is usually on...			TV on during meals	Household television rules
	Most time	Some time	Little/never	% “yes”	% “yes”
Total Sample	42%	36%	22%	58%	50%
Age					
2-7 years	35 <sup>a</sup>	33	32	47 <sup>a</sup>	71 <sup>a</sup>
8-18 years	47 <sup>b</sup>	37	15	65 <sup>b</sup>	38 <sup>b</sup>
Gender					
Boys	41	36	21	59	50
Girls	43	38	16	57	51
Race/Ethnicity					
Caucasian	39 <sup>a</sup>	38	22	51 <sup>a</sup>	51
African American	56 <sup>b</sup>	27	16	76 <sup>b</sup>	46
Hispanic	42 <sup>a</sup>	35	23	63 <sup>a</sup>	50
Community income					
under \$25,000 year	51 <sup>a</sup>	32	17	70 <sup>a</sup>	45 <sup>a</sup>
\$25,000-\$40,000	44 <sup>a</sup>	36	19	62 <sup>b</sup>	49 <sup>ab</sup>
over \$40,000	36 <sup>b</sup>	37	27	48 <sup>a</sup>	54 <sup>b</sup>
Parent Education					
High school or less	53 <sup>a</sup>	33	14	69 <sup>a</sup>	42 <sup>a</sup>
Some college	46 <sup>a</sup>	33	21	62 <sup>a</sup>	55 <sup>b</sup>
College or more	33 <sup>b</sup>	38	27	47 <sup>b</sup>	54 <sup>b</sup>
Family Composition					
Two-parent	40	37	28	54 <sup>a</sup>	53 <sup>a</sup>
Single-parent	47	33	20	69 <sup>b</sup>	42 <sup>b</sup>

Note: For this table superscripts indicating reliable differences in proportions are presented for sub-groups within columns (as opposed to rows). Differences in proportions are tested for youngsters indicating the TV is on in their household “most of the time” and during meals, and for those indicating household TV viewing rules. Thus, within each sub-group in each of these three columns, proportions with no superscripted letters in common differ reliably. For example, more African American youth than either Hispanics or Caucasians say the TV is on in their household “most of the time,” but there is no reliable difference in the proportion of Hispanic and Caucasian youth who give that answer.

inversely related to constant television. That is, the likelihood that a television is constantly playing decreases as both income level and parent education increases. Fifty-one percent (51%) of the children attending school in neighborhoods where the median annual income is under \$25,000 report television on most of the time, compared to only 36% of those attending schools in neighborhoods where the median level exceeds \$40,000 per year. Similarly, 53% of children with parents who completed no more than high school live in constant TV homes versus 33% of children with parents who completed college. Children from both the middle income and the middle education sub-groups fall between. The same large differences hold for meals accompanied by television. Over 20% more children from low income or low education households report a television on during meals than do their high income or high education counterparts. Children from single-parent households are significantly more likely than children from two-parent households to eat meals in the presence of an operating television set. Finally, African American children are substantially more likely than Caucasian children to live in constant television households (56% versus 39%) and to live where the television is on during meals (76% versus 51%).

Similar demographic differences, albeit in the reverse direction, emerge in responses to the question about whether the child lives in a family that poses any kinds of controls on television viewing. Overall, 50% of the children stated that there were “television rules” in their homes, but younger children were much more likely than older children to have such rules: 71% of 2-7 year-olds vs. 38% of 8-18 year-olds. Although not shown in Table 6, the effect of age is particularly apparent when responses of narrower age groupings are compared. Thus, 51% of 8-10 year-olds, 44% of 11-13 year-olds, and only 25% of 14-18 year-olds report family television rules.

Presence or absence of family television rules also relates to various socioeconomic indicators: fewer children who go to school in low income areas report rules than do those who go to school in higher income areas; fewer children whose parents have completed no more than high school report rules than do either children from families with some college or families with a parent who completed college; more children from two-parent families experience television rules than do children from single-parent families. The only place where presence/absence of family television rules does not mirror the constant television findings is

in the race/ethnicity comparison where no real differences exist. Overall, then, it seems safe to say that there is a greater likelihood the television is constantly on and is on during meals, and a lesser likelihood that there are family rules governing television viewing for older children, for children in homes or communities with households that rank lower on various indicators of socioeconomic status, and with the exception of TV rules, for African American children.

**Children's media environment: Some generalizations.** On the basis of the data just presented, several generalizations about U.S. children's media environment as they enter the 21st century are warranted.

The most obvious thing to say about these data is that most of today's children inhabit a media-rich environment. Regardless of age, race, gender, or income level, virtually all children live in households that contain at least a television set, a VCR, and a radio, and almost all also have household access to a tape player and a CD player. Additionally, over two thirds of all children live in homes that have computers and video game systems. This pattern of media riches is repeated in children's responses about their own personal media – media they keep in their own bedrooms and control. Over half of all the children report having their own television, radio, and tape and CD players. Moreover, as they grow older, the proportion with personal media increases until, by 14 to 18 years, two thirds of youngsters have a television in their bedroom, roughly 90% possess each of what we have labeled the three music media, and well over a third have their own VCR and video game system.

Of the two media that have not yet diffused to the entire population – computers and video game systems – only computer availability varies systematically with such things as income and race. Although 69% of children live in homes that contain a computer, 25% more Caucasian children than minority children have access to this new technology, and 30% more children who live in or go to school in zip codes where the average income is over \$40,000 per year than under \$25,000 per year have such access. Not surprisingly, Caucasian children and those from higher income areas are also more likely to own computers with CD-Rom drives and Internet access.

Because household ownership of most of the media examined here has reached saturation levels, the effects of income measures on media ownership are noticeable primarily when examining multiple media ownership; even then, the relationships are not always what one might expect on the basis of economics

alone. Income level is not strongly related to owning multiple TV sets. Income level is positively related to owning three or more radios, tape players, and CD players, and to ownership of two or more computers.

African American children live in homes that are somewhat more "television-oriented" than is the case for either Caucasian or Hispanic children. A greater percentage of African American children than either Caucasian or Hispanic children live in homes that contain three or more television sets and subscribe to premium cable television channels. Similarly, a greater proportion of African American children report bedrooms equipped with television, a VCR, a cable/satellite television connection, and premium channels.

Paralleling television accessibility, African American children are more likely than other racial/ethnic groups to live in "constant television households." Fifty-six percent of African American children say the television is on "most of the time," as opposed to 42% of Hispanic and 39% of Caucasian children. African American youngsters are also more likely than the other racial/ethnic sub-groups to eat meals with the television on.

White children are more likely than either African American or Hispanic children to live in homes that contain computers, and computers with CD-Rom drives and/or Internet access, but there is no racial/ethnic difference in the likelihood that youngsters will have a computer in their bedroom. White children are also more likely to live in homes that contain two or more radios, tape players, and CD players.

Such socioeconomic indicators as community income level and parental education are negatively related to the likelihood that televisions, VCRs, or video game systems will be found in children's bedrooms. The lower likelihood of these children having access to these media may reflect family attitudes toward purely entertainment media, or it may indicate that children from higher socioeconomic environments have more alternative activities available to them, hence simply devote less time to television and gaming.

Socioeconomic indicators (e.g., zip code income level, parent education, family composition) are negatively related to a "constant television environment." Children who live in or go to school in communities with median incomes under \$25,000, children from families where high school is the highest level of parent education, and children from single-parent families, are all less likely than others to live in homes where there are family rules related to television, and more likely than others to live in homes where the television is on most of the time and during most meals.

## IV: PATTERNS OF DAILY MEDIA USE

This section examines the amount of children's media use in several different ways. We begin by considering the total amount of time children devote to media, then look at how overall media budgets are apportioned among the various individual media, and finally consider use of each of the different media.

**Amount of media exposure.** We determine the amount of time children devote to media in two steps. The first step is to total reports of the amount of time children use each type of media, excluding use in school, at work, or for homework. This gives us the total amount of media content (in units of time) to which children are exposed (what we refer to as "media exposure"). The media included in this tally are: print (magazines, newspapers, and books – excluding books for school but including parental reading to young children), television, taped television shows, commercially produced videos, video games, movies, radio, CDs and tapes, and computers (including using the computer for games, the World Wide Web, e-mail, and chat rooms, but excluding computer use for school or work). This approach is similar to procedures employed by the few prior studies that have attempted to estimate children's overall media use (e.g., Greenberg, Ku & Li, 1989; Maccoby, 1951; Schramm, Lyle & Parker, 1961), and it provides a reasonable estimate of how much media content children are exposed to in units of time. However, this figure is not an accurate assessment of the amount of time each child spends using media (what we refer to as "media use" or "person hours"), because it does not adjust for the time that children use two or more media simultaneously. Therefore the second step we take in this report, to avoid over-estimating the amount of time children

devote to media use, is to adjust this total based on the amount of time spent using more than one medium at a time.

It is important to note the often overlooked fact that some proportion of any total media use index calculated simply by summing time estimates for individual media usually includes a good deal of overlapping media use. Children and adolescents (and for that matter, most adults) frequently use or are exposed to several media simultaneously – they read while music or the television plays, they interact with a computer while listening to music or news, and so forth. Thus what might show up as two full hours of media exposure in a typical media use index (e.g., one hour of reading time plus one hour of listening to radio music), may represent only a single hour of an individual's media use time (e.g., an hour spent reading while simultaneously listening to the radio). Similarly, if a child were to spend 4 hours a day using various single media, and another 2 hours per day using multiple media, then her personal media use time would equal 6 hours ( $4 + 2$ ), but her media exposure time would equal 8 hours ( $4 + (2 \times 2)$ ). Typically, then, estimates of children's total *media use* (i.e., person hours devoted to media) are likely to be somewhat lower than estimates of children's total *media exposure* because the latter double-counts overlapping use.

Fortunately, our supplemental diary sample affords us a means to adjust for this difference. Since the diary asked children to indicate whenever they used two or more media simultaneously, it is possible to calculate the proportion of media exposure time when two or more media were used simultaneously. When the estimate of media exposure is reduced by this amount, the result is an estimate of media use – that is, an estimate of person-hours devoted to media from which simultaneous media use is

removed. This examination of children and media presents estimates of both media exposure and media use.

**Overall media exposure.** We begin with media exposure. Given the media-saturated environment in which most children live, it is hardly surprising that the average child spends a good deal of time exposed to one or more of the media. What may be surprising, however, is just how much exposure children report: only 5% report an hour or less of daily media exposure, and over 30% report 7 hours or more. As Table 7 illustrates, the average child in our sample consumes 6 hours and 32 minutes of media per day.

There are, of course, substantial differences in how much different sub-groups of children are exposed to media. Table 7 shows that age locates striking differences in amount of leisure media exposure. Parents place the amount of time that children 7 years and younger are exposed to media each day at just over 4 and a quarter hours (4:17), but self-reports from 8-18 year-olds approach 8 hours (7:57). Similarly, while only 13% of the parents state that their young child is exposed to over 7 hours per day to media, 45% of school-aged kids report 7 hours or more (more than a quarter report 9 hours or more, and fully 12% claim more than 13 hours). Although there is little question that children under 8 years spend less time with media than do their older counterparts, the magnitude of the difference between the in-home and the in-school samples is particularly large. As noted earlier, we suspect that some of the difference is attributable to parental under-estimates of time that young children spend with various media making up our index. These underestimates are probably due both to lack of information (children often use media when parents are not present) and to a tendency to give socially desirable responses. Because of the difference in how the estimates were obtained (self-reports versus parent proxies) and the substantial difference in overall time estimates (almost a doubling of media time from the younger to the older children), whenever the numbers of children in various sub-groups are large enough to insure reliability when they are further sub-divided by age, subsequent analyses examine the in-home sample (2-7 year-olds) and the in-school sample (8-18 year-olds) separately.

The highest amount of leisure media exposure in this study occurs among 8-13 year-olds (Table 7). That is, when the 8-18 year-olds are split into two narrower age groups, total media exposure among 8-13 year-olds exceeds 8 hours (8:08); for 14-18 year-olds it is 7:35. In relation to age, then, overall leisure media exposure begins early (even the 2-4 year-old group is exposed to over 4 hours per day), increases fairly rapidly to over 8 hours per

day at around 12 years of age (8-10 year-olds report 7:56 per day; 11-13 year-olds report 8:14 per day), then drops off during the high school years. This pattern replicates earlier findings with television and with media indexes comprised of fewer media. It appears that as school and social activities place more demands on adolescents' time, their media exposure declines a bit (see Comstock, et al., 1978).

Boys report 20 minutes more daily media exposure than girls (6:40 to 6:20), but the proportions of each gender group reporting less than 1 hour, or more than 7 hours, of daily exposure are quite similar.

Race/ethnicity, on the other hand, locates some relatively large differences. On average, Caucasian youngsters consume over an hour a day less media than do Hispanic youngsters and almost two hours per day less than African American youngsters (6:00, 7:05, and 7:56 for White, Hispanic, and African American youngsters, respectively). The large mean differences are also reflected in the proportion of each racial/ethnic group reporting more than 7 hours per day of media exposure (28%, 39%, and 44%, respectively).

Our indicator of income shows that media exposure is inversely related to community income levels. That is, children who go to school in or live in the low and middle median income zip codes consume 6:59 and 6:51 of media each day; children from the highest income sub-group are exposed to almost an hour less (6:02). When media exposure is examined in relation to parent education, the sub-group differences are not large and the pattern is mixed. Children whose parents completed no more than high school report the highest exposure (6:41), children with parents who have some college report the least (6:07), and children from homes where a parent completed college or more fall in between (6:25). Children in single-parent households report over an hour more daily media exposure (7:17) than children in two-parent households (6:08). Finally, children from urban environments exhibit the most media exposure (6:57), followed by children from rural settings (6:36), with children from suburban environments claiming least exposure (6:10).

**Overall media use.** The picture changes somewhat when we turn from media *exposure* to media *use* – that is, to person hours devoted to media. As noted earlier, a measure of overlapping media use was obtained from the sub-sample who kept supplemental media diaries. Overall, youngsters who completed the diaries indicated that on any given day they use two or more media simultaneously about 16% of the time (amount of overlapping media exposure was similar for most sub-groups exam-

TABLE 7

## Amount of Daily Media Exposure and Media Use

## Total Sample and Primary Sub-Groups

Sub-Group	Average amount of use		Percent with daily media exposure		
	Total exposure	Person hours	1 hour or less	3 hours or less	over 7 hours
Total sample	6:32	5:29	5%	26%	31%
Age					
2-7 years	4:17 <sup>a</sup>	3:34	8	37	13
8-18 years	7:57 <sup>b</sup>	6:43	3	18	45
8-13 years	8:08 <sup>a</sup>	6:47	4	20	46
14-18 years	7:35 <sup>b</sup>	6:31	2	18	43
Gender					
Boys	6:40 <sup>a</sup>	5:37	4	24	35
Girls	6:20 <sup>b</sup>	5:19	5	27	31
Race/Ethnicity					
Caucasian	6:00 <sup>a</sup>	5:08	5	29	28
African American	7:56 <sup>b</sup>	—	3	15	44
Hispanic	7:05 <sup>c</sup>	—	5	24	39
Minority	7:28	6:03	4	20	42
Community Income					
under \$25,000/yr	6:59 <sup>a</sup>	6:08	6	24	36
\$25,000-\$40,000	6:51 <sup>b</sup>	5:32	4	23	36
over \$40,000/yr	6:02 <sup>c</sup>	5:13	6	29	29
Parent Education					
High School or less	6:41 <sup>a</sup>	5:43	6	23	36
Some College	6:07 <sup>b</sup>	5:10	4	26	31
College or more	6:25 <sup>ab</sup>	5:46	5	7	31
Family composition					
Two-Parent	6:08 <sup>a</sup>	5:50	5	27	29
Single-Parent	7:17 <sup>b</sup>	6:29	3	20	40
Urbanicity					
Urban	6:57 <sup>a</sup>	5:35	4	26	35
Suburban	6:10 <sup>b</sup>	5:19	4	27	31
Rural	6:36 <sup>ab</sup>	5:43	7	23	34

Note: Because too few African American and Hispanic youngsters completed the supplemental diary to provide a stable estimate of the proportion of time multiple media were used simultaneously, a single estimate of "minority" person hours was computed. For each demographic comparison in the Total Exposure column, sub-groups with mean times that do not share a common superscript differ from one another with statistical reliability ( $p < .05$ ). "Total exposure" is the sum of the amount of time children spend with each type of media. "Person hours" is the more accurate assessment of the amount of time children devote each day to media use, because it adjusts the exposure time to avoid double-counting those portions of the day in which the child uses more than one medium at a time.

ined in this study, typically ranging from 14% to 18%). Thus, as shown in the second column of Table 7, the children in this study used media about 5½ hours per day, during the course of which they were exposed to about 6½ hours of media content. In other words, on average kids use 2 or more media simultaneously for about an hour each day.

There are, of course, variations when different sub-groups are examined. For example, comparison of the figures for media exposure and media use reveal that older children are more likely than younger children to use two or more media simultaneously. That is, 8-18 year-olds report 3:40 more exposure to media than 2-7 year-olds (7:57 versus 4:17) but only 3:09 more media use (6:43 versus 3:34), indicating that a larger proportion of older kids' media time is spent with multiple media. It is also important

to note that in almost every instance, the difference between sub-groups in amount of media use is smaller (sometimes substantially smaller) than the difference between sub-groups in media exposure. In other words, a substantial portion of the between-group differences in media exposure illustrated in Table 7 derives from differences in the amount of time that various sub-groups of kids spend with several media simultaneously. Indeed, the distribution of media use time (as opposed to media exposure time) presented in Table 7 raises a distinct possibility that there may be a ceiling on the amount of time that kids can reasonably devote to media on an average day.

**Contributions of different media to overall media exposure.** Table 8 presents children's average daily overall

media exposure and average daily time devoted to each of the separate media that comprise the total budget, enabling us to examine how each of the different media contribute to the total media budget.

*Age.* The first thing to notice in all of the age-group comparisons in Table 8-A (and in most other demographic sub-group analyses that follow) is that in spite of the proliferation of new media, television remains dominant in terms of the media to which children are most exposed. The only media other than television to garner over an hour of daily use within any of the demographic sub-groups are radio and CDs/tapes, and these only among the older adolescents. As we shall see when we examine how media time is apportioned, television accounts for more than 40% of all media time in all sub-groups except for older adolescents (among whom it garners 36% of all media exposure time).

Looking first at the total sample (Table 8-A), the average child spends two and three quarter hours per day with television,

and from roughly a half hour to just over three quarters of an hour with videos (:28), print media (:44), radio (:39) and CDs and tapes (:48). Video games and the computer each garner 20 minutes per day, with an additional 13 minutes devoted to movies and 11 minutes to taped television shows. If we combine taped television shows and videos with the figure for television, the average child spends 3:15 watching TV content of one sort or another. Similarly, the combined audio media (radio and CDs/tapes) account for just over an hour and a quarter (1:17) of all media exposure. As noted earlier, however, the picture changes substantially when the in-home sample is examined separately from the in-school sample.

Television viewing starts quite early (2-4 year-olds view 2 hours daily), rises to a peak at over 3½ hours near the end of grade school, then drops off to about 2¾ hours in later adolescence. Both younger and older children devote the same amount of time to videos, but older children spend more time with taped televi-

TABLE 8 - A

## Average Daily Time Exposed to Each Medium by Age

Medium	Child's age in years						
	2-18	2-7	8-18	2-4	5-7	8-13	14-18
Total Media Exposure	6:32	4:17 <sup>a</sup>	7:57 <sup>b</sup>	4:24	4:10	8:08 <sup>a</sup>	7:35 <sup>b</sup>
Television	2:46	1:59 <sup>a</sup>	3:16 <sup>b</sup>	1:59	2:00	3:37 <sup>a</sup>	2:43 <sup>b</sup>
Taped TV Shows	0:11	0:03 <sup>a</sup>	0:16 <sup>b</sup>	0:04	0:03	0:20 <sup>a</sup>	0:10 <sup>b</sup>
Videotapes (commercial)	0:28	0:26	0:29	0:32	0:21	0:29	0:29
Movies	0:13	0:02	0:20	0:01	0:02	0:26 <sup>a</sup>	0:11 <sup>b</sup>
Video games	0:20	0:08 <sup>a</sup>	0:27 <sup>b</sup>	0:04	0:13	0:32 <sup>a</sup>	0:20 <sup>b</sup>
Print media	0:44	0:45	0:44	0:50	0:40	0:50 <sup>a</sup>	0:37 <sup>b</sup>
Radio	0:39	0:24 <sup>a</sup>	0:48 <sup>b</sup>	0:25	0:23	0:35 <sup>a</sup>	1:05 <sup>b</sup>
CDs and Tapes	0:48	0:21 <sup>a</sup>	1:05 <sup>b</sup>	0:23	0:19	0:47 <sup>a</sup>	1:29 <sup>b</sup>
Computer	0:21	0:07 <sup>a</sup>	0:31 <sup>b</sup>	0:05	0:08	0:32	0:30

Note: Within each row and age sub-category, only those mean times that do not share a common superscript differ from one another with statistical reliability ( $p < .05$ ). "Total media exposure" is the sum of the amount of time children spend with each type of media. The "person hours" listed in Table 7 are the most accurate assessment of the amount of time children devote each day to media use because it adjusts the exposure time to avoid double-counting those portions of the day in which the child uses more than one medium at a time.

TABLE 8 - B

## Average Daily Time Exposed to each Medium by Gender

Medium	2-18 years		2-7 years		8-18 years	
	Boys	Girls	Boys	Girls	Boys	Girls
Total Media Exposure	6:40 <sup>a</sup>	6:20 <sup>b</sup>	4:26 <sup>a</sup>	4:07 <sup>b</sup>	8:10	7:41
Television	2:56 <sup>a</sup>	2:36 <sup>b</sup>	2:08 <sup>a</sup>	1:50 <sup>b</sup>	3:26 <sup>a</sup>	3:04 <sup>b</sup>
Taped TV Shows	0:11	0:10	0:03	0:04	0:17	0:14
Videotapes (commercial)	0:29	0:28	0:27	0:26	0:30	0:28
Movies	0:14	0:13	0:01	0:02	0:22	0:19
Video Games	0:31 <sup>a</sup>	0:08 <sup>b</sup>	0:14 <sup>a</sup>	0:03 <sup>b</sup>	0:41 <sup>a</sup>	0:12 <sup>b</sup>
Print Media	0:42 <sup>a</sup>	0:47 <sup>b</sup>	0:43	0:47	0:41 <sup>a</sup>	0:48 <sup>b</sup>
Radio	0:36 <sup>a</sup>	0:42 <sup>b</sup>	0:26	0:22	0:43 <sup>a</sup>	0:54 <sup>b</sup>
CDs and Tapes	0:41 <sup>a</sup>	0:56 <sup>b</sup>	0:19	0:23	0:55 <sup>a</sup>	1:16 <sup>b</sup>
Computer	0:25 <sup>a</sup>	0:19 <sup>b</sup>	0:06	0:07	0:35 <sup>a</sup>	0:26 <sup>b</sup>

Note: Within each row and age sub-group, only those mean times that do not share a common superscript differ from one another with statistical reliability. Those mean times without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability. "Total media exposure" is the sum of the amount of time children spend with each type of media. The "person hours" listed in Table 7 are the most accurate assessment of the amount of time children devote each day to media use because it adjusts the exposure time to avoid double-counting those portions of the day in which the child uses more than one medium at a time.



sion shows. When time devoted to television, taped television shows, and commercial videos is combined, 2-7 year-olds spend 2:28 in front of the TV, 8-13 year-olds spend 4:26, and 14-18 year-olds spend 3:22. This pattern of increase followed by drop-off is similar for both movie attendance and video game playing. Parents of younger children report almost no time spent at the movies; 8-13 year-olds spend an average of 26 minutes per day, and 14-18 year-olds spend an average of 11 minutes per day viewing movies in a movie theater. Very young children spend little time with video games (4 minutes for 2 through 4 year-olds) but this increases to 13 minutes daily among 5-7 year-olds; 8-13 year-olds report over half an hour daily (32 minutes), and 14-18 year-olds report 20 minutes. Overall, then, time devoted to the small screen, to movies, and to video games increases until near the end of grade school (approximately 12 years), then drops off during later adolescence.

Rather than declining during adolescence, exposure to audio media (CDs and tapes, and radio) continues to climb throughout the first eighteen years, almost doubling between 8-13 years and 14-18 years – clear evidence of the rising importance of popular music in adolescent lives, as well as music’s unique ability to serve as background to many other activities, including other media use. (Although this particular analysis reports all radio listening – i.e., news, talk, and music programs combined – measures of the types of radio programs listened to and supplemental information from the diaries indicates that music listening typically accounts for over 90% of all children’s radio use). Time spent with a computer also increases with age; 2-7 year-olds spend 7 minutes per day with the newest medium, children eight and older spend over half an hour (:31).

Finally, both the younger and older groups devote about three quarters of an hour per day to leisure print use (including parental reading to young children), but differences occur within both of these two age-groups. When narrower age groupings are examined, print exposure averages 50 minutes per day among both 2-4 year-olds and 8-13 year-olds, but drops off 10 minutes within the 5-7 year-old group, and 13 minutes within the 14-18 year-old group. These decreases near the end of each age-span are possibly a result of increases in school-related reading and other time demands that typically occur when children first enter school and, again, when they move on to high school. (For example, the 7th through 12th graders in the study were asked about amount of book reading both for pleasure and for homework assignments. They reported 22 minutes daily of leisure reading and 25 minutes for homework assignments – a number that does not include in-class reading.)

To summarize media exposure as it relates to children’s age, then, exposure to most leisure media begins quite early (only taped television shows, movies, and computers claim less than 10 minutes daily of young children’s time), increases throughout childhood to a peak at around 12 years of age (when only movies and taped television shows claim less than half an hour per day), after which there is a moderate drop in the average amount of time children are exposed to media. Within this overall pattern, however, time spent with different individual media takes different trajectories. Screen media (television, videotapes, movies; video games) follow the overall inverted U pattern; time spent with audio media (which is to say, music media), on the other hand, continually increases with age, almost doubling from the early to latter years of adolescence; leisure print use ebbs and flows with age, probably as a function of school-related time demands. Finally, computer use increases substantially between the early years (2-7 years) and entry into middle childhood (8-13 years), after which it remains relatively steady.

*Gender.* The overall gender difference that shows boys exposed to more media than girls holds for both the in-home and in-school samples (Table 8-B). Young boys report 19 minutes more media exposure than young girls (4:26 to 4:07); among older children the gap increases to 29 minutes (8:10 to 7:41). Regardless of age, boys watch a bit more television than girls (18 and 22 minutes more for the younger and older groups, respectively), and devote substantially more time to video games than do girls (:14 to :03 among young children; :41 to :12 among older children). Girls spend about 5 minutes per day more than boys with the print media. Beyond 8 years of age, girls spend over a half hour more per day than boys with the two music media combined, and boys spend about ten minutes more than girls with the computer. Most of the overall gender difference in media exposure, then, stems from the tendency for boys to spend more time with video games, television, and computers.

*Race/ethnicity.* When the survey data are examined by racial/ethnic sub-groupings, the overall finding that African American children report the most media exposure, followed by Hispanics, with Caucasian youngsters reporting the least, remains constant, but there are interesting variations in how much children from these sub-groups are exposed to the different media (see Table 8-C).

Among 2-7 year-olds, television accounts for much of the race/ethnicity difference in total media exposure. Young African American children spend almost a half hour per day more than Hispanic children with television, and over an hour more than Caucasian children (2:46, 2:20, and 1:43, respectively); young

TABLE 8-C

## Amount of Daily Time Exposed to Each Medium by Race/Ethnicity

Medium	2-18 year-olds			2-7 year-olds			8-18 year-olds		
	White	Black	Hispanic	White	Black	Hispanic	White	Black	Hispanic
Total Media Exposure	6:00 <sup>a</sup>	7:56 <sup>b</sup>	7:05 <sup>c</sup>	4:04 <sup>a</sup>	4:59 <sup>b</sup>	4:25 <sup>a</sup>	7:16 <sup>a</sup>	9:52 <sup>b</sup>	9:02 <sup>b</sup>
Television	2:22 <sup>a</sup>	3:56 <sup>b</sup>	3:31 <sup>c</sup>	1:43 <sup>a</sup>	2:46 <sup>b</sup>	2:20 <sup>b</sup>	2:47 <sup>a</sup>	4:41 <sup>b</sup>	3:50 <sup>c</sup>
Taped TV Shows	0:09 <sup>a</sup>	0:17 <sup>b</sup>	0:11 <sup>a</sup>	0:04	0:02	0:02	0:12 <sup>a</sup>	0:27 <sup>b</sup>	0:18 <sup>c</sup>
Videotapes (commercial)	0:28	0:30	0:29	0:28	0:27	0:22	0:28	0:32	0:34
Movies	0:08 <sup>a</sup>	0:19 <sup>b</sup>	0:21 <sup>b</sup>	0:01 <sup>a</sup>	0:04 <sup>b</sup>	0:01 <sup>ab</sup>	0:13 <sup>a</sup>	0:29 <sup>b</sup>	0:35 <sup>b</sup>
Video Games	0:17 <sup>a</sup>	0:25 <sup>b</sup>	0:24 <sup>b</sup>	0:08	0:08	0:09	0:23 <sup>a</sup>	0:35 <sup>b</sup>	0:35 <sup>b</sup>
Print Media	0:45 <sup>a</sup>	0:45 <sup>a</sup>	0:37 <sup>b</sup>	0:47 <sup>a</sup>	0:42 <sup>ab</sup>	0:38 <sup>b</sup>	0:43 <sup>a</sup>	0:47 <sup>a</sup>	0:35 <sup>b</sup>
Radio	0:38	0:40	0:43	0:22 <sup>a</sup>	0:32 <sup>b</sup>	0:25 <sup>ab</sup>	0:49	0:45	0:56
CDs and Tapes	0:50	0:43	0:49	0:22 <sup>a</sup>	0:13 <sup>b</sup>	0:23 <sup>ab</sup>	1:09	1:03	1:08
Computer	0:22	0:20	0:19	0:07 <sup>a</sup>	0:04 <sup>b</sup>	0:04 <sup>ab</sup>	0:31	0:31	0:29

Note: Within each row and age sub-group, only those mean times that do not share a common superscript differ from one another with statistical reliability. Those mean times without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability. "Total media exposure" is the sum of the amount of time children spend with each type of media. The "person hours" listed in Table 7 are the most accurate assessment of the amount of time children devote each day to media use because it adjusts the exposure time to avoid double-counting those portions of the day in which the child uses more than one medium at a time.

Hispanic children spend 37 minutes more than Caucasian children with television. When radio, CDs and tapes are combined, there is little difference in exposure to music media. Hispanic children report 9 minutes less print exposure than Caucasians. Finally, although young White children report about twice as much computer use as African Americans or Hispanics, the amounts are too small to enable reasonable generalizations (7 minutes, 4 minutes, and 4 minutes, respectively).

Among 8-18 year-olds, the patterns for racial/ethnic sub-groups change somewhat. First, the magnitude of the overall differences in media exposure increases dramatically. Where parents of younger Black children reported 54 minutes more overall media exposure than did parents of young Whites, older African American children report 2:36 more media exposure than older White children, and older Hispanic children report 1:46 more (versus 24 minutes more among younger children). The difference between older African American and older Hispanic children also increases, although not nearly as much (29 minutes for the younger groups versus 50 minutes for the older groups). Second, although a substantial part of the increase in media exposure among the older racial/ethnic groups derives from increased television viewing, there are also substantial differences among Whites, Blacks, and Hispanics in increases in use of most of the other "screen" media – videotapes, movies, and video games. Thus, relative to White children, 8-18 year-old African American children increase in their use of all of the screen media. That is, they not only watch much more television than Caucasian children (1:54 minutes more), but they also spend 19 minutes more with the combination of taped television shows and commercial videotapes, 16 minutes more at the movies, and 12 minutes more playing video games. Similarly, relative to White youngsters, Hispanic 8-18 year-olds spend over an hour a

day more than White kids with television (1:03), 12 minutes more with the combination of taped television shows and commercial videos, 22 minutes more at the movies, and 12 minutes more playing video games. The pattern of increases for Hispanic children is quite similar to the pattern for African American children, albeit smaller in magnitude. The single exception is that older Hispanic children report less exposure to print media than either of the other two groups.

Clearly, then, factors associated with children's ethnic or racial sub-group are related to significant differences in amount of exposure to various "screen media" (excluding computers but including video games). Among younger children, the effects are seen mostly in television viewing; among older children, taped television shows, videotapes, movies, and video games also play a role.

*Community income and parent education.* When exposure to different media is examined by median income of the zip code in which children live or go to school, the general pattern is one of declining media exposure with increasing income level. The two exceptions to this overall pattern are print and computer exposure, both of which show increases as income level increases. Here too, however, age makes a difference.

Among 2-7 year-olds, children from the low and the middle income zip codes are exposed to about half an hour more media per day than young children from high income zip codes. Young children from the low income group are exposed to more television but to less print. Indeed, it is interesting to note that the difference between the low income and high income sub-groups in total media exposure is a full 20 minutes less than the difference in television exposure alone. That is, children from low income zip codes watch three quarters of an hour more television than children from high income zip codes. Since the difference between these two sub-groups in total media exposure is only 26 minutes, this means that children

in the higher income group must be exposed to more of some of the other media. Table 8-D shows this to be the case, although none of the individual differences are large. Compared to 2-7 year-olds from the low income category, young children from high income zip codes use print media 12 minutes more per day and the computer 6 minutes more per day (both differences are reliable), these two media accounting for most of the overall difference in total media exposure. Young children from the middle income group look more like those from the high income zip codes for print media and computer use, and more like those from the low income zip codes for all other media except for television; the young, middle-income sub-group's television exposure falls exactly at the midpoint between kids in the low and high income sub-groups.

The differences by zip code income level are even greater among 8-18 year-olds. In this older sample, kids who go to schools located in low median income zip codes are exposed to over an hour per day more total media than those who attend schools located in high income zip codes. However, they view just under half an hour per day more television (a reversal of the pattern for younger children, among whom the difference in television exposure was greater than the difference in total media exposure). Children from the low income sub-group report more time than children from the high income sub-group with taped television shows, commercial videotapes, motion pictures, and the combination of radio, CDs and tapes. Children from the high income sub-group report 9 minutes more time with computers and 3 minutes more with print. Youngsters from the middle income group look much like those from the low income group; they view just a few minutes less television than those from the low income group, and report under 21 minutes less total media

exposure. In other words, youngsters from the middle income sub-group fall in between, but resemble those from the low income group more.

The pattern remains much the same when media exposure is examined as a function of parent education (Table 8-E). Within both the in-home and in-school samples, children whose parents completed no more than high school are more exposed to media than those whose parents completed college or more (about 15 minutes for the full sample; an hour more among 2-7 year-olds; 20 minutes more among 8-18 year-olds), differences that are quite similar to the differences in amount of television viewing (35 minutes overall; 1:06 more among young children; 26 minutes more among older children). For both samples, children whose parents completed some college fall in between, although among the older children their media use is a bit more like that of children from the low education group than that of the high education group. The amounts and differences are small, but there is a tendency for younger children from the low education sub-group to report slightly more video game exposure and slightly less computer use than their counterparts from the high education sub-group. For the 8-18 year-olds, in addition to more television viewing, low parent education is related to more exposure to taped TV shows, videos, and music media (radio and CDs combined), and less use of print and computers.

Regardless of age, then, children in the lower income sub-groups and in the lower education sub-groups tend to be more exposed to media than children in the higher income and education sub-groups. However, these two different measures of socioeconomic status appear to sub-divide the respective samples in substantially different ways. For the income mea-

TABLE 8-D

Amount of Daily Time Exposed to Each Medium by Zip Code Median Income

Medium	2-18 years Zip Code Income			2-7 years Zip Code Income			8-18 years Zip Code Income		
	Under \$25,000	\$25,000- \$40,000	Over \$40,000	Under \$25,000	\$25,000- \$40,000	Over \$40,000	Under \$25,000	\$25,000- \$40,000	Over \$40,000
Total Media Exposure	6:59 <sup>a</sup>	6:51 <sup>a</sup>	6:02 <sup>b</sup>	4:26 <sup>a</sup>	4:27 <sup>a</sup>	4:01 <sup>b</sup>	8:29 <sup>a</sup>	8:08 <sup>a</sup>	7:22 <sup>b</sup>
Television	3:06 <sup>a</sup>	2:55 <sup>a</sup>	2:29 <sup>b</sup>	2:28 <sup>a</sup>	2:05 <sup>b</sup>	1:42 <sup>c</sup>	3:29 <sup>a</sup>	3:21 <sup>a</sup>	3:01 <sup>b</sup>
Taped TV Shows	0:15 <sup>a</sup>	0:12 <sup>a</sup>	0:08 <sup>b</sup>	0:02	0:04	0:03	0:22 <sup>a</sup>	0:17 <sup>b</sup>	0:11 <sup>c</sup>
Videotapes (commercial)	0:31	0:28	0:28	0:26	0:29	0:26	0:34 <sup>a</sup>	0:28 <sup>b</sup>	0:28 <sup>ab</sup>
Movies	0:16 <sup>a</sup>	0:14 <sup>a</sup>	0:10 <sup>b</sup>	0:02	0:01	0:02	0:25 <sup>a</sup>	0:22 <sup>a</sup>	0:15 <sup>b</sup>
Video Games	0:21 <sup>a</sup>	0:23 <sup>a</sup>	0:16 <sup>b</sup>	0:08	0:10	0:07	0:29 <sup>a</sup>	0:30 <sup>a</sup>	0:22 <sup>b</sup>
Print Media	0:41 <sup>a</sup>	0:44 <sup>ab</sup>	0:47 <sup>b</sup>	0:35 <sup>a</sup>	0:46 <sup>b</sup>	0:47 <sup>b</sup>	0:44	0:43	0:47
Radio	0:43 <sup>a</sup>	0:41 <sup>ab</sup>	0:35 <sup>b</sup>	0:25	0:23	0:25	0:53 <sup>a</sup>	0:50 <sup>ab</sup>	0:42 <sup>b</sup>
CDs and Tapes	0:49 <sup>a</sup>	0:52 <sup>a</sup>	0:44 <sup>b</sup>	0:19	0:22	0:19	1:07	1:07	1:02
Computer	0:16 <sup>a</sup>	0:22 <sup>b</sup>	0:23 <sup>b</sup>	0:02 <sup>a</sup>	0:07 <sup>b</sup>	0:08 <sup>b</sup>	0:25 <sup>a</sup>	0:31 <sup>ab</sup>	0:34 <sup>b</sup>

Note: Within each row and age sub-group, only those mean times that do not share a common superscript differ from one another with statistical reliability. Those mean times without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability. "Total media exposure" is the sum of the amount of time children spend with each type of media. The "person hours" listed in Table 7 are the most accurate assessment of the amount of time children devote each day to media use because it adjusts the exposure time to avoid double-counting those portions of the day in which the child uses more than one medium at a time.

TABLE 8-E

## Amount of Daily Time Exposed to Each Medium by Parent Education

Medium	2-18 years			2-7 years			8-18 years		
	High School	Some College	College or more	High School	Some College	College or more	High School	Some College	College or more
Total Media Exposure	6:41 <sup>a</sup>	6:07 <sup>b</sup>	6:25 <sup>ab</sup>	4:49 <sup>a</sup>	4:20 <sup>b</sup>	3:49 <sup>c</sup>	8:06	7:58	7:46
Television	3:05 <sup>a</sup>	2:44 <sup>b</sup>	2:30 <sup>b</sup>	2:34 <sup>a</sup>	2:07 <sup>b</sup>	1:28 <sup>c</sup>	3:28 <sup>a</sup>	3:23 <sup>ab</sup>	3:02 <sup>b</sup>
Taped TV Shows	0:13 <sup>a</sup>	0:07 <sup>b</sup>	0:10 <sup>a</sup>	0:04	0:04	0:02	0:19 <sup>a</sup>	0:11 <sup>b</sup>	0:14 <sup>b</sup>
Videotapes (commercial)	0:31 <sup>a</sup>	0:29 <sup>ab</sup>	0:26 <sup>b</sup>	0:28	0:29	0:24	0:34 <sup>a</sup>	0:28 <sup>ab</sup>	0:26 <sup>b</sup>
Movies	0:14 <sup>a</sup>	0:07 <sup>b</sup>	0:14 <sup>a</sup>	0:01	0:02	0:02	0:23 <sup>a</sup>	0:13 <sup>b</sup>	0:20 <sup>ab</sup>
Video Games	0:20 <sup>a</sup>	0:15 <sup>b</sup>	0:22 <sup>a</sup>	0:11 <sup>a</sup>	0:07 <sup>b</sup>	0:07 <sup>b</sup>	0:26	0:24	0:29
Print Media	0:38 <sup>a</sup>	0:43 <sup>b</sup>	0:50 <sup>c</sup>	0:43	0:43	0:48	0:34 <sup>a</sup>	0:44	0:50
Radio	0:40	0:39	0:36	0:25 <sup>ab</sup>	0:27 <sup>a</sup>	0:21 <sup>b</sup>	0:51	0:51	0:44
CDs and Tapes	0:47	0:46	0:49	0:19 <sup>a</sup>	0:17 <sup>a</sup>	0:26 <sup>b</sup>	1:08 <sup>ab</sup>	1:18 <sup>a</sup>	1:02 <sup>b</sup>
Computer	0:14 <sup>a</sup>	0:15 <sup>a</sup>	0:28 <sup>b</sup>	0:04 <sup>a</sup>	0:05 <sup>a</sup>	0:09 <sup>b</sup>	0:22 <sup>a</sup>	0:26 <sup>a</sup>	0:37 <sup>b</sup>

Note: Within each row and age sub-group, only those mean times that do not share a common superscript differ from one another with statistical reliability. Those mean times without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability. "Total media exposure" is the sum of the amount of time children spend with each type of media. The "person hours" listed in Table 7 are the most accurate assessment of the amount of time children devote each day to media use because it adjusts the exposure time to avoid double-counting those portions of the day in which the child uses more than one medium at a time.

TABLE 8-F

## Amount of Daily Time Exposed to Each Medium by Family Composition

Medium	2-18 years		2-7 years		8-18 years	
	2 parents	1 parent	2 parents	1 parent	2 parents	1 parent
Total Media Use	6:08 <sup>a</sup>	7:17 <sup>b</sup>	4:07 <sup>a</sup>	4:47 <sup>b</sup>	7:28 <sup>a</sup>	8:45 <sup>b</sup>
Television	2:34 <sup>a</sup>	3:16 <sup>b</sup>	1:50 <sup>a</sup>	2:21 <sup>b</sup>	3:02 <sup>a</sup>	3:49 <sup>b</sup>
Taped TV Shows	0:10	0:13	0:04	0:02	0:14	0:19
Videotapes (Commercial)	0:28	0:31	0:25	0:32	0:29	0:31
Movies	0:10 <sup>a</sup>	0:17 <sup>b</sup>	0:02	0:03	0:16 <sup>a</sup>	0:25 <sup>b</sup>
Video Games	0:19	0:22	0:08	0:07	0:25	0:31
Print Media	0:43	0:44	0:44	0:44	0:43	0:44
Radio	0:35 <sup>a</sup>	0:45 <sup>b</sup>	0:23 <sup>a</sup>	0:32 <sup>b</sup>	0:44 <sup>a</sup>	0:53 <sup>b</sup>
CDs and Tapes	0:46	0:47	0:22	0:20	1:02	1:03
Computer	0:22	0:21	0:07 <sup>a</sup>	0:04 <sup>b</sup>	0:31	0:31

Note: Within each row and age sub-group, only those mean times that do not share a common superscript differ from one another with statistical reliability. Those mean times without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability. "Total media exposure" is the sum of the amount of time children spend with each type of media. The "person hours" listed in Table 7 are the most accurate assessment of the amount of time children devote each day to media use because it adjusts the exposure time to avoid double-counting those portions of the day in which the child uses more than one medium at a time.

sure, the difference between the high and low sub-groups in total media exposure is greater for the in-school sample (1:07) than for the in-home sample (:25); for the education measure, the difference between the high and low sub-groups is greater for the in-home sample (1:00) than for the in-school sample (:20). Nevertheless, children in the lower groups on both measures typically are exposed to more television, more of the other screen media (videotapes, movies, video games), and more of the combined music media (radio and CDs/tapes); children in the higher groups on both measures tend to report higher levels of exposure to print media and to computers. With the exception of television time, most of the differences are not large. Nevertheless, they do result in substantial income and education differences in total media exposure, and they do point to a fairly consistent pattern of children from the higher

sub-groups using more print and computer resources, and less screen and audio media.

*Family composition.* To some extent the presence of two parents in a household can be viewed as another indicator of socioeconomic status (single-parent households tend to produce less income than dual-parent households). Thus it is not surprising that when our samples are subdivided according to family composition, results similar to those just reported emerge. As Table 8-F shows, regardless of age children from two-parent homes report less overall media use (40 minutes less among 2-7 year-olds; 1:17 less among 8-18 year-olds). Among younger children, most of the difference is attributable to time spent with television. Among the older children, those from one-parent households view more television (:47 minutes per day more), spend more time with all other "screen media" (26 minutes more

with the combination of taped television shows, videotapes, movies, and video games), and spend nine minutes more with the radio. Exposure to print media, computers, and CDs and tapes is about equal in the two groups.

**The media budget.** Another way to look at children’s media exposure is to compute the proportion of overall time that children are exposed to each individual medium. Among other things, this enables examination of whether, in addition to differences among the various sub-groups in total media exposure time, there are also differences in the overall mix of media exposure. We can examine, for example, whether or not the increase in television exposure time as children grow older means that a larger percentage of older children’s total media time is given to that medium. In this section, then, we ask whether between-group differences in the amount of time children are exposed to various individual media translate into differences in the proportion of total media time devoted to each of the individual media or whether relative amounts of time devoted to each medium remain constant.

This analysis examines the proportion of children’s total leisure media budget that is devoted to television, to other non-interactive screen media (i.e., taped television programs, commercial videotapes, and movies combined), to print media (magazines, newspapers, and books combined), to audio media (radio, CDs and tapes combined), to video games, and to the computer (non-school or non-work use of chat rooms, games, the Web, and e-mail, combined). Proportions are presented first for age groups, then for the other sub-group comparisons (gender, racial/ethnicity, community income, parent education, and family composition). Here, however, a caveat is in order. Because our previous analysis of media time indicates that noteworthy changes in media use occur around 12 years of age, we have reported sub-group media budgets separately for the in-home and in-school samples.

*Age.* Table 9-A, which includes the proportion of time devoted to each medium for the total sample as well as by three age groups, reveals several striking differences. During the later adolescent years, the proportion of all media time youngsters devote to television drops substantially (from 44% to 36%), and the proportion of time taken up by audio media increases – indeed, it doubles (from 17% to 34%). Once again, this trade-off between television and audio exposure underlines the importance of popular music in the lives of adolescents. Also noteworthy is the consistent drop, as age increases, in the proportion of time devoted to leisure reading (a drop of 10 percentage points from the youngest to the oldest sub-group), and the doubling of the proportion of time spent with the computer (albeit from a very small base – from 3% to 7%).

*Gender.* As Table 9-B shows, the differences between boys and girls in how the total media budget is apportioned lie primarily with video games and audio media. Although the overall proportions are relatively small, regardless of age, boys devote a larger proportion of their media time to video games than do girls (5% to 1% among younger children; 8% to 3% among older children). Boys and girls in the in-home sample (2-7 year-olds) give about the same proportion of time to audio media, but as they get older, girls allocate a somewhat larger proportion of media time to audio media (8% more than boys).

*Race/Ethnicity.* As seen in Table 9-C, race/ethnicity locates several seemingly large percentage differences in how media budgets are apportioned. However, because of relatively small numbers of youngsters in several of the sub-groups, only a few of these differences are statistically reliable. Among 8-18 year-olds, all three racial/ethnic groups reduce the proportion of time given to television (relative to their younger counterparts), but the between-group differences remain – a 10 percentage point difference between White and African American children, which is statistically reliable. Also, White 8-18 year-olds spend significantly more of their media time with audio media (9% more) than do African American youth.

TABLE 9 - A

Proportion of Time Each Medium Contributes To Total Media Budget by Age

Medium	Age in years			
	2-18	2-7	8-13	14-18
Television	42%	46% <sup>a</sup>	44% <sup>a</sup>	36% <sup>b</sup>
Other non-interactive screen	13	12	15	11
Video Games	5	3 <sup>a</sup>	7 <sup>b</sup>	4 <sup>ab</sup>
Print Media	12	18 <sup>a</sup>	10 <sup>b</sup>	8 <sup>b</sup>
Audio Media	22	17 <sup>a</sup>	17 <sup>a</sup>	34 <sup>b</sup>
Computer	5	3 <sup>a</sup>	7 <sup>b</sup>	7 <sup>b</sup>

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

TABLE 9 - B

## Proportion of Time Each Medium Contributes To Total Media Budget by Gender

Medium	2-7 year-olds		8-18 year-olds	
	Boys	Girls	Boys	Girls
Television	48%	45%	42%	40%
Other non-interactive screen	11	13	13	13
Video Games	5 <sup>a</sup>	1 <sup>b</sup>	8 <sup>a</sup>	3 <sup>b</sup>
Print Media	16	20	9	10
Audio Media	17	18	20 <sup>a</sup>	28 <sup>b</sup>
Computer	2	3	7	6

Note: Within each row and age sub-group, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

TABLE 9 - C

## Proportion of Time Each Medium Contributes to Total Media Budget by Race/Ethnicity

Medium	2-7 year-olds			8-18 year-olds		
	White	Black	Hispanic	White	Black	Hispanic
Television	42%	55%	53%	38% <sup>a</sup>	48% <sup>b</sup>	43% <sup>ab</sup>
Other non-interactive screen	13	11	9	12	15	16
Video Games	3	3	3	5	6	7
Print Media	20	14	15	10	8	7
Audio Media	18	15	18	27 <sup>a</sup>	18 <sup>b</sup>	23 <sup>ab</sup>
Computer	3	1	2	7	5	5

Note: Within each row and age sub-group, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

TABLE 9 - D

## Proportion of Time Each Medium Contributes to Total Media Budget by Community Income

Medium	2-7 year-olds			8-18 year-olds		
	Under \$25,000	\$25,000 to \$40,000	Over \$40,000	Under \$25,000	\$25,000 to \$40,000	Over \$40,000
Television	56%	47%	43%	41%	41%	41%
Other non-interactive screen	11	12	13	16	14	12
Video Games	3	4	3	6	6	5
Print Media	13	17	20	9	9	11
Audio Media	16	17	19	24	24	24
Computer	1	2	3	5	6	7

TABLE 9 - E

## Proportion of Time Each Medium Contributes to Total Media Budget by Parent Education

Medium	2-7 year-olds			8-18 year-olds		
	High school or less	Some College	College or more	High school or less	Some College	College or more
Television	53% <sup>a</sup>	49% <sup>ab</sup>	39% <sup>b</sup>	44%	44%	41%
Other non-interactive screen	11	13	12	16	11	14
Video Games	4	3	3	6	5	7
Print Media	15	16	21	4	6	7
Audio Media	15	17	21	26	28	24
Computer	1	2	4	4	5	8

Note: Within each row and age sub-group, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

TABLE 9 - F

Proportion of Time Each Medium Contributes To Total Media Budget by Family Composition

Medium	2-7 year-olds		8-18 year-olds	
	2 Parents	1 Parent	2 Parents	1 Parent
Television	48%	50%	41%	44%
Other non-interactive screen	12	13	13	14
Video Games	3	3	6	6
Print Media	18	15	10	8
Audio Media	18	18	24	22
Computer	3	1	7	6

*Socioeconomic status.* The patterns produced when media budgets are examined in relation to our three rough measures of socioeconomic status – median annual income in the zip code where the children go to school or live, parent education, and family composition – are quite similar (Tables 9-D, 9-E, 9-F), and all show little variation as a function of these socioeconomic indicators.

What differences do emerge as a function of socioeconomic indicators occur among the 2-7 year-olds, primarily in terms of the proportion of the media budget the different groups devote to television. Young children from families in which the highest level of education attained by a parent is high school give 53% of their media time to television, while those with parents who completed college give 39% of their media time to television, a difference that is statistically reliable.

Perhaps the most striking result of these analyses is the total lack of difference in how media budgets are apportioned among the 8-18 year-olds as a function of any of the socioeconomic indicators. That is, regardless of whether the older children are compared on the basis of zip code income, parent education, or family composition, media budgets remain roughly the same. About 40% to 45% of their media budget is taken up by television, about a quarter is given over to audio media, and the remaining third is divided relatively evenly among other screen media, video games, print, and the computer, with no substantial between-group differences.

Finally, when apportionment of media budgets is examined by family composition, no noteworthy differences emerge among either the younger children or the older children. To reiterate, then, the most striking thing to notice in all three of our socioeconomic comparisons is the lack of differences in how school-aged children apportion their media budgets.

**Use of individual media.** It is informative to examine children’s use of each of the individual media a bit more closely. We begin with non-interactive screen media (television, taped television

shows, commercial videos, and movies), turn next to print media (magazines, newspapers, and books), then to audio media (CDs and tapes, and radio), and finally to computers and video games.

*Non-interactive screen media.* Several additional aspects of children’s exposure to the various screen media are interesting. As noted above, television viewing dominates children’s media diet, typically representing over 40% of all media exposure. Moreover, when exposure to television *per se* is combined with the viewing of commercially produced videotapes, television programs taped off air (i.e., time shifting television programs), and movies, non-interactive screen media account for 59% of total media exposure among 2-7 year-olds, 60% among 8-13 year-olds, and 47% among 14-18 year-olds.

We have already commented on the substantially lower amount of television exposure parents report for the in-home sample than the in-school children report for themselves. We speculated that some of the difference might depend on either lack of information (parents often may be unaware of what their young children are doing) or social desirability (the current debate about how much television viewing is good for children might bias parents to under-report their children’s television exposure), or both. Still another factor that might account for some of the difference in television viewing between young and older children is that parents of 2-7 year-olds estimated that their child was in the room “doing something else” while they [*the parent*] were watching, for an average of 43 minutes daily. This time – time which parents did not include as time their child spent viewing – would more than halve the difference between the younger and older samples in exposure to television had it been included. Although a similar question was not asked of the in-school children, it seems reasonable to suppose that older children in a room with a television playing would report watching – even if it is “their parent’s program.”

If we look at the extremes in television viewing, on an average day 17% of all youngsters report more than 5 hours of television exposure while another 17% report no television expo-

sure at all. Not surprisingly, the proportion of kids in these extreme groups changes with age. Over a quarter of 8-13 year-olds (27%) report more than 5 hours daily television exposure, while 18% of the 14-18 year-olds see that much TV, and only 7% of the 2-7 year-olds are exposed to more than 5 hours. At the other extreme, 14-18 year-olds are most likely to report no television exposure on any given day (24%), followed by 2-7 year-olds (17%), with only 11% of 8-13 year-olds claiming no exposure.

In order to obtain a more fine-grained picture of how children of different ages use non-interactive screen media, Table 10 looks at each of the non-interactive screen media by much smaller age-groupings than heretofore reported. They indicate that commercially produced videos may play a somewhat different role in the media budget than do movies or taped television programs. Commercially-produced videotapes garner one half hour per day from even the youngest group, and remain at about that level until late adolescence. As we shall see in a later section, the nature of the tapes changes dramatically – from those designed especially for young children to the more typical Hollywood movie among older children – but there is no question that, in one form or another, videotapes have become an important part of children’s media diet.

Programs taped off air, on the other hand, do not play much of a role. Time devoted to them peaks at just over 20 minutes among 8-10 year-olds, but is almost non-existent at earlier ages, and drops off rapidly as the children grow older. Finally, movies become a force only after the child is well into grade school (i.e., 3rd grade or later), but then claim an average of one half-hour daily until late adolescence. As Table 10-B shows, however, fewer than 20% of the children in any of these age-groups reported seeing a movie on the previous day while from 30% to 45% viewed a videotape. Among the youngest children, the mean differences in amount of time exposed to videotapes and movies result from the fact that movies are typically viewed in their 2-hour entirety, while young children’s videotapes are typically shorter and can be consumed in units as small as 5 minutes.

*Print media.* Our index of leisure print exposure is comprised of the amount of time children read magazines, newspapers, and books for recreational purposes. Not surprisingly, books are used the most, followed by magazines, with newspapers running a distant third. Of the 44 minutes per day that the total sample was exposed to print, books claimed 25 minutes, magazines took 16 minutes, and newspapers 5 minutes.

Table 11 presents the average daily time that children of different ages report using each of the print media, as well as the proportion of children in each age group who reported no reading on

the previous day and who reported 30 minutes or more of reading. As noted earlier, overall leisure reading drops off in the later adolescent years. Table 11 makes it clear that most of the drop in reading involves books. Book exposure is highest among young children, probably because parental reports of the amount of time their children spent with books includes time they spent reading a book “either alone or with someone else.” In other words, for the under-7 group, book exposure includes all the time an adult is reading a book to them – not an uncommon activity for parents and young children. However, it is unlikely that there is much parental reading to children in the 8-13 year-old group, and as Table 11 shows, 14-18 year-olds devote only half as much time to leisure book reading as their younger, in-school counterparts (14 minutes versus 28 minutes). Since there is no difference between these two groups in the amount of time spent reading for homework (both groups claim 25 minutes per day reading for homework assignments), the decline among 14-18 year-olds in leisure book reading is not simply due to displacement by non-leisure reading – at least homework reading. Indeed, it appears that a great many older adolescents have simply quit reading books for fun. Where 40% of 8-13 year-olds reported no book reading on the previous day, 70% of the oldest group made that claim. Conversely, only 18% of the oldest group read for 30 minutes or more the previous day, while from almost 40% to over 50% of each of the younger groups spent that much time with books. It may be that older adolescents spend more time reading in class, or it may be that other school-related tasks (e.g., writing) in combination with any number of other activities engaged in by teenagers (e.g., jobs, social activities, hobbies and sports, etc.) may account for the decrease, both in absolute time and in the proportion of time reading accounts for with the entire media budget (see Table 9-A).

One other age-related trend hinted at in Table 11 is the small but steady increase in newspaper reading as children grow older. Although newspaper reading never claims ten minutes per day in this sample, it shows a consistent increase from 2 minutes during the early years to 9 minutes by the late teen years. Moreover, the proportion of kids who never look at a newspaper steadily declines, and the proportion who read at least 30 minutes per day steadily increases.

Although we found no noteworthy difference in print use attributable to gender, some small variations did emerge when the results are examined in relation to race/ethnicity and socioeconomic level – the latter of which, for purposes of brevity, we index using parent education level.

Table 12 reveals a reliably smaller proportion of Hispanic 2-7 year-olds than White 2-7 year-olds report reading at least 30



## Exposure to Non-Interactive Screen Media by Age

TABLE 10 - A

### Average Daily Time with Each Medium

Medium	Age in years				
	2-4	5-7	8-10	11-13	14-18
Television	1:59 <sup>a</sup>	2:00 <sup>a</sup>	3:37 <sup>b</sup>	3:37 <sup>b</sup>	2:43 <sup>c</sup>
Taped television shows	0:04 <sup>a</sup>	0:03 <sup>a</sup>	0:23 <sup>b</sup>	0:17 <sup>c</sup>	0:10 <sup>d</sup>
Videos (commercial)	0:32 <sup>a</sup>	0:21 <sup>b</sup>	0:27 <sup>ab</sup>	0:31 <sup>ac</sup>	0:29 <sup>c</sup>
Movies	0:01 <sup>a</sup>	0:02 <sup>a</sup>	0:30 <sup>b</sup>	0:22 <sup>b</sup>	0:11 <sup>c</sup>

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

TABLE 10 - B

### Proportion Reporting at Least Five Minutes Exposure the Previous Day

Medium	Age in years				
	2-4	5-7	8-10	11-13	14-18
Television	82% <sup>ac</sup>	83% <sup>ab</sup>	89% <sup>b</sup>	88% <sup>b</sup>	76% <sup>c</sup>
Taped television shows	6 <sup>a</sup>	5 <sup>a</sup>	34 <sup>b</sup>	25 <sup>c</sup>	16 <sup>d</sup>
Videos (commercial)	46 <sup>a</sup>	30 <sup>bd</sup>	41 <sup>c</sup>	37 <sup>cd</sup>	31 <sup>bcd</sup>
Movies	1 <sup>a</sup>	2 <sup>a</sup>	18 <sup>b</sup>	15 <sup>b</sup>	8 <sup>c</sup>

Note: Within each row and age sub-group, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

TABLE 10 - C

### Proportion Reporting More than One Hour and More than Five Hours TV Exposure the Previous Day

Medium	Age in years				
	2-4	5-7	8-10	11-13	14-18
More than 1 hour TV	57% <sup>a</sup>	61% <sup>a</sup>	72% <sup>b</sup>	74% <sup>b</sup>	61% <sup>a</sup>
More than 5 hours TV	7 <sup>a</sup>	7 <sup>a</sup>	27 <sup>b</sup>	28 <sup>b</sup>	18 <sup>c</sup>

Note: Within each row and age sub-group, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

minutes the previous day, and significantly fewer White kids in the youngest age group than either their African American or Hispanic counterparts reported no reading the previous day.

Parent education serves as our proxy for socioeconomic status. Table 13, which looks at print media use by level of parent education, indicates a substantial difference in book reading within both the younger and the older age groupings. Regardless of age, children whose parents went no further than high school are more likely to report no book reading on the previous day (29% to 12% among younger children; 62% to 49% among older children) and much less likely to report at least 30 minutes of previous day book-reading (36% to 55% and 23% to 33%, respectively). All of these differences are statistically reliable.

Overall, then, print media maintain a presence in children’s media environment, even though they do not play a very large role in youngsters’ total media budget (i.e., they make up 12% of the total budget). Within the print media, book use dominates, but book reading drops off dramatically during later adolescence. Magazines garner about a quarter of an hour per day of most children’s time, regardless of age, gender, ethnicity, or the various indicators of socioeconomic status. Finally, although their use increases throughout childhood and adolescence, newspapers seem to be the least important of the print media for youth – at least in terms of the time devoted to them and the number of youngsters who even bother to glance at them.

## Children's Leisure Exposure to Print Media by Age

TABLE 11 - A

### Average Daily Time with Each Print Medium

Print Medium	Child's age in years						
	2-18	2-7	8-18	2-4	5-7	8-13	14-18
Books	:25	:29 <sup>a</sup>	:22 <sup>b</sup>	:34 <sup>a</sup>	:23 <sup>b</sup>	:28 <sup>b</sup>	:14 <sup>c</sup>
Magazines	:16	:16	:16	:16 <sup>ab</sup>	:16 <sup>ab</sup>	:17 <sup>a</sup>	:14 <sup>b</sup>
Newspapers	:05	:02 <sup>a</sup>	:07 <sup>b</sup>	:02 <sup>a</sup>	:02 <sup>a</sup>	:06 <sup>b</sup>	:09 <sup>c</sup>
All Print	:44	:45	:44	:50 <sup>a</sup>	:40 <sup>b</sup>	:50 <sup>a</sup>	:37 <sup>b</sup>

Note: Within each row and age sub-group, only those mean times that do not share a common superscript differ from one another with statistical reliability. Those means without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability. Time for All Print may not equal sum of time for books, magazines, and newspapers due to rounding error.

TABLE 11 - B

### Proportion Who Did Not Read the Previous Day

Print Medium	Child's age in years						
	2-18	2-7	8-18	2-4	5-7	8-13	14-18
Books	40%	20% <sup>a</sup>	53% <sup>b</sup>	16% <sup>a</sup>	25% <sup>b</sup>	40% <sup>c</sup>	70% <sup>d</sup>
Magazines	48	53 <sup>a</sup>	45 <sup>b</sup>	55 <sup>a</sup>	50 <sup>a</sup>	47 <sup>b</sup>	41 <sup>b</sup>
Newspapers	69	87 <sup>a</sup>	58 <sup>b</sup>	90 <sup>a</sup>	85 <sup>a</sup>	65 <sup>b</sup>	49 <sup>c</sup>
All Print	18	15 <sup>a</sup>	20 <sup>b</sup>	14 <sup>a</sup>	16 <sup>ac</sup>	19 <sup>ab</sup>	21 <sup>bc</sup>

Note: Within each row and age sub-group, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

TABLE 11 - C

### Proportion Who Read More than 30 Minutes the Previous Day

Print Medium	Child's age in years						
	2-18	2-7	8-18	2-4	5-7	8-13	14-18
Books	36%	46% <sup>a</sup>	30% <sup>b</sup>	53% <sup>a</sup>	40% <sup>b</sup>	38% <sup>bc</sup>	18% <sup>d</sup>
Magazines	26	28 <sup>a</sup>	24 <sup>b</sup>	26 <sup>a</sup>	38 <sup>b</sup>	26 <sup>a</sup>	21 <sup>a</sup>
Newspapers	7	2 <sup>a</sup>	11 <sup>b</sup>	*	3 <sup>a</sup>	9 <sup>a</sup>	13 <sup>b</sup>
All Print	44	47 <sup>a</sup>	42 <sup>b</sup>	50 <sup>a</sup>	42 <sup>ab</sup>	47 <sup>ab</sup>	35 <sup>b</sup>

Note: Within each row and age sub-group, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

\* Indicates less than 1%.

*The computer.* Patterns of children's computer use are a bit more complicated than those for other media. First, our index of computer use includes a number of very different ways in which the computer may be used, including playing computer games, using e-mail, visiting chat rooms, visiting Web sites, as well as using it for school-related or work-related tasks (which may also include such things as visiting Web sites or using e-mail, but also includes tasks that require word processing, or using spreadsheet, database, or statistical programs). Clearly the youngster who devotes most of his or her computer time to game-playing experiences something quite different than the youngster who devotes the bulk of his/her computer time to surfing the Web. In this section, then,

we examine computer use in terms of some of the various sub-tasks the computer enables and/or facilitates.

Second, in the preceding examination of children's leisure media use, we have separated the time youngsters spend on recreational pursuits on the computer from the time the medium claims for either school-related or work-related activities. In this section we will present not only the amount of time children spend on the computer for recreational pursuits, but also time they give to this new communication medium in "non-recreational" venues.

A third factor that complicates consideration of children's computer use concerns access. As we showed in our earlier discus-

## Children’s Leisure Exposure to Print Media by Race/Ethnicity

TABLE 12 - A

### Average Daily Time with Each Medium

Medium	2-7 year-olds			8-18 year-olds		
	White	Black	Hispanic	White	Black	Hispanic
Books	:31	:26	:24	:22	:23	:15
Magazines	:16	:13	:14	:15	:15	:15
Newspapers	:02	:04	:01	:07	:09	:06
All Print	:47	:42	:38	:43	:47	:35

Note: Time for All Print may not equal sum of time for books, magazines, and newspapers due to rounding error.

TABLE 12 - B

### Proportion Who Did Not Read the Previous Day

Medium	2-7 year-olds			8-18 year-olds		
	White	Black	Hispanic	White	Black	Hispanic
Books	17%	26%	28%	55%	49%	56%
Magazines	53	53	51	42	49	48
Newspapers	89	84	87	56	55	64
All Print	12 <sup>a</sup>	22 <sup>ab</sup>	23 <sup>b</sup>	18	24	25

Note: Within each row and age sub-group, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

TABLE 12 - C

### Proportion Who Read at Least 30 Minutes the Previous Day

Medium	2-7 year-olds			8-18 year-olds		
	White	Black	Hispanic	White	Black	Hispanic
Books	49% <sup>a</sup>	46% <sup>ab</sup>	36% <sup>b</sup>	28%	31%	25%
Magazines	30	28	22	23	22	23
Newspapers	2	4	1	11	13	7
All Print	47	47	41	42	46	36

Note: Within each row and age sub-group, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

sion of the media environment (Section III), the computer has not yet achieved the household penetration of such media as television and radio. Over 30% of the children in our sample come from homes in which there is no computer, and in some of our sub-groups the proportion without household access surpasses 50% (e.g., children who live in or attend school in zip codes where the median income is below \$25,000; Hispanic children). Although many youth who lack computers at home do have access elsewhere (e.g., schools, libraries), those without in-home access remain less likely to use a computer for any reason on any given day.

For all these reasons, then, in addition to looking at computer use within the entire sample, we also consider amount of time given to the medium by “computer users,” defined here as

any child who reported using a computer for any purpose on the preceding day.

Table 14 shows the mean amount of time that all children in the total sample and in various age sub-groups report spending on various computer tasks. As we saw earlier when considering overall recreational computer use, although use is substantially and reliably higher among children in the two older age groups, even very young children devote a few minutes daily to the new medium. Table 14 reveals that almost all of young children’s recreational computer time is taken up playing games – albeit more often than not games that are educational in nature (see Section V). Although games remain the most popular type of use among the two older sub-groups, the other computer uses have clearly begun to assume more importance.

## Children's Leisure Exposure to Print Media by Parent Education

TABLE 13 - A

### Average Daily Time with Each Medium

Medium	2-7 year-olds			8-18 year-olds		
	High School or less	Some College	College or more	High School or less	Some College	College or more
Books	:25 <sup>a</sup>	:26 <sup>a</sup>	:34 <sup>b</sup>	:15 <sup>a</sup>	:23 <sup>b</sup>	:26 <sup>b</sup>
Magazines	:17	:16	:14	:13 <sup>a</sup>	:13 <sup>ab</sup>	:17 <sup>b</sup>
Newspapers	:02	:02	:02	:06 <sup>a</sup>	:08 <sup>ab</sup>	:08 <sup>b</sup>
All Print	:43	:43	:48	:34 <sup>a</sup>	:44 <sup>ab</sup>	:50 <sup>b</sup>

Note: Within each row and age sub-group, only those mean times that do not share a common superscript differ from one another with statistical reliability. Those mean times without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability. Time for All Print may not equal sum of time for books, magazines, and newspapers due to rounding error.

TABLE 13 - B

### Proportion Who Did Not Read the Previous Day

Medium	2-7 year-olds			8-18 year-olds		
	High School or less	Some College	College or more	High School or less	Some College	College or more
Books	29% <sup>a</sup>	21% <sup>a</sup>	12% <sup>b</sup>	62% <sup>a</sup>	55% <sup>ab</sup>	49% <sup>b</sup>
Magazines	47 <sup>a</sup>	50 <sup>ab</sup>	59 <sup>b</sup>	47	45	43
Newspapers	89	87	87	60	57	54
All Print	21 <sup>a</sup>	17 <sup>ab</sup>	10 <sup>b</sup>	26 <sup>a</sup>	20 <sup>ab</sup>	16 <sup>b</sup>

Note: Within each row and age sub-group, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

TABLE 13 - C

### Proportion Who Read at Least 30 Minutes the Previous Day

Medium	2-7 year-olds			8-18 year-olds		
	High School or less	Some College	College or more	High School or less	Some College	College or more
Books	36% <sup>a</sup>	36% <sup>a</sup>	55% <sup>b</sup>	23% <sup>a</sup>	31% <sup>ab</sup>	33% <sup>b</sup>
Magazines	32	30	30	20 <sup>a</sup>	18 <sup>a</sup>	27 <sup>b</sup>
Newspapers	2	2	3	8	11	13
All Print	41	48	51	31 <sup>a</sup>	40 <sup>a</sup>	48 <sup>b</sup>

Note: Within each row and age sub-group, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

By late adolescence, gaming has dropped and exploring Web sites has increased to where there is only a minute per day difference in the average time devoted to each.

It is also clear from Table 14 that for many children, beginning school means exposure to computers. The increase is relatively small among the youngest group. Indeed, by 14 through 18 years, youngsters report spending more time on school-related computer use than any other computer sub-category (although the differences are quite small). Gaming is clearly the most common way in which youngsters in all of these age-groups use computers.

In addition to dominating young children's computer activity, among 8-13 year-olds it claims more than double the time of any other recreational use and almost doubles the time devoted to school-related use. And while time given over to computer games drops off somewhat in later adolescence, it nevertheless continues to claim top spot among recreational uses, trailing only school-related use (by 4 minutes per day). Children begin discovering Internet-related uses of the computer by middle childhood, and although the differences are not large, slightly more time is given over to visiting Web sites than to either chat rooms or e-mail.

TABLE 14

Children’s Average Daily Computer Use by Age

Type of use	2-18 years	2-7 years	8-13 years	14-18 years
Games	:10	:06 <sup>a</sup>	:16 <sup>b</sup>	:10 <sup>c</sup>
Chat rooms	:03	*	:05	:05
Web sites	:05	:01 <sup>a</sup>	:07 <sup>b</sup>	:09
E-mail	:03	*	:04	:05
Total Recreational	:21	:07 <sup>a</sup>	:32 <sup>b</sup>	:30 <sup>b</sup>
School work #	:08	:03 <sup>a</sup>	:09 <sup>b</sup>	:14 <sup>c</sup>
Job related ##	:01	*	:02	:02
Other	:04	:01 <sup>a</sup>	:07 <sup>b</sup>	:06 <sup>b</sup>
Total Computer	:34	:11 <sup>a</sup>	:50 <sup>b</sup>	:52 <sup>b</sup>

Note: Within each row and age sub-group, only those mean times that do not share a common superscript differ from one another with statistical reliability. Those means without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

\* Indicates less than .01 of an hour  
 # Asked only of children in school  
 ## Not asked of 2-7 year-olds

For some, these average times may seem quite small. To individuals who have experience with a youngster who is an active computer user, or whose child attends a school where computers are becoming an integral part of the curriculum, or individuals who pay attention to headlines shouting about how computers have changed American youth, the idea that school children’s average daily recreational computer use is only a half hour per day (or that, even among older kids, total use remains under an hour), runs counter to expectations. As noted above, however, a great many children who do not use computers at all are included in these averages. There is every reason to believe that average amounts will change in terms both of amount of use and of who uses when computer access is taken into account. Table 15, which shows the percentage of children in several different demographic groups who reported using the computer the previous school day, makes the point. This analysis is limited to students who completed the questionnaire for Monday through Friday media use. Computer use “at school” was reported by 29% of the children; computer use outside of school (primarily composed of but not limited to use at home) was claimed by 38%. Obviously, access makes a difference. Some noteworthy variations in both “at school” and “out of school” use are located by several of the sub-group comparisons.

With two exceptions, the proportion of kids who report computer use at school remains fairly constant at around 29% (+ or -3%) for most groups of children. The only reliable difference in computer use in school is located by age. Although not illustrated in Table 15, a smaller percentage of 8-13 year-olds than 14-18 year-olds used the computer at school the previous day (24% versus 33%). No reliable differences in in-school

computer use emerge as a function of zip code income level, parent education, or family composition. The lack of differences located by such measures of socioeconomic level may speak to the success of programs designed to increase computer penetration in public schools.

On the other hand, the importance of in-home access to computers is clearly illustrated when the proportion of kids who used a computer out of school the previous day is examined. As a comparison of the in-school use and out-of-school use columns in Table 15 shows, a smaller proportion of kids from less advantaged backgrounds report using a computer out of school than in school. Although not large, the decreases in the proportion using a computer outside of school holds for African American and Hispanic youngsters (drops of 7% and 3%, respectively), for kids who live in or go to school in zip codes where the annual median income is under \$25,000 (a 9% drop), for kids whose parents completed no more than high school (a 5% drop) and for youngsters from single-parent households (an 11% drop). In addition, unlike the sub-group comparisons for in-school computer use, a reliably larger proportion of White kids than either Black or Hispanic kids use the computer out of school, and the differences among all three income sub-groups and all three parent education sub-groups give more use by kids in the highest socioeconomic groups – differences that are large and statistically reliable. These findings provide clear evidence, it seems to us, of the importance of access, as well as the importance of examining patterns of computer use among computer users as well as for the total sample of children.

Table 16, then, presents mean amount of computer use among only children who used a computer on the previous day

TABLE 15

## Percentage of Children Who Used a Computer Yesterday – At School and Out of School

Characteristics	All children	Children not yet in school	Children in school Used at school	Used out of school
Total Sample	42%	17%	29%	38%
Age				
2-7 years	26 <sup>a</sup>	–	32	26 <sup>a</sup>
8-10 years	45 <sup>b</sup>	–	23	37 <sup>b</sup>
11-13 years	51 <sup>bc</sup>	–	26	42 <sup>b</sup>
14-18 years	55 <sup>c</sup>	–	33	44 <sup>b</sup>
Gender				
Boys	42	19	32	38
Girls	41	16	26	38
Race/ethnicity				
White	45 <sup>a</sup>	20	28	43 <sup>a</sup>
Black	39 <sup>a</sup>	9	37	30 <sup>b</sup>
Hispanic	28 <sup>b</sup>	11	29	26 <sup>b</sup>
Zip Code Income				
under \$25,000	29 <sup>a</sup>	5	32	23 <sup>a</sup>
\$25k-\$40k	40 <sup>b</sup>	20	28	37 <sup>b</sup>
Over \$40,000	50 <sup>c</sup>	19	30	48 <sup>c</sup>
Parent Education				
High school or less	29 <sup>a</sup>	8	30	25 <sup>a</sup>
Some college	38 <sup>b</sup>	19	31	35 <sup>b</sup>
College or more	51 <sup>c</sup>	23	28	48 <sup>c</sup>
Family Composition				
Two-parent	43	18	29	40
Single-parent	38	11	32	31

Note: For all children who used a computer at school, percentages are based on those who reported on Monday through Friday media use. Within each row and age sub-group, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

for each of the age groups. Not surprisingly, the most obvious result of examining only computer users is the substantial jump in total amount of computer use. Where for the overall sample, recreational computer time averaged 21 minutes daily and total computer use (recreational, in-school, and job-related) averaged 34 minutes daily, when just computer users are considered recreational use increases to 52 minutes daily and total computer use to 1:26. In other words, not all kids use computers, but those that do use them, use them a fair amount. When the base sample is changed in this way, both recreational computer use and total computer use almost double among the two older groups; for younger children, recreational use trebles and total use quadruples. When examined by age, the relative amounts of time devoted to each of the computer tasks remains similar to the pattern for the full sample – a finding that does not always hold for other sub-group comparisons.

Given the relatively smaller number of children in the in-home sample, in combination with 2-7 year-olds' limited use of the computer for anything other than game playing, the remaining comparisons of computer use are based on responses from

the in-school sample only. For the analysis of gender differences, enough youngsters fall into each of the two major age groups to examine gender by age. We cannot control for age, however, when looking at the role of race/ethnicity, community income, or parent education.

In this study as in most earlier work, boys report slightly more computer use than girls (see Table 8-B). Table 17-A shows this finding is consistent across age groups when all respondents are considered. There is no difference in the proportion of boys and girls classed as "computer users," but boys in both age groups report 10 minutes more computer time than girls for both in-school and out-of-school use. When the sample is limited to those who used a computer the previous day (Table 17-B), the difference grows to about 20 minutes, again regardless of age or whether we look at only recreational computer use or all use. However, it is extremely important to note that almost all of the gender difference in computer use, regardless of which group is examined, is attributable to the time that boys devote to playing computer games. If games were removed from the computer menu, there would be little or no difference in the time boys and girls spend with computers.

TABLE 16

Average Daily Computer Use Among Children Who Used a Computer Yesterday by Age

Type of use	2-18 years	2-7 years	8-13 years	14-18 years
Games	0:25	0:22 <sup>a</sup>	0:32 <sup>b</sup>	0:19 <sup>a</sup>
Chat rooms	0:08	*	0:11	0:10
Web sites	0:12	0:01 <sup>a</sup>	0:14 <sup>b</sup>	0:17 <sup>b</sup>
E-mail	0:07	0:01 <sup>a</sup>	0:08 <sup>b</sup>	0:10 <sup>b</sup>
Total Recreational	0:52	0:24 <sup>a</sup>	1:05 <sup>b</sup>	0:55 <sup>b</sup>
School work #	0:19	0:11 <sup>a</sup>	0:19 <sup>b</sup>	0:26 <sup>c</sup>
Job related ##	0:03	-	0:05	0:04
Other	0:11	0:05 <sup>a</sup>	0:17 <sup>b</sup>	0:12 <sup>ab</sup>
Total Computer	1:26	0:40 <sup>a</sup>	1:45 <sup>b</sup>	1:37 <sup>b</sup>
Percent who used a computer yesterday	42%	26% <sup>a</sup>	48% <sup>b</sup>	55% <sup>b</sup>

Note: Within each row and age sub-group, only those mean times or proportions that do not share a common superscript differ from one another with statistical reliability. Those means and proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

\* Indicates less than .01 of an hour  
 # Asked only of children in school  
 ## Not asked of 2-7 year-olds

When comparisons are based on the total sample among 8-18 year-olds, there are few differences among racial/ethnic groups. However, when the analysis focuses only on computer users, Hispanic youngsters – whose average computer time was lowest in the total sample – emerge as the heaviest computer users, their time exceeding White use by 37 minutes and Black use by 26 minutes (Table 18-B). Most of the increase is due to Hispanic computer users spending much more time with games than either Whites or African Americans. Where the sub-set of White and Black youngsters who are computer users devote 10 and 14 more minutes, respectively, to games than do their White and Black counterparts in the total sample, compared to the total sample, Hispanic computer users increase their game time by 26 minutes. When we move from the general sample to the sample self-designated as computer users, the pattern of differences that originally made Hispanic youth seem like the lowest users of computers completely reverses. Thus, even though a smaller percentage of Hispanic youth are classified as “computer users” (36% of Hispanic kids 8-18, 52% of African American kids, and 55% of White school kids used a computer the previous day), among computer users they spend the most time with computers.

When time spent with a computer is examined by income, in the total sample, children who attend schools located in zip codes where the median income exceeds \$40,000 report 9 minutes more recreational computer use than those in the low income group and 16 minutes more total computer use when non-recreational computer activities are included, with the middle income group falling in between (see Table 19). For the most part, this difference by income group is the result of an accumu-

lation of a few minutes more devoted to each of the computer activities. When we look only at previous day computer users, however, a higher proportion of kids from the highest income sub-group report previous day computer use. Once these differences are taken into account, patterns of use among different kinds of computer activities remain stable across these groups.

Perhaps the most striking thing to notice in Table 20, which presents computer time in terms of parent education levels, is the consistent, albeit small, increase in time given to most of the computer categories as parental education increases. With the exception of using the computer for job-related tasks, where the children of parents with a high school education or less report slightly more computer time (from 1 to 4 minutes), and for school work among computer users (where the three groups are in a virtual dead heat), children whose parents completed at least college spend more time on every form of computer activity than children from either of the other two parent-education sub-groups. The small differences favoring children from high income communities accumulate across almost all categories of computer use, resulting in children in the general sample whose parents completed college reporting 24 minutes more computer use than children whose parents went no further than high school, and 15 minutes more than children whose parents have some college. When we focus only on previous day computer users, the differences virtually disappear, much as we saw above when looking across community income groups.

*Audio media.* Our index of audio media includes time reported listening to CDs and tapes and, for all but the 3rd through 6th

TABLE 17

## Average Daily Computer Use Among 8-18 Year-Olds by Gender

## A. Total Sample

Computer activity	8-13 year-olds		14-18 year-olds	
	Boys	Girls	Boys	Girls
Games	0:19 <sup>a</sup>	0:11 <sup>b</sup>	0:16 <sup>a</sup>	0:05 <sup>b</sup>
Chat rooms	0:05	0:05	0:05	0:06
Web sites	0:08	0:05	0:11 <sup>a</sup>	0:08 <sup>b</sup>
E-mail	0:04	0:04	0:04	0:06
Total recreational use	0:35 <sup>a</sup>	0:26 <sup>b</sup>	0:35 <sup>a</sup>	0:25 <sup>b</sup>
School work	0:08	0:10	0:13	0:15
Job related	0:03	0:01	0:02	0:02
Other	0:07	0:07	0:07	0:05
Total Computer	0:54	0:44	0:57	0:47

## B. Computer Users

Computer activity	8-13 year-olds		14-18 year-olds	
	Boys	Girls	Boys	Girls
Percent of "Computer Users"	49%	47%	55%	55%
Games	0:38 <sup>a</sup>	0:20 <sup>b</sup>	0:29 <sup>a</sup>	0:10 <sup>b</sup>
Chat rooms	0:10	0:11	0:08	0:11
Web sites	0:16	0:11	0:20 <sup>a</sup>	0:14 <sup>b</sup>
E-mail	0:07	0:09	0:08	0:11
Total recreational use	1:11 <sup>a</sup>	0:56 <sup>b</sup>	1:05 <sup>a</sup>	0:46 <sup>b</sup>
School work	0:17	0:20	0:25	0:26
Job related	0:06	0:03	0:03	0:04
Other	0:16	0:17	0:14	0:10
Total Computer	1:52	1:36	1:47 <sup>a</sup>	1:26 <sup>b</sup>

Note: Within each row and age sub-group, only those mean times that do not share a common superscript differ from one another with statistical reliability. Those mean times without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

TABLE 18

## Average Daily Computer Use Among 8-18 Year-Olds by Race/Ethnicity

## A. Total sample

Computer Activity	White	African American		Hispanic
		American	Hispanic	
Games	0:13	0:14	0:14	0:14
Chat rooms	0:05	0:05	0:05	0:05
Web sites	0:08	0:09	0:06	0:06
E-mail	0:05 <sup>a</sup>	0:02 <sup>b</sup>	0:03 <sup>ab</sup>	0:03 <sup>ab</sup>
Total recreational use	0:31	0:31	0:29	0:29
School work	0:11 <sup>a</sup>	0:16 <sup>b</sup>	0:08 <sup>a</sup>	0:08 <sup>a</sup>
Job related	0:02	0:03	0:02	0:02
Other	0:07	0:05	0:07	0:07
Total Computer	0:51	0:55	0:46	0:46

## B. Computer Users

Computer Activity	White	African American		Hispanic
		American	Hispanic	
Percent of "Computer Users"	55% <sup>a</sup>	52% <sup>a</sup>	36% <sup>b</sup>	36% <sup>b</sup>
Games	0:23 <sup>a</sup>	0:28 <sup>ab</sup>	0:40 <sup>b</sup>	0:40 <sup>b</sup>
Chat rooms	0:10	0:11	0:15	0:15
Web sites	0:14	0:17	0:17	0:17
E-mail	0:10	0:05	0:08	0:08
Total recreational use	0:57	1:01	1:21	1:21
School work	0:20 <sup>a</sup>	0:29 <sup>b</sup>	0:23 <sup>ab</sup>	0:23 <sup>ab</sup>
Job related	0:04	0:06	0:04	0:04
Other	0:14	0:10	0:23	0:23
Total Computer	1:35 <sup>a</sup>	1:46 <sup>ab</sup>	2:12 <sup>b</sup>	2:12 <sup>b</sup>

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



graders, to four types of radio broadcasts: music, news, talk radio, and other (time constraints forced us to limit the question posed to 3rd through 6th graders to a single item asking about all radio use combined). As noted earlier, for most children most of the time, radio is a music medium. Because music use increases so rapidly during the school year, Table 21 presents average audio media exposure by four age groups in order to obtain a more fine-grained picture of changes in the pattern of use. Finally, it should be noted that the questions about exposure to audio media that were posed to parents of 2-7 year-olds differed slightly from those asked of older children. When parents were asked about their child's exposure to each radio format and to CDs and tapes, they were explicitly asked to include exposure with other people: e.g., "...about how much time did [X] spend listening to [music] either on his/her own, with other people, or with you while you were listening to the radio?" Older children, on the other hand, were asked: "...how much time did you spend listening to the following types of radio broadcasts...Music?" This difference points to the likelihood that time estimates for younger children contain more incidental music exposure than do estimates for older children.

Table 21 supports our earlier contention that children use radio primarily for music. Regardless of age, music exposure time is always more than double exposure to all other radio formats combined. The most striking thing to note about music exposure is how consistently and strongly it increases across age. It begins early, probably as a result both of availability of children's tapes and of co-listening with adults to CDs/tapes and radio. Music exposure accounts for almost  $\frac{3}{4}$  of an hour of the youngest group's media time; over  $1\frac{1}{2}$  hours of audio exposure time among 11-13 year-olds, and over  $2\frac{1}{2}$  hours among 14-18 year-olds, almost equaling television time for this latter age group. The pattern of high and increasing exposure is also reflected in the percentage of children in each age group reporting at least some exposure to radio, music, and CDs & tapes, the previous day. It is also worth noting that, because music listening is often a background activity (the radio plays while youngsters read, drive, do chores, etc.), estimates of music exposure obtained from survey questions may be quite conservative – that is, youngsters, particularly teenagers, may spend even more time with music than our data indicate (see Christenson & Roberts, 1998).

Non-music radio formats do receive some attention from children and adolescents, and the time devoted to them also increases with age. However, relative to music programming, they run a poor second. Talk shows are the only radio format ever to garner more than 10 minutes daily, and this happens only among

the oldest children. Moreover, since only 22% of 14-18 year-olds reported any exposure to a talk show the previous day, it seems likely that the slightly higher average time they give to talk shows is due to the behavior of a relatively small sub-group of listeners who tune in a great deal. Depending on age, on any given day, from 14% to 30% of youngsters are exposed to news, from 7% to 26% to talk shows, and from 4% to 15% to other types of radio formats. In short, for children and adolescents, audio media are music media – and they comprise a substantial part of most children's media day.

Gender also makes a substantial difference in the amount of time children are exposed to audio media. Table 22 shows that although boys and girls are almost identical in amount of exposure to audio media through the first 7 years, by 8-10 years 16% more girls report listening to CDs and tapes the previous day, and girls are exposed to a half hour more of audio media per day (:49 for boys; 1:19 for girls). Girls maintain that difference in exposure to audio media throughout adolescence. However, if we look at just music listening (i.e., radio music and CDs/tapes), it appears that girls report almost an hour more music than boys during the early teen years (boys = 1:10; girls = 2:04), but that boys begin to catch up during later adolescence, halving the gender difference in music listening (boys = 2:10; girls = 2:35). One other point worth noting here is how, by the beginning of adolescence, CDs and tapes begin to emerge as the most-used music media. Among 11-13 year-olds, boys report 12 minutes more and girls 20 minutes more listening to CDs and tapes than to radio music; by 14 to 18 years, the difference is 40 minutes for boys and 35 minutes for girls. We suspect that the greater control of what music is listened to and when afforded by CD and tape players accounts for most of this difference.

Use of audio media does not differ greatly as a function of race/ethnicity. Table 23 shows that among 2-7 year-olds, there is a tendency for African Americans to spend more time with radio (:32) than either White children (:22) or Hispanic children (:25). However the differences even out such that in the early years children from all three racial/ethnic groups devote about  $\frac{3}{4}$  of an hour to audio media.

Finally, neither median income of the zip code in which children go to school or live or level of parent education locates substantial differences in exposure to audio media. Among the youngest children, all three income groups and all three education groups report about  $\frac{3}{4}$  hours per day of exposure to radio and CDs/tapes combined. Among the 8-18 year-olds, the amount of both radio and overall audio exposure is identical for the youngsters in the low and middle income groups (1:11 for radio and

TABLE 19

## Average Daily Computer Use Among 8-18 Year-Olds by Community Income

## A. Total sample

Computer Activity	Under \$25,000	\$25,000- \$40,000	Over \$40,000
Games	:11	:13	:15
Chat rooms	:04	:05	:06
Web sites	:06	:08	:08
E-mail	:03	:05	:05
Total recreational use	:25 <sup>a</sup>	:31 <sup>ab</sup>	:34 <sup>b</sup>
School work	:09 <sup>a</sup>	:10 <sup>a</sup>	:14 <sup>b</sup>
Job related	:01	:03	:01
Other	:05	:07	:07
Total Computer	:40 <sup>a</sup>	:50 <sup>ab</sup>	:56 <sup>b</sup>

## B. Computer Users

Computer Activity	Under \$25,000	\$25,000- \$40,000	Over \$40,000
Percent "Computer Users"	38% <sup>a</sup>	48% <sup>a</sup>	62% <sup>b</sup>
Games	0:31	0:26	0:24
Chat rooms	0:11	0:11	0:10
Web sites	0:16	0:17	0:13
E-mail	0:08	0:10	0:08
Total recreational use	1:06	1:05	0:55
School work	0:24	0:21	0:22
Job related	0:04 <sup>ab</sup>	0:07 <sup>a</sup>	0:02 <sup>b</sup>
Other	0:16	0:16	0:13
Total Computer	1:49	1:48	1:31

Note: Within each row and income sub-group, only those mean times that do not share a common superscript differ from one another with statistical reliability. Those mean times without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

TABLE 20

## Average Daily Computer Use Among 8-18 Year-Olds by Parent Education

## A. Total sample

Computer Activity	High School or less	Some College	College or more
Games	0:10 <sup>a</sup>	0:13 <sup>ab</sup>	0:16 <sup>b</sup>
Chat rooms	0:03 <sup>a</sup>	0:05 <sup>ab</sup>	0:07 <sup>b</sup>
Web sites	0:06 <sup>a</sup>	0:06 <sup>a</sup>	0:10 <sup>b</sup>
E-mail	0:04	0:02	0:05
Total recreational use	0:22 <sup>a</sup>	0:26 <sup>a</sup>	0:37 <sup>b</sup>
School work	0:09 <sup>a</sup>	0:11 <sup>ab</sup>	0:13 <sup>b</sup>
Job related	0:03	0:01	0:02
Other	0:03 <sup>a</sup>	0:08 <sup>ab</sup>	0:09 <sup>b</sup>
Total Computer	0:37 <sup>a</sup>	0:46 <sup>ab</sup>	1:01 <sup>b</sup>

## B. Computer Users

Computer Activity	High School or less	Some College	College or more
Percent "Computer Users"	39% <sup>a</sup>	51% <sup>ab</sup>	59% <sup>b</sup>
Games	0:24	0:25	0:26
Chat rooms	0:08	0:10	0:11
Web sites	0:14	0:12	0:16
E-mail	0:09	0:05	0:09
Total recreational use	0:55	0:52	1:02
School work	0:22	0:23	0:22
Job related	0:08	0:02	0:04
Other	0:08	0:17	0:16
Total Computer	1:34	1:35	1:44

Note: Within each row and sub-group, only those mean times that do not share a common superscript differ from one another with statistical reliability. Those mean times without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

2:18 for total audio in both groups); kids who go to school in zip codes in which the median income is over \$40,000 listen a bit less (:58 for radio and 1:59 for total audio). The pattern is much the same when exposure to audio media is examined by parent education. Among younger children, all three education groups report about ¾ hours daily exposure to audio media. Among the older children, those whose parents completed some college report more exposure (2:26) than either kids whose parents completed high school (2:11) or those whose parents completed college (2:02). In a sense, then, audio media are quite democratic in that the socioeconomic differences that sometimes emerge in exposure to other media generally disappear when it comes to radio, CDs and tapes.

*Interactive games.* Given the recent public discussion of youth’s fascination with video games and computer games, it seems sensible to look at the time children spend using interactive games. This analysis combines and compares video games and computer games, and examines the average daily time that youngsters from different sub-groups report spending with games, the average daily time kids from different sub-groups who played video games the previous day spend with games, the proportion of youngsters who report using either kind of game on an average day, and the proportion of youngsters who report playing either kind of game for an hour or more on an average day. In general,

our results demonstrate the frequently-noted attraction of the games for boys as opposed to girls, and reveal a pattern of increased game playing through the middle school years and a drop-off in adolescence that is quite similar to the pattern for television viewing. The results also indicate that youngsters are typically more exposed to video games than to computer games, probably an indication of how differential access to computers and to video game systems influences overall time devoted to the two kinds of interactive games (i.e., more households contain video game systems than contain personal computers).

On any given day, 26% of 2-18 year-olds report spending at least 5 minutes playing computer games and 30% report playing video games, but on average, kids spend just half the time with computer games (10 minutes daily) than video-gamers give to video games (20 minutes daily). Table 24, however, shows that this pattern of twice as much time reported for video games emerges only after children are in school. Younger children are less likely to play either kind of game on any given day, and they devote almost the same amount of time to either kind of game (:06 to computer games; :08 to video games). By 8 to 13 years, however, kids play computer games for an average of 16 minutes per day, and video games for an average of 32 minutes per day. Among 14-18 year-olds, gaming drops off to 10 minutes of computer games and 20 minutes of video games.

TABLE 21

Daily Use of Audio Media by Age

A. Average Daily Exposure Time

Medium/Format	2-7 years	8-10 years #	11-13 years	14-18 years
Radio:				
Music	0:20		0:41	0:53
News	0:02		0:05	0:05
Talk shows	0:02		0:05	0:07
Other	0:01		0:08	0:04
Total Radio	0:24	0:26	0:44	1:05
CDs & tapes	0:21 <sup>a</sup>	0:37 <sup>b</sup>	0:56 <sup>c</sup>	1:29 <sup>d</sup>
Total Audio	0:45 <sup>a</sup>	1:02 <sup>b</sup>	1:41 <sup>c</sup>	2:34 <sup>d</sup>

B. Percent Using Each Medium/Format the Previous Day

Radio:				
Music	54% <sup>a</sup>		78% <sup>b</sup>	84% <sup>b</sup>
News	14 <sup>a</sup>		24 <sup>b</sup>	30 <sup>b</sup>
Talk shows	7 <sup>a</sup>		26 <sup>b</sup>	22 <sup>b</sup>
Other	4 <sup>a</sup>		15 <sup>b</sup>	11 <sup>b</sup>
CDs & tapes	38 <sup>a</sup>	54 <sup>b</sup>	75 <sup>c</sup>	82 <sup>d</sup>

Note: Within each row and sub-group, only those mean times or proportions that do not share a common superscript differ from one another with statistical reliability. Those mean times or proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

# Because of time constraints, individual questions about radio music, news, talk shows, and other, were not asked of 8 through 10 year-olds. For those 11-13 year-olds in grades lower than 7, Total Radio is based on responses to a single item asking about total radio use; for 7th through 12th graders it is the sum of the four individual radio items.

TABLE 22

## Daily Exposure to Audio Media by Gender and Age

## A. Average Daily Exposure Time

Medium or Format	2-7 years		8-10 years		11-13 years		14-18 years	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Radio:								
Music	0:22	0:19			0:29 <sup>a</sup>	0:52 <sup>b</sup>	0:45 <sup>a</sup>	1:00 <sup>b</sup>
News	0:02	0:02			0:07	0:04	0:04	0:05
Talk shows	0:02	0:02			0:08	0:03	0:08	0:05
Other	0:01	0:01			0:14 <sup>a</sup>	0:03 <sup>b</sup>	0:06	0:02
Total Radio	0:26	0:22	0:22	0:31	0:40	0:49	0:59	1:10
CDs/tapes	0:19	0:23	0:27 <sup>a</sup>	0:48 <sup>b</sup>	0:41 <sup>a</sup>	1:12 <sup>b</sup>	1:25	1:35
Total Audio	0:44	0:46	0:49 <sup>a</sup>	1:19 <sup>b</sup>	1:22 <sup>a</sup>	2:01 <sup>b</sup>	2:24	2:44

## B. Percent Using Each Medium/Format the Preceding Day

Radio:								
Music	56%	52%			71% <sup>a</sup>	85% <sup>b</sup>	80%	88%
News	14	13			26	23	27	33
Talk shows	7	7			26	25	20	24
Other	4	3			17	14	11	10
CDs/tapes	36	41	47%	63%	72	79	81	82

Note: Within each row and age sub-group, only those mean times or proportions that do not share a common superscript differ from one another with statistical reliability. Those mean times or proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability. Because of time constraints, individual questions about radio music, news, talk shows, and other, were not asked of 3rd-6th graders. For those children, Total Radio is based on responses to a single item asking about total radio use; for 7th through 12th graders it is the sum of the four individual radio items.

It is worth noting that on an average day neither kind of game attracts more than 50% of kids. Among 8-13 year-olds, the heaviest users, 37% play computer games and 45% play video games. Moreover, only 13% of the 8-13 year-olds (and 7% of the 14-18 year-olds) report playing for more than an hour or more daily – far fewer than the numbers who use either non-interactive screen media or audio media on any given day. That said, it is also clear that those kids who do play interactive games spend a good deal of time with them – and that at least some of the relatively small group of players who claim over an hour per day spend a great deal of time. Kids who play computer games on any given day spend over one half-hour with them (:38); kids who play video games spend over an hour (1:04). One other interesting point is that the significant differences between 8-13 year-olds and 14-18 year-olds that emerge for the total sample disappear when we examine just previous day gamers. In other words, it appears that the smaller proportion of older kids who play interactive games play them longer.

By far the largest differences in interactive gaming are located by gender. Boys report more time than girls with either type of game, although the difference is substantially larger for video games than for computer games. Overall, on any given day 29% of boys and 24% of girls report playing computer games, for an average of 13 minutes and 8 minutes, respectively. For video

games, 44% of boys versus 17% of girls report playing the previous day, and boys play for an average of 31 minutes while girls play for 8 minutes.

Table 25 shows that the gender difference begins early, at least for video games, and is maintained across age. Boys almost double girls' playing time for both types of games by 8 through 13 years, and boys quadruple girls' video game playing time by 14-18 years. Interestingly, until late adolescence the percentages of boys and girls who play computer games on any given day are roughly equal, although by 14 through 18 years, 11% more boys than girls play. In other words, in the two younger age groups, although boys and girls are equally likely to play a computer game, older boys spend more time playing. Video games, on the other hand, show quite a different pattern. Boys are always substantially more likely to have played a video game on the previous day and they spend substantially more time playing. The gender difference in likelihood of playing a video game grows from just under 20% among the youngest children (25% of boys versus 7% of girls) to over 35% among the oldest children (49% of boys versus 13% of girls). Similarly, much higher proportions of boys than girls report playing games for more than an hour daily, which probably accounts for much of the gender difference favoring boys in average time spent playing video games. These time differences range from 11 minutes in the youngest group (14 versus 3 minutes), to 23 minutes in the oldest group (:34 vs.

TABLE 23

Average Daily Exposure to Audio Media by Race

Medium/Format	2-7 year-olds			8-18 year-olds		
	White	Black	Hispanic	White	Black	Hispanic
Radio:						
Music	0:19 <sup>a</sup>	0:27 <sup>b</sup>	0:22 <sup>b</sup>	0:49	0:48	0:59
News	0:02	0:02	0:02	0:05	0:05	0:06
Talk	0:01	0:02	0:01	0:07	0:03	0:07
Other	*	0:01	0:01	0:05	0:03	0:08
Total Radio	0:22 <sup>a</sup>	0:32 <sup>b</sup>	0:25 <sup>ab</sup>	0:49	0:45	0:56
CDs & tapes	0:22	0:13	0:23	1:09	1:03	1:08
Total Audio	0:44	0:45	0:47	1:58	1:48	2:04

Note: Within each row and age sub-group, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability. Because of time constraints, individual questions about radio music, news, talk shows, and other, were not asked of 3rd through 6th graders. For these children, Total Radio is based on responses to a single item asking about total radio use; for 7th through 12th graders it is the sum of the four individual radio items. In this table, the Total Radio row for 8-18 year-olds includes 3rd through 6th graders' responses.

\* Indicates less than .01 of an hour.

:11), to 31 minutes in the 8-13 year-old group (:47 vs. 16). Clearly, interactive gaming is a male dominated media activity.

Table 26, which shows interactive game use within each racial/ethnic group separately for younger and older children, indicates that during the first 7 years, White children are almost twice as likely as either African American or Hispanic children to play computer games (20% to 9% and 12% respectively). Among 2-7 year-olds, race/ethnicity locates no differences in use of or time spent with video games.

Among 8-18 year-olds the pattern changes somewhat. The amount of time that 8-18 year-olds from each racial/ethnic group devotes to computer games is almost identical. However, African American and Hispanic youngsters do spend more time than Whites with video games (35 minutes versus 23 minutes).

Finally, differences in interactive game use as a function of zip code income level and of parent education, although relatively small, also point to possible differences in access to the two types of game platform. Among younger children, those who live in zip codes where the median household income is under \$25,000 are three times more likely to have played a video game the previous day (19%) than to have played a computer game (6%). They are also more than three times less likely than kids from the two higher income sub-groups to have played a computer game, differences which are reliable. For the two higher income sub-groups, there is little difference in the proportion of young kids who play either computer games or video games. There is also no difference in the percentage of kids from all three income groups who play video games (from 19% in the lowest income group to 16% in the highest). These patterns are fairly similar to the distribution of the two kinds of game platforms in households from the different income groupings (see Table 3-C).

Among 8-18 year-olds, kids from the highest income group are reliably more likely than those from the lowest to play computer games on any given day (38% to 25%) and reliably less likely to play video games (35% to 41%). There is no difference in the amount of time kids from any of the three income groups give to computer games (from :11 for kids from the lowest income sub-group to :15 for those from the highest income sub-group). On the other hand, kids from the high income group spend significantly less time than kids from either of the other two groups playing video games (for 7 to 8 minutes less). Finally, there is no difference by income sub-group in the proportion of kids who report playing either kind of game for more than an hour, and relatively few kids make this claim.

When the children are grouped on the basis of parent education as shown in Table 28, the differences among sub-groups are roughly similar to those for income groups. For both the younger and older children, as parent education increases, so too does both the average amount of time spent with computer games and the percentage of children who played a computer game the previous day. The pattern does not hold for all video games, however. Within both younger and older samples, all three education groups are equally likely to have played a video game the preceding day. Moreover, there is no difference in the amount of time youngsters from each of the three parent education sub-groups spend with video games.

To summarize the data on interactive games, then, the picture is mixed when interactive game playing is examined as a function of different indicators of socioeconomic status. There is a tendency for older kids from higher income communities to devote slightly less time to video games. Differences due to race and ethnicity are not large. Indeed,

TABLE 24

### Average Daily Time Playing Interactive Games, and Proportion of Children Who Played the Preceding Day by Age

Game Type	2-18 years	2-7 years	8-13 years	14-18 years
Average time – all kids				
Computer games	0:10	0:06 <sup>a</sup>	0:16 <sup>b</sup>	0:10 <sup>c</sup>
Video games	0:20	0:08 <sup>a</sup>	0:32 <sup>b</sup>	0:20 <sup>c</sup>
Average time – kids who played yesterday				
Computer games	0:38	0:32	0:39	0:40
Video games	1:04	0:50 <sup>a</sup>	1:09 <sup>b</sup>	1:05 <sup>b</sup>
Percent played yesterday				
Computer games	26%	17% <sup>a</sup>	37% <sup>b</sup>	25% <sup>c</sup>
Video games	30	16 <sup>a</sup>	45 <sup>b</sup>	30 <sup>c</sup>
Percent playing more than 1 hour yesterday				
Computer games	2%	1% <sup>a</sup>	3% <sup>b</sup>	2% <sup>ab</sup>
Video games	8	3 <sup>a</sup>	13 <sup>b</sup>	7 <sup>c</sup>

Note: Within each row and age sub-group, only those mean times and proportions that do not share a common superscript differ from one another with statistical reliability. Those mean times and proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

TABLE 25

### Average Daily Time Playing Interactive Games and Proportion of Children Who Played the Preceding Day by Gender

Game Type	2-7 years		8-13 years		14-18 years	
	Boys	Girls	Boys	Girls	Boys	Girls
Average Daily Time						
Computer games	:05	:06	:19 <sup>a</sup>	:11 <sup>b</sup>	:16 <sup>a</sup>	:05 <sup>b</sup>
Video games	:14 <sup>a</sup>	:03 <sup>b</sup>	:47 <sup>a</sup>	:16 <sup>b</sup>	:34 <sup>a</sup>	:07 <sup>b</sup>
Percent played yesterday						
Computer games	17%	17%	39%	35%	30% <sup>a</sup>	19% <sup>b</sup>
Video games	25 <sup>a</sup>	7 <sup>b</sup>	59 <sup>a</sup>	30 <sup>b</sup>	49 <sup>a</sup>	13 <sup>b</sup>
Percent playing more than 1 hour yesterday						
Computer games	1%	1%	6% <sup>a</sup>	1% <sup>b</sup>	5%	0%
Video games	5 <sup>a</sup>	1 <sup>b</sup>	21 <sup>a</sup>	5 <sup>b</sup>	14 <sup>a</sup>	3% <sup>b</sup>

Note: Within each row and age sub-group, only those mean times and proportions that do not share a common superscript differ from one another with statistical reliability. Those mean times and proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

the data indicate that only two strong generalizations about sub-group differences in interactive games are warranted. The first is that they are most popular among children in the middle age group (8 through 13 years). The second, and far and away the strongest conclusion to emerge from these data, is that interactive games are male media – many more boys than girls play them, and they play them for substantially longer periods of time.

Finally, given all of the recent public concern about interactive games, it is also worth noting that video games are played by substantially more youngsters than are computer games, probably because of differential availability of the two game platforms. And perhaps most important, in spite of their obvious popularity among youth, on any given day they never attract as many as 50% of 2-18 year-olds to play them, and even among the heaviest users, 8-18 year-old boys, only 21% report playing more than an hour per day.

TABLE 26

Average Daily Time Playing Interactive Games and Proportion of Children Who Played the Preceding Day by Race/Ethnicity

Game Type	2-7 year-olds			8-18 year-olds		
	White	Black	Hispanic	White	Black	Hispanic
Average Daily Time						
Computer games	:07	:03	:04	:13	:14	:14
Video games	:08	:08	:09	:23 <sup>a</sup>	:35 <sup>b</sup>	:35 <sup>b</sup>
Percent played yesterday						
Computer games	20% <sup>a</sup>	9% <sup>b</sup>	12% <sup>b</sup>	32%	37%	26%
Video games	16	19	16	37	46	43
Percent playing more than 1 hour						
Computer games	1%	0%	1%	3%	4%	3%
Video games	2	2	4	9	16	14

Note: Within each row and age sub-group, only those mean times and proportions that do not share a common superscript differ from one another with statistical reliability. Those mean times and proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

TABLE 27

Average Daily Time Playing Interactive Games and Proportion of Children Who Played the Preceding Day by Community Income

Game Type	2-7 year-olds			8-18 year-olds		
	Under \$25,000	\$25,000-\$40,000	Over \$40,000	Under \$25,000	\$25,000-\$40,000	Over \$40,000
Average Daily Time						
Computer games	:01 <sup>a</sup>	:06 <sup>b</sup>	:07 <sup>b</sup>	:11	:13	:15
Video games	:08	:10	:07	:29 <sup>ab</sup>	:30 <sup>a</sup>	22 <sup>b</sup>
Interactive games	:09	:16	:14	:40	:43	:37
Percent played yesterday						
Computer games	6% <sup>a</sup>	19% <sup>b</sup>	20% <sup>b</sup>	25% <sup>a</sup>	31% <sup>ab</sup>	38% <sup>b</sup>
Video games	19	17	16	41 <sup>a</sup>	43 <sup>a</sup>	34 <sup>b</sup>
Percent playing more than 1 hour						
Computer games	*	1%	1%	2%	4%	3%
Video games	2	3	2	11	13	9

Note: Within each row and age sub-group, only those mean times and proportions that do not share a common superscript differ from one another with statistical reliability. Those mean times and proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

\* Indicates less than 1%.

TABLE 28

Average Daily Time Playing Interactive Games and Proportion of Children Who Played the Preceding Day by Parent Education

Game Type	2-7 year-olds			8-18 year-olds		
	High school or less	Some College	College or more	High school or less	Some College	College or more
Average Daily Time						
Computer games	:03 <sup>a</sup>	:05 <sup>a</sup>	:08 <sup>b</sup>	:10 <sup>a</sup>	:13 <sup>ab</sup>	:16 <sup>b</sup>
Video games	:11	:07	:07	:26	:24	:29
Percent played yesterday						
Computer games	10% <sup>a</sup>	17% <sup>ab</sup>	23% <sup>b</sup>	23% <sup>a</sup>	35% <sup>b</sup>	37% <sup>b</sup>
Video games	17	17	16	39	37	40
Percent playing more than 1 hour						
Computer games	*	*	1%	1%	3%	3%
Video games	4%	2%	2	10	9	13

Note: Within each row and age sub-group, only those mean times and proportions that do not share a common superscript differ from one another with statistical reliability. Those mean times and proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

\* Indicates less than 1%.





## V. CONTENT PREFERENCES

The kinds of media content children and adolescents see, listen to, or interact with are equally as important as how much time they spend with media. Most parents would be less concerned about media if they thought their children were devoting several hours per day to educational or cultural content rather than to action adventure programming, hard rock music lyrics, or video games in which the goal is to shoot as many aliens as possible. For this reason we asked youngsters to tell us about the kinds of media content they are exposed to. In the following pages we look at the kinds of content children view (on television and videotapes and in the movies), the kinds of interactive games they play, the kinds of music they hear, and the kinds of print material they read.

Content information was obtained in several different ways. For television content, children were provided television grids for the preceding day in their broadcast area – one grid each for the morning, afternoon, evening, and, among 7th through 12th graders, late night. These grids were similar to those found in the typical television guide. They contained all of the individual television programs across the relevant hours of the day for the preceding day (or weekend day). Children were asked to circle any shows they had watched (they were instructed to circle only one show per time slot, and only if they watched “most” of the show). We then classified all shows into genres.

For video tapes, movies, computer games, video games, CDs and tapes, books, magazines, and newspapers, the children themselves categorized the content from a provided list of genres. That is, whenever a youngster reported watching a video the previous day, he or she was asked to circle all of the types of videos watched from a list including: action, comedy, drama,

family/children, fitness, horror, romance, science fiction, music videos, or “something else.” Genres related to each medium are presented as that medium is discussed.

**Television content.** Programs which children marked on the television grids were categorized into one of 19 categories or genres (see Appendix D). Not surprisingly, a number of the pre-defined genres attracted little or no youth viewing. For purposes of simplification, we report results only for those television genres which, on any given day, were viewed by at least 10% of one of the major sub-groups we have been using to examine media behavior. Children’s programs are further divided into two sub-categories – those conceived by the producers as “educational programming” and those conceived as “entertainment programming” (e.g., *Sesame Street* or *The Magic School Bus* are classified as educational programs; *Power Rangers* or *Bugs Bunny* are classified as entertainment programs).

Perhaps the most striking finding to emerge from our examination of television content exposure is how similar viewing patterns are, irrespective of children’s demographic characteristics. Although the kinds of genres viewed vary significantly by age, and although within each set of sub-group comparisons it is possible to point to at least one difference large enough to warrant comment, the overall pattern is one of similarity. Once age is taken into account, most kinds of television content are viewed by about the same proportion of youngsters regardless of gender, race, or household socioeconomic status.

Table 29 presents the content selections of all children who watched television the preceding day. It shows the proportion of previous-day television viewers within different age groups who

watched each of the 11 most-viewed content categories. The first column, which presents results for the entire sample (all participants aged 2 through 18 years), makes it clear that three content categories dominate most viewing (two if we combine the two children's genres), and that humor is king. Children's entertainment programs drew 54% of the previous day's viewers between the ages of 2 and 18 years, children's educational programs drew 42%, and situation comedies drew 41%. The only other program genres to attract double-digit percentages of viewers are drama (17%), movies (14%), and sports (12%). This overall pattern is replicated even more strongly by 2-7 year-olds. Within this age group, children's entertainment programs attracted 84% of previous day viewers, children's educational programs 71%, and comedies 27%; no other genre was watched by more than 7%.

The pattern begins to change among 8-13 year-olds, and points to our final generalization about the relationship between age and television content: as children move through the grade school and high school years, tastes begin to fragment, and program preferences spread out across all genres, although comedy remains king. Comedy and children's programs remain the dominant preferences among 8-13 year-olds, but unlike a few years earlier, 5 other genres attract young viewers at a double-digit rate: 10% viewed music videos; 11% watched reality programs; movies and sports each drew 16%; 21% watched dramas (all proportions are reliably different than those for 2-7 year-olds). Among 8-13 year-olds, only 3 genres fail to attract 10% of viewers. By 14 through 18 years, no single content category attracts fewer than 10% of previous day viewers. Comedy continues to dominate program choices (51% of previous day viewers watched a come-

dy). The proportion of 14-18 year-olds watching drama, movies, music videos, reality programs, and sports remains at the same levels as for 8-13 year-olds. There are, however, further increases in the proportion of older kids who watch news, entertainment/variety programs, and talk shows. The result is that every genre attracts at least 10% of older kids. Clearly, as they grow older, youngsters develop different interests, different tastes, different likes and dislikes, and these translate into an overall television menu that is fairly diverse.

Two notable gender differences in exposure to television genres emerge, both of which can be seen in Table 30. First, boys are more likely than girls to watch sports programs. The difference emerges early, and increases to a rather large degree by the time children reach 8 through 18 years (27% of boys and 7% of girls watched sports the preceding day). The other reliable gender difference is older girls' higher choice of comedy: 53% of 8-18 year-old girls watch comedy compared to 45% of 8-18 year-old boys.

Table 31 shows that more Black youngsters (49%) than either White (40%) or Hispanic (37%) youngsters watch comedy. Black youth are also more likely than Whites or Hispanics to watch talk shows, and more likely than Hispanics to watch reality programs. Among 2-7 year-olds, Black children are roughly twice as likely as either Whites or Hispanics to watch comedy (42% to 26% and 21%, respectively). Among the older youngsters, only two other reliable differences emerge. Older White children are more likely than Hispanics to watch drama. Twice as many African American youth (16%) than either White or Hispanic youngsters (8%) view talk shows.

TABLE 29

### Of Those Children Who Watched Television the Previous Day: The Proportion Viewing Each Type of Program Content by Age

Program Genre	Age			
	2-18 years	2-7 years	8-13 years	14-18 years
Comedy	41%	27% <sup>a</sup>	48% <sup>b</sup>	51% <sup>b</sup>
Drama	17	7 <sup>a</sup>	21 <sup>b</sup>	26 <sup>b</sup>
Movies	14	7 <sup>a</sup>	16 <sup>b</sup>	21 <sup>b</sup>
Music videos	7	1 <sup>a</sup>	10 <sup>b</sup>	10 <sup>b</sup>
Reality programs	9	5 <sup>a</sup>	11 <sup>b</sup>	13 <sup>b</sup>
News	8	2 <sup>a</sup>	7 <sup>b</sup>	17 <sup>c</sup>
Sports	12	4 <sup>a</sup>	16 <sup>b</sup>	19 <sup>b</sup>
Entertainment/variety	8	2 <sup>a</sup>	9 <sup>b</sup>	16 <sup>c</sup>
Talk Shows	7	1 <sup>a</sup>	6 <sup>b</sup>	14 <sup>c</sup>
Children's entertainment	54	84 <sup>a</sup>	49 <sup>b</sup>	16 <sup>c</sup>
Children's educational	42	71 <sup>a</sup>	35 <sup>b</sup>	10 <sup>c</sup>

Note: Individual columns total to more than 100% because children watch multiple genres. Within each row and age sub-group, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

Finally, Tables 32 and 33 present exposure to television genres by community income and by parent education. Table 32 reveals that the income sub-groupings locate no reliable differences in the proportion of youngsters viewing any television program genre. One noteworthy difference appears among 2-7 year-olds: 19% more children from the low income group than from the high income sub-group watch comedy (low income=39%; high income = 20%). Among 8-18 year-olds, two income-related differences appear. First, a smaller proportion of children who attend schools in zip code areas where the annual median income is under \$25,000 than of children who attend schools in zip code areas where the annual income is over \$40,000 per year watch television drama (18% versus 27%). Second, a higher proportion

of youngsters from the low income sub-group than from the high income sub-group watch talk shows (14% versus 7%).

Much the same pattern of findings holds when children are classified by level of parent education (Table 33). The single reliable difference located by parent education is the striking decrease in the percentage of 2-7 year-olds who watch comedy as level of parent education increases: 37% of young children whose parents completed no more than high school watch comedy; 28% of those whose parents completed some college watch comedy; 19% of those whose parents completed college or more watch comedy. We suspect this may be as much a function of parental tastes as children's tastes. By 8 through 18 years, however, the difference is gone. Indeed,

TABLE 30

Of Those Children Who Watched Television the Previous Day:  
The Proportion Viewing Each Type of Program Content by Gender

Program Genre	2-18 years		2-7 years		8-18 years	
	Boys	Girls	Boys	Girls	Boys	Girls
Comedy	39%	44%	28%	28%	45% <sup>a</sup>	53% <sup>b</sup>
Drama	16	18	7	7	21	25
Movies	14	15	7	8	17	19
Music videos	5	9	1	1	8	13
Reality programs	10	8	6	3	13	10
News	7	8	2	3	11	11
Sports	19 <sup>a</sup>	5 <sup>b</sup>	6	2	27 <sup>a</sup>	7 <sup>b</sup>
Entertainment/variety	8	8	2	2	11	12
Talk shows	5	8	1	1	7	12
Children's entertainment	54	52	86	82	37	35
Children's educational	40	43	71	71	23	27

Note: Individual columns total to more than 100% because children watch multiple genres. Within each row and age sub-group, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

TABLE 31

Of Those Children Who Watched Television the Previous Day:  
The Proportion Viewing Each Type of Program Content by Race/Ethnicity

Program Genre	2-18 years			2-7 years			8-18 years		
	White	Black	Hispanic	White	Black	Hispanic	White	Black	Hispanic
Comedy	40% <sup>ac</sup>	49% <sup>b</sup>	37% <sup>c</sup>	26% <sup>a</sup>	42% <sup>b</sup>	21% <sup>a</sup>	49%	54%	48%
Drama	19 <sup>a</sup>	15 <sup>ab</sup>	12 <sup>b</sup>	8	8	4	25 <sup>a</sup>	19 <sup>ab</sup>	16 <sup>b</sup>
Movies	14	15	16	7	8	8	18	19	16
Music videos	6	10	7	1	4	0	9	14	12
Reality programs	9 <sup>ab</sup>	12 <sup>a</sup>	5 <sup>b</sup>	5	9	2	12	14	7
News	7	11	6	2	5	1	11	15	10
Sports	13	11	12	3	6	2	18	14	18
Entertainment/variety	8	10	6	2	1	1	12	16	9
Talk shows	6 <sup>a</sup>	12 <sup>b</sup>	5 <sup>a</sup>	1	2	1	8 <sup>a</sup>	18 <sup>b</sup>	8 <sup>a</sup>
Children's entertainment	52	57	59	83	86	85	32	41	42
Children's educational	40	46	45	69	75	74	22	29	25

Note: Individual columns total to more than 100% because children watch multiple genres. Within each row and age sub-group, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

among the older group, no difference between education sub-groups exceeds 6%. In other words, our indicators of socio-economic status locate few differences in children's television content preferences.

Aside from a clear-cut tendency for viewing preferences to fragment as children grow older – resulting in a decrease in the dominance of comedy (and children's programming) – children's viewing patterns are best characterized as highly similar regardless of background variables. Although there are some small sub-group differences in the proportion of children viewing a particular type of programming, none emerge across all of

the sub-group analyses. What seems to be important is not differences among groups of children in program choice, but differences among program genres across most children. Comedy dominates, whether in the form of children's programming or situation comedies. By middle to late adolescence, children's programs attract about the same proportion of viewers as do most other programs – with the exception of comedy, which is consistently viewed by about half of all youngsters on any given day. By the later school years, a significant number of youngsters select drama, movies, and sports, and on any given day 15% or more of older children who view will watch programs

TABLE 32

### Of Those Children Who Watched Television the Previous Day: The Proportion Viewing Each Type of Program Content by Median Community Income

Program Genre	2-18 years			2-7 years			8-18 years		
	Under \$25,000	\$25,000-\$40,000	Over \$40,000	Under \$25,000	\$25,000-\$40,000	Over \$40,000	Under \$25,000	\$25,000-\$40,000	Over \$40,000
Comedy	44%	44%	38%	39% <sup>a</sup>	28% <sup>ab</sup>	20% <sup>b</sup>	46%	51%	49%
Drama	14	18	19	6	9	5	18 <sup>a</sup>	22 <sup>ab</sup>	27 <sup>b</sup>
Movies	17	15	12	8	8	6	23	18	16
Music videos	9	7	6	1	1	1	14	9	9
Reality programs	9	9	9	7	4	5	10	11	13
News	8	10	6	3	3	2	10	13	9
Sports	14	14	10	5	3	4	19	19	14
Entertainment/variety	7	9	8	4	2	1	8	12	13
Talk shows	9	7	5	1	1	1	14 <sup>a</sup>	10 <sup>ab</sup>	7 <sup>b</sup>
Children's entertainment	54	52	54	84	84	84	37	37	35
Children's educational	43	40	42	73	72	71	26	26	23

Note: Individual columns total to more than 100% because children watch multiple genres. Within each row and age sub-group, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

TABLE 33

### Of Those Children Who Watched Television the Previous Day: The Proportion Viewing Each Type of Program Content by Parent Education

Program Genre	2-18 years			2-7 years			8-18 years		
	High school or less	Some College	College or more	High school or less	Some College	College or more	High school or less	Some College	College or more
Comedy	43%	41%	40%	37% <sup>b</sup>	28% <sup>ab</sup>	19% <sup>b</sup>	47%	53%	49%
Drama	19	15	17	10	7	4	25	23	22
Movies	16	13	13	6	9	7	22	17	16
Music videos	6	8	7	1	3	*	10	14	10
Reality programs	11	11	7	7	5	2	13	15	9
News	8	7	8	3	2	2	10	12	10
Sports	14	13	12	3	6	3	21	20	16
Entertainment/variety	8	9	8	2	1	2	12	16	11
Talk shows	8	6	5	2	1	1	12	10	8
Children's entertainment	51 <sup>a</sup>	63 <sup>b</sup>	51 <sup>a</sup>	82	90	82	31	36	37
Children's educational	42	48	40	70	74	71	23	23	25

Note: Individual columns total to more than 100% because children watch multiple genres. Within each row and age sub-group, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

\* Indicates less than 1%.

of those four types, as well as news, entertainment/variety, and child entertainment shows (most likely, cartoons).

**Video content.** Remaining with the small screen, the parents of all 2-7 year-olds and all 7th through 12th graders who reported previous day viewing of commercially produced videotapes were asked to indicate what type of videos were watched from a list which included: action, comedy, drama, family/children, fitness, horror, romance, science fiction, music videos, and “something else.” (This question was not asked of 3rd through 6th graders in order to reduce questionnaire length). The fitness, science fiction, music video, and “something else” categories failed to attract 10% of the viewers in at least one of our comparison sub-groups.

In general, the pattern of content choices for videos is roughly similar to that for television programs: for the most part, young children choose videos that are family- or child-oriented, and comedy and action videos dominate the choices of older children (there was no “action” category for television programs).

Table 34, which presents the percentage of previous-day viewers of videos who viewed tapes in each content genre for both younger and older children, leaves no doubt that the youngest and oldest children in our sample differ dramatically in terms of what videos they are exposed to. Family- and child-oriented videos dominate the video selections of most young viewers. Eighty-five percent (85%) of 2-7 year-olds watched a family- or child-oriented video; the next closest category, comedy, attracted only 7% of this youngest group. Among 7th through 12th graders (roughly age 13 through 18 years), however, comedy and action videos attract the most viewers, while selection of family/child-oriented videos drops off greatly. Over 40% of older children report watching videos in both the comedy and in the action categories; an additional 17% report watching both drama and horror videos.

When video viewing is examined by gender (Table 35), a few differences in genres viewed by boys and girls are revealed. Among 2-7 year-olds, significantly more boys than girls watch action videos (9% of young boys and 1% of young girls). Among older youngsters who reported watching videos the previous day, significantly more girls than boys watch drama (25% versus 7%) and, somewhat surprisingly, horror (13% versus 2%) videos.

Finally, it should be noted that because youngsters were asked to indicate all videos they viewed the previous day, each column can add to more than 100% if children viewed more than one video. The excess beyond 100%, then, indicates viewing of multiple videos. When the columns for older boys and girls are summed, the totals are 137% for boys and 169% for girls. Since equal proportions of all 7th through 12th grade boys and girls viewed videos the previous day (43% and 44% respectively), the 32 percentage point difference between boys and girls indicates that girls are substantially more likely than boys to watch multiple videos on any given day. This may account for why so many more girls than boys watch videos in three additional categories. That is, among 7th through 12th graders, at least 10% more girls than boys watch videos classified as horror (22% to 12%), drama (25% to 7%), and romance (13% to 2%).

In general, then, young children tend to watch family-oriented and child-oriented videos regardless of gender, race/ethnicity, community income, or parent education. By the 7th through 12th grades, however, only about 15% of children watch family/child-oriented videos. Rather, they spread their choices out across all of the other categories, with particular emphasis on comedy and action videos. More older girls than boys tend to watch most kinds of video content except action. Older youngsters from the lowest education sub-groups are more likely to watch horror videos than youngsters from the highest education sub-group.

TABLE 34

Of Those Children Who Watched Videos the Previous Day:  
The Proportion Viewing Each Type of Video Content by Age

Video Genre	2-7 years	7th-12th grade
Comedy	7% <sup>a</sup>	46% <sup>b</sup>
Action	5 <sup>a</sup>	43 <sup>b</sup>
Drama	1 <sup>a</sup>	17 <sup>b</sup>
Family/Children	85 <sup>a</sup>	11 <sup>b</sup>
Horror	1 <sup>a</sup>	17 <sup>b</sup>
Romance	0	8

Note: 3rd through 6th graders were not asked to identify what videos they watched. Individual columns total to more than 100% because children watch different video genres. Within each row and age sub-group, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

TABLE 35

### Of Those Children Who Watched Videos the Previous Day: The Proportion Viewing Each Type of Video Content by Gender

Video Genre	2-7 years		7th-12th grades	
	Boys	Girls	Boys	Girls
Action	9% <sup>a</sup>	1% <sup>b</sup>	49%	37%
Comedy	7	6	48	44
Drama	1	1	7 <sup>a</sup>	25 <sup>b</sup>
Family/Children	81	88	7	15
Horror	*	1	12	22
Romance	0	0	2 <sup>a</sup>	13 <sup>b</sup>

Note: Individual columns total to more than 100% because children watch multiple genres. Within each row and age sub-group, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

\* Indicates less than 1%.

**Movie content.** All children in the in-school sample (i.e., 3rd through 12th graders) who watched a movie in a movie theater the previous day were asked to indicate what type of film they saw: action, comedy, drama, family/children, horror, romance, science fiction or “something else.” The only movie category viewed by fewer than 10% of the children was the “other” category. Readers are cautioned, however, that fewer than 100 children comprise a number of the sub-groups.

Table 39 presents movie genre selections by children who attended a movie the previous day in relation to age. Looking first at all 8-18 year-olds, movie choices resemble those for television and videos in that action films and comedy dominate; 42% of the in-school youngsters who watched a movie watched an action film and 38% watched a comedy. The next closest genre, horror films (25%), trailed by 13% or more.

Given the relatively small number of children who watched a movie the previous day, most further sub-group analysis is prohibited, but it is interesting to note that boys are significantly more likely than girls to watch action movies (52% to 30%).

**Video games.** Children who reported playing video games the previous day were asked to indicate all of the types of games they played from the following list: action/combat, adventure, classic games/gambling/puzzles-logic, reflex, role playing/interactive, fiction/fantasy, simulation/strategic planning, sports, or “something else.” At least 10% of the children in one of the sub-groups we have been considering played games from each of these genres.

Table 40 presents video game players’ selection of video game genres by age, beginning with the proportions for the total sample (i.e., 2-18 year-olds). As the 2-18 year-old column makes clear, three categories of video games dominate: 42% of children

play action games, 41% play sports games, and 36% play adventure games. The only other category to break into double digits is role playing, which 15% of youngsters report playing. The remainder of Table 40, which looks at smaller age sub-groups, reveals that on any given day older children are more likely than younger children to play video games from multiple content categories (that is, to play several different types of games on the same day). The percentage of video games played by 2-7 year-olds totals 126%, while the totals for 8-13 year-olds and 14-18 year-olds are 166% and 173% respectively. Thus, although the same three content genres dominate the lists for both younger and older children, Table 40 also shows that substantially more children in the in-school sample (8-18 years) than in the in-home sample (2-7 years) play games in the action, role playing, simulation/strategic, and sports categories. Finally, it is worth noting that simulation games reach our 10% criterion only among the oldest youngsters.

When video game selection is examined by gender, so few girls in the 2-7 year-old group played video games the previous day ( $n = 38$ ), that no gender-related generalizations can be made about young children’s video game choices. Among the 8-18 year-olds, however, boys are much more likely to play any kind of video game (60% to 21%), and they are much more likely than girls to play action games (51% to 31%) and simulation games (12% to 3%).

Table 41 presents the percentage of White, African American, and Hispanic 8-18 year-olds who played each genre of video game the previous day (too few African American and Hispanic 2-7 year-olds played to consider the differences for the youngest group). Several differences in video game selection are associated with race/ethnicity. African American youth are over three times more likely than Whites or Hispanics to select clas-

sic/gambling/puzzle video games (18% to 5% – a reliable difference). White youngsters are reliably more likely than Hispanic youngsters to select role playing games (21% to 9%), and are slightly more likely than African American youngsters to play simulation games.

The problem with small numbers of 2-7 year-olds playing video games the previous day persists when video game selections are examined as a function of community income and of parent education. Analyses are possible for the in-school youngsters, but they show very few differences in game selection by either community income or parent education. Significantly more children who attend school in high income neighborhoods select role playing games (27%) than children from either middle income neighborhoods (16%) or from low income neighborhoods (8%). The income analysis located no other noteworthy differences. When choice of video game genre is examined as a function of parent education, no difference larger than 6% emerges.

Summing up the results for video game content selection, then, we can safely say that even among the youngest children, the games of choice fall into the action, the adventure, and the sports categories. Older children play these games more than do their younger counterparts. Slightly more White youngsters, and slightly more youngsters from the high income sub-group, choose role playing games. Finally, substantially higher percentages of boys than girls choose action and sports games; a slightly higher proportion of girls than boys choose adventure games.

**Computer games.** Computer games differ from video games in that, as we saw in our earlier consideration of children's media environment, computers are not as widespread in children's households as are video game systems, and because several additional choices of game content are available to the computer game player. Thus, slightly fewer children reported playing computer games (835 = 26%) than video games (962 = 30%) the previous day, making many sub-group comparisons highly problematic, and children who did play were given a slightly wider array of genres from which to select – the most noticeable additions being education games and arts & crafts games. Computer game players, then, were asked to indicate which of the following types of games they played the previous day: action/combat, adventure, arts & crafts, classic games/gambling/puzzles, educational, kids, popular culture/lifestyle, reflex, role playing/interactive fiction/fantasy, simulation/strategic planning, sports/competition, or “something else.” With the exception of popular culture, reflex, and “something else,” each of these categories was named by at least 10% of the children in one of our major comparison sub-groups.

In general, computer game selection looks quite different from video game selection. Among those children who play computer games, educational games dominate the early years; classic and gambling games moving to the fore in the later years, at least in part because of their greater availability – these are the games that come pre-loaded on most new computers. Action and sports games are highly popular among older kids, but never dominate computer game selections the way they do video game selections.

Table 42 shows the percentage of computer game choices made by the overall sample and by three age groups (recall that 17% of 2-7 year-olds, 37% of 8-13 year-olds, and 25% of 14-18 year-olds play computer games on any given day). Perhaps the most striking thing to note about the results in Table 42 is the degree to which computer game selections are spread out across a number of genres – especially when compared to video games, which are dominated by the action, adventure, and sports categories. Indeed, for the overall sample, both educational games and classic games are selected by more children than either action or sports (consistent leaders among video games). Table 42 also shows that the percentage of youngsters choosing educational games and classic games is a function of age. Among the 2-7 year-olds, two genres dominate computer game choices: 53% play educational games, and 29% play kids games. By 8 through 13 years, these have dropped to 25% educational and 8% kids games, and by 14 through 18 years, they have almost disappeared (8% and 2% respectively). Undoubtedly this pattern reflects who the different types of games are aimed at, as well as differing degrees of parental influence associated with different child ages, both in terms of what kinds of games are available in the household and the frequency with which an adult is present when the child plays computer games.

Turning to youngsters who completed the questionnaire in school, no single game genre dominates among those who play computer games. Eight to thirteen year-olds choose action games, classic games, educational games, and sports games at about the same rate (from 22% to 25% of this age group played each kind of game). The oldest group, however, favors one category over all others: of those who play computer games, 40% of 14-18 year-olds play a game in the classic/gambling/puzzle category, almost doubling the next closest genre – action games (26%). We repeat, some of the attraction of the classic/gambling/puzzle category is probably due to the fact that these games are pre-loaded on most computers. However, this is probably not the sole reason for their appeal, since 14-18 year-olds comprise the group which, both in terms of time and financial

resources, is most likely to have acquired games in the other genres. Fairly substantial percentages of the oldest age group also play sports games (18%), adventure games (17%), and simulation games (16%). In short, although there are many differences between the youngest children and the two sub-groups of older children in the types of games chosen, choice of game genre within the two older age groups is quite similar and fairly well distributed across a number of game categories.

Few surprises appear when computer game selection is examined as a function of gender. Unlike video games, only a slightly larger proportion of boys (29%) than girls (24%) play computer games. Among those who play, substantially more boys than girls play action games (27% to 8%), and sports games (23% to 9%), and slightly more boys play adventure games (16% to 9%). Girls, on the other hand, are more likely to choose games in the classic games category (19% to 29%); they also choose slightly more games in the arts & crafts category (14% to 8%) and in the kids category (15% to 9%), but neither of these latter two differences is reliable.

Since very few African American and Hispanic 2-7 year-olds played computer games the previous day, we limit comparison of racial/ethnic group computer game selections to the 8-18 year-olds. Even here the results are highly tentative since only 73 Hispanic youngsters and 114 African American youngsters played games the previous day. Although the results in Table 43 must be viewed as highly tentative, they suggest that many fewer Hispanic children than either White or African American children play sports games (the difference in proportions between White and African American youth is reliable).

The problem of small numbers of children in the 2-7 year-old sample also plagues comparisons of computer game selection based on neighborhood income and parent education sub-classifications. As with the examination of responses by racial/ethnic sub-groups, then, we limit consideration to the in-school sample, where at least 100 children in each sub-grouping played computer games the previous day. Overall, neither community income nor parent education locates many differences in computer game choice. There are, however, some small, suggestive differences that merit brief comment.

Table 44 shows that, with the single exception of educational games, whether a child attends school located in a low, a middle, or a high income zip code is not related to the selection of computer game categories. The one reliable difference is the finding that youngsters in high income sub-group are more likely than children in the middle income sub-group to play educational games.

When computer game choices of 8-18 year-olds with parents of different education levels are examined, a single significant difference emerges. A reliably greater proportion of computer game players whose parents completed college than players whose parents finished only high school play educational games.

In general, then, it is clear that among youngsters who play interactive games, computer game choices differ from video game choices in important ways. Most obviously, there are more "educational" games available for the computer game platform – particularly if we conceive of a larger educational category that includes educational, arts & crafts, and at least some popular culture and simulation games. Moreover, we suspect that parents and schools may exert a bit more control over the kinds of computer games that are available to children, control that is biased in the direction of more educational choices and fewer action/combat and adventure choices (we emphasize, however, that this is speculation – not empirically demonstrated fact). In addition, many computers come equipped with a selection of games in the classic/gambling/puzzle category. But whatever the reason for the differences, computer game choices tend to be spread across many more categories than are video game choices. Nevertheless, action games, adventure games, and sports games are popular computer game choices; they just do not dominate computer game selection the way they do video game selection. It is also clear that exposure to educational computer games declines as children grow older.

**Chat rooms.** Remaining with the computer for a moment, 8-18 year-olds who reported visiting a computer chat room the previous day were asked to indicate the topics of all chat rooms visited by circling as many as appropriate from the following list: entertainment (TV, movies, music, celebrities), family/children, gaming, hobbies or groups, news, relationships/lifestyles, shopping, sports, or "something else." Chat rooms devoted to all of the listed topics except news were visited by at least 10% of those who visited chat rooms. However, since only 274 youngsters (13%) visited chat rooms, sub-group comparisons other than those for age and gender are precluded.

Table 45 presents the kinds of chat rooms youngsters visit when they use the computer for that purpose. Results are shown for the entire in-school sample and the two relevant age groups: 8-13 year-olds and 14-18 year-olds. With the exception of chat rooms devoted to discussions of relationships/lifestyles, the patterns for the younger and older children are fairly similar. That is, chat rooms devoted to entertainment are most likely to be visited (a third of the children in each age groups visited them), and those



TABLE 39

Of Those Children Who Watched a Movie the Previous Day:  
The Proportion Viewing Each Type of Movie Content

Movie Genre	2-18 years
Action	42%
Comedy	38
Drama	18
Family/Children	22
Horror	25
Romance	16
Science Fiction	11

Note: Individual columns total to more than 100% because children watch multiple genres. Within each row and age sub-group, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

TABLE 40

Of Those Children Who Played Video Games the Previous Day:  
The Proportion Playing Each Type of Video Game by Age

Video Game Genre	2-18 years	2-7 years	8-13 years	14-18 years
Action	42%	28% <sup>a</sup>	46% <sup>b</sup>	45% <sup>b</sup>
Adventure	36	36	37	34
Classic/Gambling	8	7	9	8
Reflex	6	9 <sup>a</sup>	6 <sup>a</sup>	2 <sup>b</sup>
Role Play	15	6 <sup>a</sup>	15 <sup>b</sup>	23 <sup>b</sup>
Simulation/Strategic	8	3 <sup>a</sup>	9 <sup>b</sup>	10 <sup>b</sup>
Sports	41	27 <sup>a</sup>	41 <sup>b</sup>	50 <sup>b</sup>

Note: Individual columns total to more than 100% because children play video games from multiple genres. Within each row and age sub-group, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

TABLE 41

Of Those 8-18 Year-Olds Who Played Video Games the Previous Day:  
The Proportion Playing Each Type of Video Game by Race/Ethnicity

Video Game Genre	White	Black	Hispanic
Action	44%	53%	45%
Adventure	33	40	45
Classic/Gambling	5 <sup>a</sup>	18 <sup>b</sup>	5 <sup>a</sup>
Reflex	3	6	11
Role Play	21 <sup>a</sup>	11 <sup>ab</sup>	9 <sup>b</sup>
Simulation/Strategic	11 <sup>a</sup>	4 <sup>b</sup>	7 <sup>ab</sup>
Sports	44	52	37

Note: Individual columns total to more than 100% because children play video games from multiple genres. Within each row and age sub-group, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

devoted to sports (20%), gaming (15%), and hobbies/groups (16%) also draw reasonable proportions of kids from each of the two age groups. Chat rooms devoted to discussion of relationships/lifestyles are the only exception. Although they are the third most visited type of site among the younger group (visited by 18%), they are the most visited type of site among older kids, and twice as many older kids as younger kids visit them (40% to 18%), a reliable difference. Table 45-B shows that girls first turn to entertainment and relationships/lifestyles; boys turn to entertainment and sports.

Overall, then, there are few surprises. It is safe to say that youngsters who visit computer chat rooms are in search of conversations concerning important adolescent interests and issues. Their selections tend to cluster around sites devoted to entertainment issues (ranging from discussion of the latest in popular music to celebrity sites), to sports, and – particularly as they enter the later teen years – to relationships and lifestyles.

**Web sites.** Finally, we asked kids about the Web sites they visited. Twenty-three percent (23%) of 8-18 year-olds reported visiting a Web site the previous day, 19% of the 8-13 year-olds and 28% of the 14-18 year-olds (a reliable difference). Table 46-A presents the proportion of youngsters in each age group who indicated visiting one of the following types of Web site genres: entertainment, family/children, gaming, news, relationships/lifestyle, research/information/computer support, search engines, shopping, sports.

The pattern of visits to Web sites is similar to the pattern for chat room visits. Entertainment sites (TV, movies, music, celebrities) are the most popular sites by far, receiving visits from over half of the kids who use computers (54%). Gaming and sports sites are each visited by about a quarter of all kids (24%), followed by search engines (16%), sites used for research, information, or computer support (15%), and shopping sites (14%). When Web site genres are examined as a function of age, two statistically reliable differences emerge. Kids in the 8-13 year-old group are significantly more likely than their older counterparts to visit gaming sites (a finding consistent with our earlier finding that significantly more younger kids than older play interactive games; see Table 24), while older kids are significantly more likely than younger kids to visit search engines. Three reliable gender differences emerge in choice of Web sites. As Table 46-B illustrates, girls are more likely than boys to visit entertainment sites; boys are more likely to choose game sites and sports sites, results that mirror genre findings for several other media. Gender differences in Web site selection is also similar to

that found for chat rooms in that girls tend to focus on one particular kind of site; 65% visit entertainment sites, the only genre to attract more than 20% of the girls who visit Web sites. Boys, on the other hand, spread their choices out over more kinds of sites, just as they did for chat rooms: entertainment, sports, gaming, and search engines all attracting more than 20% of the boys who visit Web sites.

In general, then, both age patterns and gender patterns in Web site visits are similar to many of the kinds of genre choices we have seen with other media – boys opting for a bit more action and girls choosing entertainment-related genres.

**Popular music.** We can also examine the different kinds of music that 7th through 12th graders listen to. Those who reported listening to CDs or tapes the previous day were asked to indicate all types of music they heard from the following list: alternative rock, children's, classic rock, classical, country & western, gospel or christian music, hard rock or metal, jazz/blues, latin/salsa, rap/hip-hop, rave/techno rock, reggae, rhythm & blues/soul, ska/punk, soft rock, top-40 rock, or "something else." This item was omitted from the questionnaire for younger school children (3rd through 6th graders) in order to keep the questionnaire to a reasonable length. The item was included in the questionnaire for 2-7 year-olds, but because parents indicated that so few of their children in that age-range listened to popular music, we report no further on young children's music exposure, except to note that 15% of them were exposed to children's songs/nursery rhymes/stories, and that no other music genre attracted more than 4% of this group. On the other hand, popular music is very important to adolescent youngsters, and over 70% of all 7th through 12th graders reported listening to CDs or tapes the previous day. Thus, unlike the proportions available when considering exposure to content genres related to some of the other media, it is possible to talk about sub-group differences in music exposure with some confidence.

The 10 music genres in Table 47 attracted at least 10% of 7th through 12th graders in one of our major sub-groups. Clearly, two types of music dominate. Rap/hip-hop is listened to by 53% of middle and high school students, and alternative rock is listened to by 42%. None of the next four categories attract 15% of the listeners (country & western = 14%; rhythm & blues = 13%; classic rock = 12%; soft rock = 10%). (Here it is worth noting that among many people, especially adolescents, the distinctions among music genres are issues of intense debate. Although the categories employed here are based on categories used by various recording industry publi-

TABLE 4 2

Of Those Children Who Played a Computer Game the Previous Day:  
The Proportion Playing Each Type of Computer Game by Age

Computer Game Genre	2-18 years	2-7 years	8-13 years	14-18 years
Action/Combat	19%	4% <sup>a</sup>	22% <sup>b</sup>	26% <sup>b</sup>
Adventure	13	5 <sup>a</sup>	15 <sup>b</sup>	17 <sup>b</sup>
Arts & Crafts	10	12 <sup>ab</sup>	12 <sup>a</sup>	4 <sup>b</sup>
Classic/Gambling	23	9 <sup>a</sup>	22 <sup>b</sup>	40 <sup>c</sup>
Educational	28	53 <sup>a</sup>	25 <sup>b</sup>	8 <sup>c</sup>
Kids	12	29 <sup>a</sup>	8 <sup>b</sup>	2 <sup>c</sup>
Role Play/Interactive	7	1 <sup>a</sup>	7 <sup>b</sup>	12 <sup>b</sup>
Simulation/Strategic	10	1 <sup>a</sup>	12 <sup>b</sup>	16 <sup>b</sup>
Sports	16	3 <sup>a</sup>	22 <sup>b</sup>	18 <sup>b</sup>

Note: Individual columns total to more than 100% because children play computer games from multiple genres. Within each row and age sub-group, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

TABLE 4 3

Of Those 8-18 Year-Olds Who Played Computer Games the Previous Day:  
The Proportion Playing Each Type of Computer Game by Race/Ethnicity

Computer Game Genre	White	Black	Hispanic
Action/Combat	23%	19%	28%
Adventure	15	14	30
Arts & Crafts	8	13	20
Classic/Gambling	28	29	32
Educational	19	22	22
Kids	6	5	8
Role Play/Interactive	10	8	6
Simulation/Strategic	14	6	14
Sports	24 <sup>a</sup>	21 <sup>ab</sup>	8 <sup>b</sup>

Note: Individual columns total to more than 100% because children play computer games from multiple genres. Within each row and sub-group, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

TABLE 4 4

Of Those 8-18 Year-Olds Who Played Computer Games the Previous Day:  
The Proportion Playing Each Type of Computer Game by Median Income Community

Computer Game Genre	Under \$25,000	\$25,000-\$40,000	Over \$40,000
Action/Combat	24%	24%	22%
Adventure	19	19	12
Arts & Crafts	14	12	6
Classic/Gambling	38	27	26
Educational	23 <sup>ab</sup>	10 <sup>a</sup>	28 <sup>b</sup>
Kids	5	8	5
Role Play/Interactive	5	8	11
Simulation/Strategic	10	11	16
Sports	21	21	21

Note: Individual columns total to more than 100% because children play computer games from multiple genres. Within each row and sub-group, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

cations, it is possible to combine and recombine music types, which would, of course, change the percentages assigned to various categories).

Two statistically reliable differences emerge when boys' and girls' music choices are compared. Boys are more than twice as likely as girls to listen to hard rock (27% versus 12%); girls are more likely than boys to listen to gospel (11% to 5%).

The largest differences appear when music exposure is examined as a function of race and ethnicity. Table 48 shows that White, African American, and Hispanic youth have very different music preferences. First, although rap/hip-hop is the second most listened-to music category among White youth (43% listened the previous day), it is the overwhelming favorite of both African American youngsters (84%) and Hispanic youngsters (72%). Only two other categories of music attracted more than 10% of African American youth: rhythm & blues (30%) and gospel (18%).

White youngsters spread their listening over many more music genres, eight categories attracting at least 10% of the listeners. Half of White kids listen to alternative rock (50%), and 43% choose rap/hip-hop. In addition, a quarter of White kids listen to hard rock, 17% choose country & western, 15% classic rock, and from 10% to 12% ska/punk, soft rock, and top-40 rock. Thus, although they concentrate their listening in what might be called "White" music genres, a great many White kids "cross over" to listen to rap/hip-hop.

Although rap/hip-hop is the strong favorite among Hispanic kids, a great many of them also listen to alternative rock (32%), and 10% or more tune in to latin/salsa (16%), rhythm & blues (16%), hard rock (12%) and soft rock (10%). In a sense, then, Hispanic youth listen to a wider variety of genres than White or Black kids.

Two noteworthy patterns emerge when music exposure is examined in relation to neighborhood income. First, although rap/hip-hop remains the overall favorite of all three sub-groups, a much larger proportion of kids from the lowest income sub-group listens to rap (70%) than kids from the middle income sub-group (49%) or from the highest income sub-group (47%). We suspect that much of the income group difference is due to a disproportionately high number of minority kids attending schools in zip codes where the median income is below \$25,000 per year and a disproportionately high number of White kids attending schools in zip codes where the media income is over \$40,000 per year – but certainly not all of the difference. The proportion of kids from the three income groups listening to alternative rock produces the reverse pattern. That is, fewer kids from

the low income sub-group listen to alternative rock (30%) than from either the middle income sub-group (43%) or from the highest income sub-group (47%).

A similar pattern emerges when 7th through 12th graders' music exposure is examined in relation to parent education – although the differences are not so large as for the income analysis. That is, more kids whose parents went no farther than high school listen to rap (63%) than kids whose parents have some college (56%) or whose parents completed college (45%), but only the lowest education group versus the highest education group difference is reliable.

The interesting results for 7th through 12th graders' music exposure can be summed up as follows, then. First, rap/hip-hop is the most preferred category of music among all kids, followed closely by alternative rock. Second, race and ethnicity locate dramatic differences in music exposure. In particular, minority youth are especially likely to listen to rap. White kids listen to a lot of rap, but they also flock to various other types of music – particularly alternative rock, but also hard rock, soft rock and top-40, and country & western. Hispanic kids cover the widest music selection; they listen to hip-hop, to alternative rock, and to latin/salsa and rhythm & blues. These results leave little doubt that popular music is important to adolescent culture, but raise questions about the sharing of different musical sub-cultures.

**Magazine genres.** All 7th-12th graders who indicated they had read a magazine the previous day were asked to indicate what kinds of magazines they read by marking all of the appropriate genres from the following list: entertainment/popular culture, general interest, health, hobby/travel, home, men's, news, science/nature, sports, teen, women's, religious, or "something else." Sixty percent (60%) of 7th-12th graders reported previous day reading of magazines. Table 49 presents both the overall proportion of adolescents choosing each genre of magazine content, and those proportions broken out by gender, the only demographic attribute which locates differences in youngster's choices of magazine content.

As Table 49 shows, 5 types of magazines account for the lion's share of adolescent magazine reading: entertainment/popular culture, hobby/travel, sports, teen, and women's, each attracting 10% or more readers. However, these proportions can be misleading because of large gender differences. Only three magazine types attract double-digit readership among boys and only three among girls. The entertainment/popular culture genre is the only one that appeals to both genders (18%

TABLE 45 - A

Of Those 8-18 Year-Olds Who Visited a Chat Room the Previous Day:  
The Proportion Visiting Each Type of Chat Room by Age

Chat Room Category	8-18 years	8-13 years	14-18 years
Entertainment	32%	32%	33%
Family/Children	10	12	6
Gaming	15	17	12
Hobbies/Groups	16	15	17
Relationships/Lifestyles	28	18 <sup>a</sup>	40 <sup>b</sup>
Shopping	12	15	9
Sports	20	24	13

Note: Individual columns total to more than 100% because youngsters visit chat rooms from multiple genres. Within each row and age sub-group, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

TABLE 45 - B

Of Those 8-18 Year-Olds Who Visited a Chat Room the Previous Day:  
The Proportion Visiting Each Type of Chat Room by Gender

Chat Room Category	Boys	Girls
Entertainment	26%	38%
Family/Children	12	8
Gaming	19	12
Hobbies/Groups	15	16
Relationships/Lifestyles	21	35
Shopping	10	16
Sports	26	12

Note: Individual columns total to more than 100% because youngsters visit chat rooms from multiple genres.

of boys and 25% of girls). The largest proportion of boys reads sports magazines (46%) followed by hobby/travel magazines (35%), a category that included magazines devoted to such topics as computers, popular mechanics, and so forth, all of which might be expected to appeal more to boys than to girls. Teen magazines are by far the most popular among girls, attracting 73% of female 7th through 12th grade readers. Women’s magazines are the only other type to attract double-digit readership among girls (18%).

No reliable differences in preferences for different types of magazines were located by any of the other sub-group characteristics we have been examining.

**Book genres.** All 7th through 12th graders who indicated they had read a book the previous day were asked to indicate what kinds of books they read by marking all of the appropriate genres from the following list: adventure, arts, history/current events, humor, literature, mystery/thriller, romance, science fiction/fantasy, science/nature, self help,

sports, religious, or “something else.” Thirty-three percent of these youngsters reported book reading the previous day. Table 50 presents the proportion of all adolescents who read each type of book, and the proportion of male and female adolescents who read each type of book.

Clearly, adolescent readers spread themselves over a wide variety of book genres. Although only two book categories attract 15% or more 7th through 12th grade readers (adventure = 22% and mystery/thriller = 25%), at least 10% claim to read in 5 additional categories. Although the differences are not as dramatic as for magazines, it is also clear that gender plays a role in selection of book genres. Not surprisingly, significantly more girls than boys read in the romance category and significantly more boys than girls read in the sports category. None of the other sub-group comparisons revealed reliable differences in adolescents’ book reading preferences.

**Newspaper content.** Fifty-one percent (51%) of 7th through 12th graders indicated they read some part of a news-

paper the previous day. They indicated what sections of the paper they looked at from a list which included: national news, local news, entertainment, comics, horoscope/advice columns, sports, fashion, youth/teen, or “something else.”

Table 51 shows the proportion of newspaper readers in each of these age groups who read each section of the newspaper. The most notable aspect of the distribution of responses in Table 51 is that all but the fashion and youth/teen sections attract at least a quarter of adolescent readers (proportions range from 27% for horoscope/advice columns to 53% for sports). The second finding of note is how few youngsters read a youth/teen section. We think an important third point is that from 30% to 40% of these youngsters pay attention to national and local news, a trend worth encouraging.

As with magazine and book content, gender is the only sub-group characteristic that differentiates adolescents’ newspaper reading patterns. Slightly more boys than girls read national news, but the difference is not reliable. Substantially more boys than girls read the sports section. A significantly larger proportion of girls than boys, on the other hand, reads the horoscope/advice columns, the fashion section, and the youth/teen section.

**Print.** In general, then, a substantial proportion of 7th through 12th grade students identified themselves as readers; 79% reported reading books, magazines, or newspapers the previous day. Of this number, a third read books, just over half read a newspaper, and 60% read magazines. They have fairly widespread tastes, and no single genre dominates. For example, although no book genre attracted more than a quarter of these young readers, 7 of 12 genres attracted at least 10%. Similarly, the most read magazine category – teen magazines – attracted only 38% of 7th through 12th grade readers, but 5 of 11 magazine types attracted at least 10%. Finally, 7 of 8 newspaper sections attracted over 10% of young readers, and one – the Sports section – claimed attention from 53% of the readers.

Gender is the only sub-group characteristic that differentiates among young readers in terms of the kinds of content they choose, and the differences are somewhat stereotypic. Boys choose content concerned with sports, and girls focus on such topics as romance, fashion and women’s issues, youth/teen issues, and horoscopes and advice columns. With the exception of video games, then, print seems to locate somewhat larger gender differences in content choices than do the other media we have been considering.

TABLE 46

### Of Those 8-18 Year-Olds Who Visited a Web site the Previous Day: The Proportion Visiting Each Type of Web site

#### A. By Age

Web site Category	8-18 years	8-13 years	14-18 years
Entertainment	54%	46%	60%
Family/Children	5	7	3
Gaming	24	31 <sup>a</sup>	16 <sup>b</sup>
News	9	7	12
Relationships/Lifestyles	8	8	8
Research/Information	15	13	18
Search Engines	16	8 <sup>a</sup>	22 <sup>b</sup>
Shopping	14	10	15
Sports	24	18	30

#### B. By Gender

Web site Category	Boys	Girls
Entertainment	45% <sup>a</sup>	65% <sup>b</sup>
Family/Children	3	6
Gaming	33 <sup>a</sup>	13 <sup>b</sup>
News	9	9
Relationships/Lifestyles	8	8
Research/Information	12	19
Search Engines	21	11
Shopping	11	17
Sports	34 <sup>a</sup>	12 <sup>b</sup>

Note: Individual columns total to more than 100% because youngsters visit chat sites from multiple genres. Within each row, different superscripts indicate statistically reliable differences in the proportion of each age sub-group or gender sub-group visiting that type of Web site.

**TABLE 47**

**Of Those 7th through 12th Graders Who Listened to CDs and Tapes the Previous Day:  
The Proportion Listening to Each Type of Music**

<b>Music Genre</b>	<b>7th-12th graders</b>
Alternative Rock	42%
Classic Rock	12
Country & Western	14
Gospel/Christian	8
Hard Rock/Heavy Metal	19
Latin/Salsa	2
Rap or Hip-Hop	53
Rhythm & Blues	13
Ska/Punk	7
Soft Rock	10
Top-40 Rock	9

*Note: Percent column totals to more than 100% because youngsters hear music from multiple genres.*

**TABLE 48**

**Of Those 7th through 12th Graders Who Listened to CDs or Tapes the Previous Day:  
The Proportion Listening to Each Music Genre by Race/Ethnicity**

<b>Music Genre</b>	<b>Whites</b>	<b>Blacks</b>	<b>Hispanics</b>
Alternative Rock	50% <sup>a</sup>	5% <sup>b</sup>	32% <sup>c</sup>
Classic Rock	15 <sup>a</sup>	2 <sup>b</sup>	4 <sup>b</sup>
Country & Western	17 <sup>a</sup>	3 <sup>b</sup>	7 <sup>b</sup>
Gospel/Christian	7	18	7
Hard Rock/Heavy Metal	24 <sup>a</sup>	2 <sup>b</sup>	12 <sup>b</sup>
Latin/Salsa	1 <sup>a</sup>	1 <sup>a</sup>	16 <sup>b</sup>
Rap or Hip-Hop	43 <sup>a</sup>	84 <sup>b</sup>	72 <sup>b</sup>
Rhythm & Blues	9 <sup>a</sup>	30 <sup>b</sup>	16 <sup>ab</sup>
Ska/Punk	10	0	4
Soft Rock	12 <sup>a</sup>	2 <sup>b</sup>	10 <sup>ab</sup>
Top-40 Rock	10	*	8

*Note: Individual columns total to more than 100% because youngsters hear music from multiple music genres. Within each row and racial/ethnic sub-group, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.*

*\* Indicates less than 1%.*

TABLE 49

Of Those 7th through 12th Graders Who Read a Magazine the Previous Day:  
The Proportion Choosing Each Type of Magazine by Age and by Gender

Content Genre	7th-12th Graders	Boys	Girls
Entertainment/Popular Culture	21%	18%	25%
General Interest	2	2	1
Health	5	5	6
Hobby/Travel	20	35 <sup>a</sup>	4 <sup>b</sup>
Home	4	2	5
Men's	2	4	0
News	7	9	6
Science/Nature	7	8	6
Sports	26	46 <sup>a</sup>	7 <sup>b</sup>
Teen	38	4 <sup>a</sup>	73 <sup>b</sup>
Women's	10	1 <sup>a</sup>	18 <sup>b</sup>

Note: Columns may total to more than 100% because youngsters gave multiple responses. Within each row and sub-group, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

TABLE 50

Of Those 7th through 12th Graders Who Read a Book the Previous Day:  
The Proportion Choosing Each Type of Book by Age and by Gender

Content Genre	7th-12th Graders	Boys	Girls
Adventure	22%	28%	18%
Arts & Music/Hobbies	9	8	10
History/Current Events	11	12	10
Humor	12	10	13
Literature	9	5	13
Mystery/Thriller	25	18	30
Religious	1	2	1
Romance	12	2 <sup>a</sup>	19 <sup>b</sup>
Science Fiction/Fantasy	11	15	8
Science/Nature	4	8	2
Self Help	4	2	6
Sports	11	19 <sup>a</sup>	4 <sup>b</sup>

Note: Columns may total to more than 100% because youngsters gave multiple responses. Within each row and sub-group, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

TABLE 51

Of Those 7th through 12th Graders Who Read a Newspaper the Previous Day:  
The Proportion Reading Each Section of the Newspaper

	7th-12th Graders	Boys	Girls
National News	29%	32%	25%
Local News	42	40	44
Entertainment	32	31	34
Comics	40	39	40
Horoscope/Advice Columns	27	13 <sup>a</sup>	45 <sup>b</sup>
Sports	53	71 <sup>a</sup>	31 <sup>b</sup>
Fashion	8	2 <sup>a</sup>	15 <sup>b</sup>
Youth/Teen	10	6 <sup>a</sup>	16 <sup>b</sup>

Note: Column totals to more than 100% because youngsters gave multiple responses. Within each row and sub-group, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.



## VI. CONTEXTS OF EXPOSURE

As noted earlier, the past decade has witnessed concern about the “privatization” of children’s media use – that is, concern that many children are exposed to media largely absent any adult presence. Some of this may have to do with an increase in the number of households in which adults are simply not around for a substantial part of the day. In addition, as we saw in Section III (Media Environment), multiple television sets have become the rule in most households, and substantial proportions of children of all ages report having “their own” televisions (and the number who have their own VCRs and computers is growing). Multiple media also may contribute to increased viewing out of sight of the parent; that is, if a child does not want to watch what parents are watching, she has the option of moving to another set – with or without siblings or peers. In other words, social conditions that take parents away from the house, in combination with a proliferation of media within the household, have created conditions conducive to, if not solitary viewing, certainly viewing absent much of an adult presence.

**Television.** This study included several questions designed to explore the degree to which privatization of media exposure might exist among U.S. children. Earlier we described how the youngsters participating in this survey estimated the amount of time they spent viewing television for each day-part – that is, amount of viewing in the morning (7:00 a.m. until noon), in the afternoon (noon until 6:00 p.m.), and in the evening (6:00 p.m. until midnight). For each day-part, any youngster who reported watching any television at all was also asked whether he or she watched “mainly alone” or “mainly with someone else.” It is important to note that because the question asked children whether they watched *mainly* alone, we cannot determine the

amount of time they watched alone, nor does watching “mainly alone” mean that all the child’s television viewing time was spent in solitary viewing. The “mainly alone” classification includes any child who viewed alone for more than half of each day-part. For example, a child who watched for 2 hours during any day-part might have spent all 2 hours viewing alone, or 90 minutes, or 65 minutes; another who watched for 15 minutes might have viewed alone from 8 to 15 minutes. Both children are legitimately counted as watching “mainly alone” for that day-part. Any child classified as having watched “mainly alone” for the total day responded “mainly alone” to all day-parts that they reported watching TV.

In addition, children who reported watching with someone else during any of the three day-parts were asked to circle everyone with whom they were watching on a list including: mother, father, brother or sister, friend, teacher, classmates, other relatives (e.g., grandparents, aunts), and someone else. This enables us to examine the proportion of children who watch television with parents during each day-part, as well as the proportion who watch television with siblings and/or peers during each day-part.

Table 52-A displays the proportion of the total sample and of children in each of our three primary age groups who spent all of their TV time watching “mainly alone” the preceding day. Although 21% of all youngsters watched mainly alone, the likelihood of solitary viewing increases substantially with age. The parents of 13% of the 2-7 year-olds reported that their child watched mainly alone; 22% of the 8-13 year-olds were mainly alone when they watched, and 33% of the 14-18 year-olds were mainly alone, differences which are large and reliable.

Data provided by youngsters who kept the supplemental media diaries for a week provide a means to examine soli-

TABLE 52

## Social Context of Television Viewing by Age

## A. Proportion of Children Whose Overall Viewing is Mainly Alone

	2-18 years	2-7 years	8-13 years	14-18 years
View "Mainly alone"	21%	13% <sup>a</sup>	22% <sup>b</sup>	33% <sup>c</sup>

## B. Proportion of Children Whose Viewing is Mainly Alone by Day-Part

		2-7 years	8-13 years	14-18 years
Mornings				
"Mainly alone"	35%	29% <sup>a</sup>	33% <sup>a</sup>	52% <sup>b</sup>
Afternoons				
"Mainly alone"	35%	24% <sup>a</sup>	24% <sup>a</sup>	51% <sup>b</sup>
Evenings				
"Mainly alone"	27%	10% <sup>a</sup>	32% <sup>b</sup>	38% <sup>b</sup>

## C. Proportion of Children Viewing with Parents and with Siblings/Peers by Day-Part

		2-7 years	8-13 years	14-18 years
Mornings				
View with parents	26%	34% <sup>a</sup>	20% <sup>b</sup>	16% <sup>b</sup>
View with siblings/peers	43	42% <sup>b</sup>	49% <sup>a</sup>	32% <sup>b</sup>
Afternoons				
View with parents	25%	32% <sup>a</sup>	23% <sup>b</sup>	19% <sup>b</sup>
View with siblings/peers	44	48% <sup>a</sup>	47% <sup>a</sup>	36% <sup>b</sup>
Evenings				
View with parents	43%	63% <sup>a</sup>	31% <sup>b</sup>	25% <sup>b</sup>
View with siblings/peers	47	52	46	43

Note: For any day-part, the percentages for parents and peers may sum to more than 100% because youngsters may view with parents, siblings, and peers simultaneously. Within each row and age sub-group, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

TABLE 53

## Proportion of Television Viewing Time Spent Viewing Alone and with Parents by Age

	2-7 years	8-13 years	14-18 years
Television time alone	14% <sup>a</sup>	30% <sup>b</sup>	41% <sup>b</sup>
Television time with parents	19% <sup>a</sup>	6% <sup>b</sup>	2% <sup>b</sup>

Note: Proportions, based on data from supplemental diary, represent estimates averaged over a full week of television viewing. Within each row and age sub-group, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

tary television viewing from yet another perspective. Each time youngsters who kept the diary recorded use of a medium for any half hour period of any day, they also indicated who, if anyone, they were with. These data enable us to compute the percentage of time that all children viewed alone or with parents over the course of a week. The results, presented in Table 53, show that time spent viewing alone is even more common than one might surmise on the basis of the proportion of children who view mainly alone on any given day, particularly among older children. The parents of 2-7 year-olds report that their children spend 14% of their total television viewing time alone. Eight through 13 year-olds report that they watch alone 30% of the time, while 41% of 14-18 year-olds' television viewing is solitary viewing.

Returning for a moment to Table 52, Part B shows that viewing mainly alone is a function of the time of day during which the viewing takes place. Among the youngest and oldest kids, fewer youngsters view mainly alone in the evening than in the morning or the afternoon. To a large extent, this is probably due to different likelihoods that "someone else" is available to co-view with during the different day-parts. For example, most parents are at work during mornings and afternoons, thus not present to share viewing. Assuming that parents of younger children are more likely to be at home during the day, this explanation receives further support from the finding that significantly fewer 2-7 year-olds view alone. Another possibility is that children who have their own bedrooms and their own television set may view as they are getting ready to go to school – a situation in which the presence of some

other person is somewhat lower than if the youngster is in another room in the house. This possibility is supported by the finding that a slightly higher percentage of children in each age group view alone during the morning hours. It is also possible that parents are busier during the morning hours, attempting to ready themselves and their children for a new day – thus less likely to engage in co-viewing. In any case, it is clear that substantial proportions of children view television “mainly alone.” Indeed, over half of the oldest group who view television on any given day spend the morning and afternoon hours viewing mainly alone, and over a third are mainly alone during the evening.

On the other hand, it should not be overlooked that, except for older adolescents in the morning and afternoon, the reciprocal for all of the proportions in Table 52-A and 52-B is greater than 50%. In other words, for most kids, at least some of the time, viewing occurs in a social context – that is, children watch television “mainly” in the presence of others.

Table 52-C presents information about who some of those others are. Two methodological points are important to remember when reading Table 52-C. First, other than the child’s parents, this particular table does not include other adults with whom co-viewing might have occurred (e. g., grandparents; day care personnel). Second, the percentages for parents and for siblings/friends are not independent; that is, a significant number of children watch television in the presence of parents and siblings at the same time. That said, about a quarter of the kids in our sample who watch television, watch with parents during the morning and afternoon hours (a smaller proportion than watch alone during those day-parts), and 43% watch with parents in the evening (a larger proportion than watch alone during that day-part). As was the case for viewing alone, parental co-viewing is also highly age-dependent. For each day-part, as age goes up, the percentage of children who watch with parents goes down. Again, the differences between age-groups are large and statistically reliable. They are also reinforced by data from the supplemental diaries displayed in Table 53. According to the diaries, 2-7 year-olds spend 19% of their total television viewing time co-viewing with parents, 8-13 year-olds claim 6% of their time is spent watching with parents, and 14-18 year-olds claim just 2% of their television viewing time is shared with parents. In other words, in terms of average weekly viewing time, parent-child co-viewing starts low and drops to almost non-existent.

Within age groups, the likelihood of viewing with parents increases as we move through the day. For example, among the youngest children the proportion who view with parents increases from about a third in the morning and afternoon day-parts to almost two-thirds (65%) in the evening, and among the two older

age groups, there is about a 10 percentage point increase in co-viewing with parents from morning to evening. In other words, over the course of the day, the likelihood of viewing with parents increases, but the increase from morning to evening in the proportion of television viewers who co-view with parents gets smaller as age increases: 29% more 2-7 year-olds co-view with parents in the evening than in the morning, as opposed to 11% more 8-13 year-olds, and 9% more 14-18 year-olds.

It is also clear from Table 52-C that, regardless of age, youngsters spend more time viewing with other youngsters (assuming that most siblings are still youngsters) than with their parents. Over 40% of the kids view with siblings or peers during each day-part. From 42% to 52% of the 2-7 year-olds view with other youngsters throughout the day; over 45% of the 8-13 year-olds view with others, and from 32% of the oldest group in the morning to 43% of the oldest group in the evening view with others. In other words, although the level of parental oversight of children’s television viewing is quite low, particularly among older youth, it is nevertheless clear that for most youngsters most of the time, television is viewed in the presence of others, albeit more often than not, other youngsters.

When the proportion of children who view television mainly alone is examined by such factors as gender, race/ethnicity, community income, parent education, and family composition, no differences emerge. That is, there is no difference in the proportion of boys and girls, of African Americans and Whites, of children whose parents completed high school and those whose parents completed college, of children from two-parent versus single-parent households, and so forth, who view television “mainly alone.” The only attribute other than age that differentiates the likelihood of viewing alone is whether or not the respondent is an only child. Not surprisingly, 31% of only children report watching television mainly alone for the whole day compared to only 18% of those from multiple-child families. Clearly – and not at all surprising – the presence of siblings reduces the likelihood of solitary viewing.

**Other media.** Information about whether children used other media “mainly alone” or with someone else – and if with someone else, the proportion who viewed or used in the presence of a parent and of a sibling or peer – was also obtained from the 7th through 12th grade sample. (These questions were eliminated from the questionnaires for 3rd through 6th graders in order to reduce questionnaire length.) These questions were asked about previous day use of the following: videos, movies, video games, computer games, computer chat rooms, and computer

Web sites. Table 54 presents the proportion of 7th through 12th grade students who used each of these media “mainly alone,” or with parents and/or siblings/peers (again, the “with parents” and “with siblings/peers” responses are not independent).

The results in Table 54 point to several reasonable generalizations. First, it is clear that viewing videos and movies is largely a social activity, while playing video games and engaging in any kind of computer use are relatively solitary activities. A quarter of youngsters (27%) watched videos mainly alone and 15% attended movies alone, but from 55% to almost 65% played interactive games alone, and over 60% visited chat rooms and Web sites alone. Second, the image of several kids playing video games or computer games together – sitting side-by-side as they compete to outdo each other at any of a number of games – may be overstated. Only 36% of these kids played video games in the presence of peers and/or siblings, and only 13% played computer games with other kids. Third, kids watch TV in the presence of peers and/or siblings: over half watch videos and go to the movies with other kids. Finally, and perhaps most important, none of these media

activities are shared much with parents. Only 25% of kids co-view videos with parents, and the proportions sharing the other media with parents drop dramatically from there.

It is not particularly surprising that adolescents do not attend many movies (or watch all that many videos) with their parents, or that they do spend substantial theater time with siblings and peers. On the one hand, among adolescents movie-going is as much a social as a media experience, so attendance with peers is to be expected. On the other hand, there are rather clear-cut differences in the kinds of movies (and videos) that adolescents choose compared to those typically selected by adults (i.e., parents). What is a bit more surprising, however, is how few parents and adolescents share computer activities. Even granting that computer screens and keyboards are designed with a single user in mind, recent emphasis in the popular press on encouraging parents to monitor children’s computer activities, and our own finding that well over half of most computer use occurs within the home (or at least not in school; see Table 15), led us to expect more than 10% of adolescents to engage in various com-

TABLE 54

### Of 7th through 12th Graders Who Used Media: The Proportion Using Each Medium “Mainly Alone” or Mainly with Parents or Siblings/Peers

Medium	Percent viewing or using “mainly alone”	Percent viewing or using with parents	Percent viewing or using with siblings/peers
Videos	27%	25%	56%
Movies	15	11	60
Video Games	55	2	36
Computer Games	64	3	13
Chat Rooms	61	10	16
Web sites	61	6	21

Note: Rows will not sum to 100%; the questions about parents, siblings and peers are not independent (i.e., many children view with both parents and siblings), and items do not include other adults with whom some children viewed (e.g., other relatives).

TABLE 55

### Proportion of Time Children Spend with Various Media in Their Bedroom by Age

Medium	2-18 years	2-7 years	8-13 years	14-18 years
Television	19%	7% <sup>a</sup>	22% <sup>b</sup>	25% <sup>b</sup>
Videos	13	12	14	12
Video Games	35	10 <sup>a</sup>	37 <sup>b</sup>	41 <sup>b</sup>
Computer Games	9	7	9	11
Computer	15	12	15	11
Music	31	10 <sup>a</sup>	33 <sup>b</sup>	36 <sup>b</sup>
Reading	49	49	51	47

Note: All data from supplemental diary. Within each row and age sub-group, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

puter activities with parents. Clearly those expectations are not met. The image of the solitary youngster seated in front of a computer is accurate for over 60% of adolescents.

In general, then, our results show that “screen media” differ greatly in the degree to which they are “social” versus “solitary.” For the most part, non-interactive screen media (i.e., television, videos, movies) tend to be social. Interactive screen media (i.e., video games, and computer games, chat rooms, and Web sites), on the other hand, tend to support activities that a substantial proportion of children engage alone.

**Media use in the bedroom.** Another way to examine the degree to which children are exposed to media absent adult presence is to consider the time they use media in their own bedrooms. As we have noted, a large proportion of U.S. children have a television and many of the other media in their bedrooms. If we assume that when youngsters use media in their bedrooms the probability that an adult is present is low, then bedroom use of media is another indicator of the privatization of children’s media use. Of course, bedroom media use is not equivalent to solitary use; siblings and/or peers may be present for a substantial part of the time. Nevertheless, bedroom media use is arguably a good indicator of media use in the absence of adults.

The data from our supplementary sample of diaries enables us to look at the proportion of total media use time that children use media in their own bedrooms. As noted earlier, whenever a youngster keeping one of the diaries reported using any medium, he or she was also asked to indicate where that use took place. Since one of the response options was the child’s bedroom, we can calculate the proportion of time children spend with each medium in their own bedroom (as opposed to our previous analysis of the proportion of children who reported using each medium mainly alone).

Table 55 shows that both the child’s age and the medium make a difference in the proportion of time children spend using both interactive and non-interactive screen media in their own bedrooms. We suspect these differences result from several factors, including bedroom availability of the various media, competition for media in other parts of the household, and the solitary vs. social nature of the different media. First, although a few children watch television in the bedroom prior to the age of 7 years, from 8 years onward, kids spend almost a quarter of their television time watching in the privacy of their own bedrooms. Video games present a similar use pattern: 2-7 year-olds spend 10% of their video game playing time playing in the bedroom, but kids between 8 and 13 years spend 37% of their video game playing time in the bedroom and those 14 years and older spend 41% of

that time in their bedrooms. On the other hand, the proportion of time youngsters spend watching videos, playing computer games, or using the computer for other recreational pursuits in the bedroom does not vary dramatically by age. The proportion of time children spend with each of these media in their bedrooms stays relatively low (from 7% to 15%, depending on the medium) and does not vary greatly across age (the largest difference across age is 4%).

This supplementary analysis also includes time devoted to music and to reading, both of which provide interesting comparisons to the video and computer based media we have been considering. Substantial amounts of music listening (time spent listening to CDs and tapes and to radio music) and leisure reading (reading comic books, magazines, newspapers, and non-school related books) occur in children’s bedrooms. Although the proportions are slightly greater, the pattern for music listening is similar to that for television and video games, increasing as age increases. That is, the youngest children spend about 10% of their music listening time in their bedrooms, while beyond 8 years, children spend a third or more of their music listening time in their bedrooms. Finally, almost half of all reading occurs in the bedroom, regardless of children’s age.

Several factors probably combine to create the differences in time spent using various media in the bedroom that emerge in this analysis. One of the more obvious is simply the fact that many fewer children have computers and VCRs than have televisions in their bedrooms. A second factor may be the degree to which the different media are used as background for other activities. For example, several earlier studies have shown that adolescents read, do homework, talk with friends, and so on, to the accompaniment of music. In other words, music listening is often a secondary activity, engaged in simultaneously with a variety of more primary activities likely to occur in a youngster’s bedroom. It is also possible that children are beginning to use television as background – the child enters the bedroom, turns on the TV set, and goes about his or her more primary business. Third, the relatively high proportion of time spent playing video games in the bedroom may simply reflect a convenient way to resolve competition for the family television set. That is, others in the family – parents and siblings – may claim the primary household television set for watching television programs (or videotapes). Given that a video game system can be easily attached to any TV set, the presence of a television set in a child’s bedroom offers a means to avoid conflicts over use of the main household set. Since kids are the primary (if not sole) video game players in most households, it makes sense to locate the video game system on “their” television set.



## VII. FURTHER EXPLORATIONS

The questionnaires used in this study included a number of additional items that enable us to explore youngsters' media behavior a bit more fully. These included questions about children's media preferences, self-reports of personal contentedness/social adjustment, attitudes toward various media, and self-reports of school performance. In this section we examine media behavior in relation responses to these questions.

### **Personal contentedness and social adjustment.**

Several early studies of children's television use (e.g., Maccoby, 1954; Schramm, Lyle, & Parker, 1961) found that children who were having difficulties with parents or friends or who were otherwise discontented devoted more time to television than did better adjusted youngsters. For that reason, in this study, questionnaires included items designed to assess how well-adjusted or contented children felt themselves to be. Responses to these questions were combined to form a "Contentedness Index," scores on which were then related to exposure to the various media. Contentedness Index items consisted of six first-person, self-descriptive statements:

- I have a lot of friends
- I get along well with my parents
- I am often bored
- I often feel sad and unhappy
- I have been happy at school this year
- I get into trouble a lot.

Youngsters (or their parents) were asked to indicate how well each statement described them (their child) by circling "A lot like me," "Somewhat like me," "Not much like me," or "Not at all like me." The six items were scored such that more contented kids

received higher scores, and responses were summed to create an index on which scores could range from 6 to 24.

These scores were not related to media exposure among the sample of 2-7 year-olds. Among 8-18 year-olds, on the other hand, youngsters who scored at the "less contented" end of the index reported more media exposure than those who scored at the more contented end. Before exploring this relationship further, however, it is important to note that the large majority of kids who participated in this study are generally contented and well-adjusted. Among 8-18 year-olds, the mean Contentedness score is 18.4 on a scale that ranges from 6 to 24, indicating rather high levels of personal contentedness and social adjustment. Thus, it is important to remember that any differences located by scores on this Index are relative differences among generally contented, well-adjusted kids.

With that caveat in mind, in order to see better how youngsters' contentedness relates to media use, the in-school sample was sub-divided into three groups on the basis of Contentedness Index scores. High and Low contentedness groups were defined as all kids who scored roughly one standard deviation above or below the overall mean. In other words, the roughly 16% of children with the lowest scores comprise the Low group; the roughly 17% of children with the highest scores comprise the High Contentedness group; the remaining two thirds of the sample (67%) comprise the Middle Contentedness Group. This "Contentedness Index" grouping (Low, Middle, High) was then used to examine media exposure and several additional aspects of the media environment.

Table 56 presents mean daily media exposure time for the High, Middle, and Low Contentedness Index groups for the 8-18

TABLE 56

## Average Daily Time 8-18 Year-Olds Are Exposed to Various Media by Contentedness Index Score

Medium	Contentedness Index Score		
	Higher	Middle	Lower
Television	2:52 <sup>a</sup>	3:14 <sup>b</sup>	3:44 <sup>c</sup>
Taped TV Shows	0:13 <sup>a</sup>	0:13 <sup>a</sup>	0:27 <sup>b</sup>
Videos	0:24 <sup>a</sup>	0:29 <sup>a</sup>	0:35 <sup>b</sup>
Movies	0:15 <sup>a</sup>	0:17 <sup>a</sup>	0:38 <sup>b</sup>
Video Games	0:24 <sup>a</sup>	0:26 <sup>a</sup>	0:37 <sup>b</sup>
Computer (leisure)	0:30	0:31	0:34
Radio	0:45	0:47	0:53
CDs & Tapes	1:01	1:05	1:14
Reading (leisure)	0:51 <sup>a</sup>	0:44 <sup>ab</sup>	0:40 <sup>b</sup>
Total Leisure Media	7:16 <sup>a</sup>	7:47 <sup>a</sup>	9:22 <sup>b</sup>

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

TABLE 57

## Proportion of 8-18 Year-Olds from “Constant” Television Households and Households with TV Viewing Rules by Contentedness Index Scores

	Contentedness Index Score		
	Higher	Middle	Lower
Television on in household “most of the time”	43%	46%	52%
Television usually on during meals	57% <sup>a</sup>	65% <sup>ab</sup>	71% <sup>b</sup>
Family rules about television viewing	42%	38%	35%

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

year-olds. The results in Table 56 provide striking evidence that as scores on the Index decline, exposure to almost all media increases. That is, less contented children report substantially more media exposure. Indeed, the only instance in which kids who score lower on the Contentedness Index report less exposure than kids who score higher is for print media: less contented kids read less, but report more exposure to all other media. Youngsters in the Low group are exposed to over three quarters of an hour more television than those in the High group and to half an hour more than those in the middle group. All in all, youngsters who scored in the lowest 16% on the Contentedness Index are exposed to over 2 hours per day more media than those who scored in the highest 17% (9:22 to 7:16), and to more than 1½ hours per day than those who scored in the middle on the Contentedness Index (9:22 to 7:47).

Table 57 explores whether there is also a relationship between scores on the Contentedness Index and either the presence of family rules regarding television viewing or the two items used to identify “constant television households” (see Section III). Youngsters who score lower on the Index are somewhat more likely to be from what we have labeled “constant television house-

holds.” That is, although the differences are not always statistically reliable, a consistently higher proportion of kids in the Low sub-group give “constant television answers.” Youngsters with lower contentedness/adjustment scores are reliably more likely to live where television is on during most meals (71% to 57%).

To repeat our earlier point, none of this indicates a causal relationship. These data do not enable us to say what causes what. The inverse relationship between scores on the Contentedness Index and various measures of media exposure time may originate in any of several possibilities. It may be that kids who are less happy or who are having difficulty in social relationships turn to the media as a means of escaping their discontent. It may be that heavy exposure to mass media in some way contributes to lower scores on the Contentedness Index. It may be that some third, unexplored factor(s) mediate both discontent and media exposure. Most likely, the cause of these negative associations between Contentedness Index scores and media exposure is a result of some combination of all three of these possibilities. But regardless of the cause, children who express less satisfaction with their social relations and/or with at least some aspects of their psychological state tend to spend more of their



TABLE 58

## Preferred Medium by Age

## A. Proportion of In-Home Sample Choosing Each Medium

Medium	2-7 year-olds
Book	14%
Television	29
Radio/Tape Player	8
Computer	23
Video Games	23

## B. Proportion of In-School Sample Choosing Each Medium

Medium	8-18 years	8-13 years	14-18 years
Books/Magazines	8%	9%	6%
CDs & Tapes	18	16 <sup>a</sup>	22 <sup>b</sup>
Computer	33	29 <sup>a</sup>	39 <sup>b</sup>
Radio	6	5	8
Television	13	13	13
Video Game System	13	19 <sup>a</sup>	4 <sup>b</sup>
Videos & VCR	3	3	3

Note: Different questions asked of in-home sample (2-7 year-olds) and in-school sample (8-18 year-olds). Within each row and age sub-group, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

time with all but print media than do children who appear to be more satisfied with their circumstances.

**Media preferences.** Children in the in-home and in-school samples were asked about their media preferences in different ways. The 2-7 year-olds were shown an array of 5 different pictures including a book, a TV, a radio/tape player, a computer, and a video game. The interviewer named the medium portrayed in each picture, then asked the child to select “the one thing that you like to use the most.”

Youngsters in the in-school sample (8-18 year-olds) were invited to express their media preferences by means of the following question: “If you were going to a desert island (OK, a desert island with electricity) and you could take only one of the following things, what would you choose?” A list of 8 options followed: books or magazines, CDs or tapes and a player, computer with Internet access, radio, TV, video games, videos and a VCR, nothing.

Table 58 presents the percentage of youngsters selecting each medium by age. Among young children, television ranks first, followed closely by computers and video games. Among the older children, however, the computer emerges as the clear favorite. Fully a third of the 8-18 year-olds pick the computer with an Internet connection to take to the desert island, 15% more than choose the second place medium, CDs & tapes. Indeed, among 14-18 year-olds, the computer increases its lead slightly: 39% selected it, 17% more than chose CDs and tapes. In

other words, even though older children devoted a good deal more time to television than to computers (see Table 8-A), and many more children use television than a computer on any given day (partly but not completely because of access), they nevertheless opt for the computer when forced to choose only one medium. This is likely due to the fact that today’s technology-savvy kids recognize that a computer in combination with an Internet connection is far more than just a computer. It is a CD player, a radio, a game station, and in many instances a television set. In addition, the Internet connection provides a two-way communication link, something which any reasonable youngster might value when anticipating spending time on a desert island. In other words, older kids’ preference for the computer may really be a preference for a more universal kind of medium – an “information/entertainment appliance” that can serve most of the functions of the other media and then some.

Finally, it is interesting to note that, if we conceive of radio’s primary function for youth to be a music source, then the margin by which computers are preferred to music media – that is, the combination of CDs/tapes and radio – is substantially reduced. Among 8-13 year-olds, 29% select the computer and 21% select one of the music media; among 14-18 year-olds, 39% select the computer and 30% select music media. Table 59, which presents media preferences by gender, adds to this line of thought. About a third of the boys continue to choose the computer as their preferred medium (34%), but a video game system moves into second place for them (21%), followed by the combined

music media (CDs & tapes + radio = 17%). A third of the girls also continue to choose the computer (32%), but another third choose combined music media (32%). In other words, girls place music media on a par with computers.

Given the proportion of youngsters who currently download songs from the net and who use the computer while listening to their favorite songs played on the computer's CD-Rom drive, it is tempting to speculate that, at least among older adolescents, music may rank as the preferred media content for a desert island.

### Attitudes toward television and computers.

Children 8 years and older also responded to items assessing their attitudes toward both television viewing and computer use, by responding "most of the time," "some of the time," "a little of the time" or "never" to each of the following statements:

"When I watch TV [use a computer], ...

- I am entertained
- I learn interesting things
- I am just killing time."

Table 60 presents the percentage of youngsters who responded "most of the time" to the statements about being entertained and learning interesting things, and who responded either "some of the time" or "most of the time" to the statement about killing time (relatively few youngsters responded "most of the time" to the latter item). Looking first at the overall sample of 8-18 year-olds, there is not much difference in how youngsters rate either television or the computer in terms of their capacity to entertain and to teach interesting things. About half the kids say television (54%) and about half say computers (50%) are entertaining most of the time. Similarly, from a fifth to a quarter say that they "learn interesting things" from each medium most of the time (TV = 20%; computer = 26%). Substantial differentiation between the two media occurs only for the item about killing time; 50% of the kids say that when they are watching television they are just killing time some or most of the time, but only 33% say this about using the computer.

Table 60 also shows that assessments of the two media on these three dimensions vary with age. First, about 10% more 8-13 year-olds than 14-18 year-olds find both television and computers "mostly entertaining." Second, older kids are 17% less likely than younger kids to say that they learning interesting things from television most of the time, and 10 percentage points less likely to say that they learn interesting things most of the time when using the computer. Third, older kids are much more likely than younger kids to admit to killing time both when they watch television (22% more older kids than younger kids say this

is true some or most of the time), and when they use a computer (11% more). All of these differences are statistically reliable.

Race/ethnicity is the only other demographic characteristic to locate interesting differences in attitudes toward television watching and computer use. As shown in Table 61, significantly more African American kids than White kids report learning interesting things from television most of the time (28% versus 15%), and fewer African American kids than Whites say they are "just killing time" when they watch TV (43% to 53%). Although there are no differences among the three racial/ethnic groups in the proportion who say that computers entertain them, African American youngsters are substantially more likely than both White kids and Hispanic kids to report learning interesting things from a computer (44% to 22% and 29%, respectively).

Overall, then, a majority of school kids of different ages and race/ethnicities rate both television and computers as entertaining most of the time. Nevertheless, substantial proportions of them also say they are killing time when they use both media – but more so with television than with computers. Depending on age and race/ethnicity, anywhere from 15% to 45% of school-aged children say they learn interesting things from either medium – but a clear edge is given to the computer. Finally, it appears that as children grow older, they believe they are learning less and are more likely to just kill time regardless of the medium.

**School grades.** Eight through 18 year-olds were also asked to report what kinds of grades they typically earn in school, the options including "mostly A's," "mostly A's and B's," "mostly B's and C's" to "mostly D's and F's." Grades of mostly B's or higher were claimed by 64% of the sample, a group which we have classified as earning "Good" grades; 30% reported grades ranging from mostly B's and C's to mostly D's and F's, a group which we have classified as earning "Fair or Poor" grades (another 6% either did not answer or attend schools that do not give grades).

Table 62 presents average daily media exposure for those reporting that they typically earn good grades in school versus those reporting that they typically earn fair or poor grades. Overall, youngsters with poor grades report consistently more daily exposure to all media but print media. The largest difference in average daily exposure for any single medium is 24 minutes (youngsters with fair or poor grades are exposed to television 24 minutes more per day than those with good grades), and those with lower grades report 12 minutes less daily reading than those with good grades. The overall result is that 3rd through 12th graders who report earning school grades of mostly B's and C's or lower also report over an hour per day more total media exposure

than their counterparts who earn higher grades – 7:41 versus 8:46. Again, these data do not allow causal inferences. We can't say whether poor grades lead to more media exposure, or high media exposure leads to lower grades, or some third factor(s) underlies both outcomes. The results do, however, lend support to the frequent observation that children who are not doing well in school often seem to be heavy media users.

sure concerns the degree to which heavy use of any one medium offsets use of other media – sometimes called a “displacement effect” (e.g., did television viewing “displace” radio listening?). Schramm, Lyle, and Parker (1961) raised the issue in their early study of television in the lives of North American children in relation to how the introduction of television might have influenced children's reading, radio listening, motion picture attendance, and so on. More recently, Mutz, Roberts, and van Vuuren (1993) traced a long history of “displacement” studies examining how television use relates to exposure to other kinds of media.

**Heavy versus light media exposure.** A question dating from some of the early studies of children's media expo-

TABLE 59

Preferred Medium of 8-18 Year-Olds by Gender

Preferred Medium	Boys	Girls
Books/Magazines	5% <sup>a</sup>	10% <sup>b</sup>
CDs & Tapes	12 <sup>a</sup>	25 <sup>b</sup>
Computer	34	32
Radio	5	7
Television	13	13
Video Game System	21 <sup>a</sup>	4 <sup>b</sup>
Videos & VCR	2	3

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

TABLE 60

Proportion of 8-18 Year-Olds Indicating that They are Entertained by or Learn from TV and Computers “Most of the Time,” and that They are Just Killing Time “Some or Most of the Time” by Age

When I watch/use...I am	8-18 years		TV		Computer	
	TV	Computer	8-13 years	14-18 years	8-13 years	14-18 years
Entertained “most of time.”	54%	50%	59% <sup>a</sup>	48% <sup>b</sup>	54% <sup>a</sup>	44% <sup>b</sup>
Learning interesting things “most of the time.”	20	26	27 <sup>a</sup>	10 <sup>b</sup>	30 <sup>a</sup>	21 <sup>b</sup>
Just killing time “some or most of the time.”	50	33	41 <sup>a</sup>	63 <sup>b</sup>	28 <sup>a</sup>	39 <sup>b</sup>

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

TABLE 61

Proportion of 8-18 Year-Olds Indicating they are Entertained By or Learn From TV and Computers “Most of the Time,” and that they are Just Killing Time “Some or Most of the Time” by Race/Ethnicity

When I watch/use ... I am	TV			Computers		
	White	Black	Hispanic	White	Black	Hispanic
Entertained “most of time.”	51%	60%	59%	52%	53%	49%
Learning interesting things “most of the time.”	15 <sup>a</sup>	28 <sup>b</sup>	23 <sup>b</sup>	22 <sup>a</sup>	44 <sup>b</sup>	29 <sup>a</sup>
Just killing time “some or most of the time.”	53 <sup>a</sup>	43 <sup>b</sup>	48 <sup>b</sup>	35	27	29

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

Similar statements and questions about whether and how children's computer use may or may not relate to use of other media have recently begun to emerge in the popular press. Since this study obtained information about exposure to the full array of media available to today's kids, it provides a means to examine the displacement question in today's media environment.

For this analysis, youngsters are grouped on the basis of whether or not they report high, moderate, or low exposure to television, to the computer, and to print media. This classification (i.e., low, moderate, or high user of a particular medium) is then used to compare the three groups' exposure to other media and other media behaviors. Ideally, we would have liked to define the low and high exposure groups as the bottom and top 15% of children on each distribution of media time (for those with a statistical bent, cut-off points approximately 1 standard deviation from the mean). However, determination of low, moderate, and high exposure groups had to take into account

the fact that for some media many more than 15% of youngsters report zero exposure (e.g., the computer), and that for other media the top 15% begins almost at the mean. Our solution was to define the "low," "moderate," and "high" user groups on the basis of both what seemed reasonable in terms of the real time a child was exposed to a medium, in combination with what made sense given the distribution of exposure times for each medium produced by the students in our survey. Because of the differing distribution of actual time spent with these media between the in-home and in-school children, we chose to focus this analysis on the in-school sample.

The 8-18 year-olds were classified into Low, Moderate, and High Exposure groups on the basis of amount of previous day reading (all print media), television exposure, and computer use. Table 63 presents the number and proportion of youngsters who fell into each group for each of the three media, as well as the cut-off points (i.e., absolute amount of exposure) used to make those

TABLE 62

## Average Daily Media Exposure for 8-18 Year-Olds Earning "Good" Versus "Fair or Poor" School Grades

Medium	Good Grades	Fair/Poor Grades
Television	3:10 <sup>a</sup>	3:34 <sup>b</sup>
Taped TV Shows	0:14	0:18
Videos	0:28 <sup>a</sup>	0:35 <sup>b</sup>
Movies	0:16 <sup>a</sup>	0:30 <sup>b</sup>
Video Games	0:26	0:30
Computer (leisure)	0:32	0:28
Radio	0:47	0:54
CDs and Tapes	1:00 <sup>a</sup>	1:23 <sup>b</sup>
Reading (leisure)	0:47 <sup>a</sup>	0:35 <sup>b</sup>
Total Leisure Media	7:41 <sup>a</sup>	8:46 <sup>b</sup>

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

TABLE 63

## Number and Percentage of 8-18 Year-Olds in the Low, Moderate, and High Exposure Groups, for Reading, Television Viewing, and Computer Use

Medium/Cut points		Number	Percent
Print media			
None (0)	Low	416	20%
5 minutes to 1 hour	Moderate	1204	58
More than 1 hour	High	446	22
Television			
1 hour or less	Low	658	32%
1+ hours to 5 hours	Moderate	919	44
More than 5 hours	High	488	24
Computer			
None (0)	Low	1172	57%
5 minutes to 1 hour	Moderate	592	29
More than 1 hour	High	301	14

assignments. Thus, for example, youngsters who watched more than 5 hours of television the previous day are classified as in the High Exposure group for television, youngsters who did not read the previous day comprise the Low Exposure group for print media, and so forth.

Tables 64, 65 and 66 present mean daily media exposure time for Low, Moderate, and High Print, Television, and Computer groups. All three tables are presented together because, for the most part, the same story applies to each. First, and most striking, all three of these tables make it abundantly clear that high exposure to one medium tends to go with high exposure to most other media. The average figures for total leisure media exposure for each of the tables consistently show that youngsters in the High Exposure group for each of our three comparison media are exposed to substantially more other media than are youngsters in either the Low Exposure or the Medium Exposure groups. Compared to those in the low exposure groups, High Print Exposure kids report 2¼ hours more (non-print) media exposure than Low Print Exposure kids (Table 64); High TV Exposure youngsters are exposed to over 2½ hours more of (non-television) media per day than are Low TV Exposure youngsters (Table 65); High Computer Users claim over 4 hours more additional (non-computer) media exposure than Low Computer Users (Table 66). Moreover, of the 32 individual comparisons (8 comparisons x 3 tables), there is not a single instance in which Low Exposure children report more of any kind of media exposure than do High Exposure children. In other words, there is no evidence for displacement effects, at least among kids who are heavily exposed to print, to television, or to computers. High Exposure kids read more, watch more of everything, play more interactive games, listen to more music, and use the computer more.

It is also interesting to note that if we take the Medium Exposure groups as a baseline, youngsters in the High Exposure groups account for most of the difference. That is, for all three media comparisons (print, television, and computer exposure), there is relatively little difference between the Low Exposure and Medium Exposure groups in average daily media exposure (the 20 minutes more total media exposure reported by the Moderate Print Exposure group marks the greatest differential in any of the comparisons). In other words, low exposure to any of the comparison media does not necessarily go hand-in-hand with low exposure to other media. Rather, the action lies with those kids who define themselves as belonging to the High Exposure groups. They report much more additional media exposure than kids in either of the other two groups. In short, high exposure to televi-

sion, to print, or to computers is a good predictor of high exposure to most other media.

The large differences in the amount of additional media exposure reported by High Exposure youngsters in the three different comparison groups motivated us to explore the media behavior of Low, Moderate, and High Exposure kids a bit further. In response to relatively common concerns that heavy television use takes away from school work, we looked at whether the three exposure levels for each of the three media relate to school grades. These results, presented in Table 67, provide some evidence that print exposure is related to school performance. Significantly fewer kids who earn good grades fall into the low print exposure groups than into either the medium or high print exposure groups. Conversely, significantly fewer kids who earn fair or poor grades fall into the high print exposure group. In other words, kids who earn good grades are more likely than not to be recreational readers; kids who earn lower grades, on the other hand, are more likely to engage in little or no leisure print use. Television exposure is not related to either good or fair/poor grades.

We also looked at the relationship between the “family television environment” and whether or not a child was a low, medium, or high user of print, television, and computers. We compared the proportion of youngsters at each level of exposure who indicated (a) that the television was on in their household most of the time, (b) that the television was usually on during meals, and (c) that there were family rules about television viewing. Not surprisingly, Table 68-B shows that what we earlier labeled a “constant television household” is related to levels of television exposure. That is, a higher percentage of kids in the High Television Exposure group than in the Low or Medium Television Exposure groups inhabit households in which the television is “on most of the time” (63% to 35% and 46%, respectively; all differences statistically reliable), and a higher percentage of kids in the High Television Exposure group than in the Low or Medium Television Exposure groups come from homes where the television is on during most meals (77% to 57% and 64%, respectively). Perhaps a bit surprising, there is no difference among the three Television Exposure groups in the likelihood that their families have rules about television viewing.

Table 68-A shows that the pattern is reversed for the three Print Exposure Groups. That is, as print exposure increases, children are less likely to report either that the television is on most of the time in their household (High Print = 42%, Low Print = 55%, a reliable difference). Unlike the television comparison, however, High Print Exposure kids are significantly

TABLE 64

## Average Daily Media Exposure Among 8-18 Year-Old Low, Moderate, and High Print Users

Medium	Amount of Previous Day Print Exposure		
	Low	Moderate	High
TV	2:59 <sup>a</sup>	3:10 <sup>a</sup>	3:46 <sup>b</sup>
Taped TV programs	0:14 <sup>a</sup>	0:13 <sup>a</sup>	0:25 <sup>b</sup>
Videos	0:25 <sup>a</sup>	0:28 <sup>a</sup>	0:38 <sup>b</sup>
Movies	0:20 <sup>a</sup>	0:13 <sup>a</sup>	0:38 <sup>b</sup>
Radio	0:46	0:47	0:53
CDs and tapes	1:05 <sup>ab</sup>	1:02 <sup>a</sup>	1:14 <sup>b</sup>
Video games	0:22 <sup>a</sup>	0:26 <sup>a</sup>	0:35 <sup>b</sup>
Computer	0:18 <sup>a</sup>	0:29 <sup>b</sup>	0:50 <sup>c</sup>
<b>Total Media (less print)</b>	<b>6:26<sup>a</sup></b>	<b>6:46<sup>a</sup></b>	<b>8:56<sup>b</sup></b>

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

TABLE 65

## Average Daily Media Exposure Among 8-18 Year-Old Low, Moderate, and High Television Users

Medium	Amount of Previous Day Television Exposure		
	Low	Moderate	High
Reading (leisure)	0:42 <sup>a</sup>	0:41 <sup>a</sup>	0:53 <sup>b</sup>
Taped TV programs	0:08 <sup>a</sup>	0:14 <sup>b</sup>	0:28 <sup>c</sup>
Videos	0:23 <sup>a</sup>	0:27 <sup>a</sup>	0:42 <sup>b</sup>
Movies	0:14 <sup>a</sup>	0:16 <sup>a</sup>	0:35 <sup>b</sup>
Radio	0:48 <sup>a</sup>	0:41 <sup>b</sup>	1:00 <sup>c</sup>
CDs and tapes	1:11 <sup>a</sup>	0:58 <sup>b</sup>	1:13 <sup>a</sup>
Video games	0:20 <sup>a</sup>	0:23 <sup>a</sup>	0:44 <sup>b</sup>
Computer	0:23 <sup>a</sup>	0:28 <sup>a</sup>	0:48 <sup>b</sup>
<b>Total Media (less television)</b>	<b>4:09<sup>a</sup></b>	<b>4:08<sup>a</sup></b>	<b>6:19<sup>b</sup></b>

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

TABLE 66

## Average Daily Media Exposure Among 8-18 Year-Old Low, Moderate, and High Computer Users

Medium	Amount of Previous Day Computer Exposure		
	Low	Moderate	High
Reading (leisure)	0:39 <sup>a</sup>	0:46 <sup>b</sup>	1:04 <sup>c</sup>
TV	3:06 <sup>a</sup>	3:05 <sup>a</sup>	4:13 <sup>b</sup>
Taped TV programs	0:14 <sup>a</sup>	0:13 <sup>a</sup>	0:24 <sup>b</sup>
Videos	0:26 <sup>a</sup>	0:28 <sup>a</sup>	0:44 <sup>b</sup>
Movies	0:17 <sup>a</sup>	0:14 <sup>a</sup>	0:41 <sup>b</sup>
Radio	0:43 <sup>a</sup>	0:41 <sup>a</sup>	1:21 <sup>b</sup>
CDs and tapes	0:59 <sup>a</sup>	1:00 <sup>a</sup>	1:38 <sup>b</sup>
Video games	0:25 <sup>a</sup>	0:20 <sup>a</sup>	0:49 <sup>b</sup>
<b>Total Media (less computer)</b>	<b>6:51<sup>a</sup></b>	<b>6:47<sup>a</sup></b>	<b>10:55<sup>b</sup></b>

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

more likely than either Medium or Low Print Exposure kids to come from families with rules about television viewing (47% vs. 37% and 32%, respectively).

Finally, level of previous day exposure to the computer locates no reliable differences in how youngsters answer the television environment questions (Table 68-C).

An interesting pattern does emerge when attitudes toward television and computer are examined as a function of 8-18 year-olds’ level of exposure to print, television, and the computer. As Table 69 shows, regardless of which medium we examine, from a quarter to a third of the youngsters in the High Exposure groups say that they learn something interesting “most of the time” they watch television or use the computer. Although this is substantially fewer than those who say they are entertained by television and computers (from half to three quarters of the kids say this), it is interesting to note that “learning” is the single attitudinal statement that consistently differentiates High Exposure kids from Low and Moderate Exposure kids, even though the percentage differences are not always statistically reliable (see Table 69). That is, the percentage of kids in the High Exposure groups who say they learn interesting things when they watch television and use a computer is always higher than the percentage from the Low or Moderate Exposure groups – and some of the differences are substantial. For example, for previous day reading, 32% of High Exposure versus 14% of Low Exposure kids claim to learn from television and 36% of High Exposure versus 19% of

Low Exposure kids claim to learn from the computer. The differences are not quite so large for previous day computer use (a 6% difference for television and a 10% difference for computers), and are smallest for previous day television use (6% and 7%, respectively), but they are consistently in the same direction. In short, kids who are more heavily exposed to each of the three comparison media more readily state that they learn interesting things when they watch television and when they use computers.

The other notable difference to emerge in Table 69 appears when kids in the Low, Moderate, and High Computer Exposure groups evaluate the entertainment value of computers. Four in ten (40%) Low Exposure kids – in reality, kids who did not use the computer the previous day – say that they are entertained “most of the time” when they use computers. This is the lowest proportion of any of the three groups of Low Exposure children claiming to be entertained by either television or computers. Conversely, High Computer Exposure kids – those who used the computer for more than an hour the previous day – are substantially more likely than any other exposure group to claim to be entertained by computers: 78% say they are entertained most of the time. The next highest proportion claiming to be entertained consists of kids in the High Print Exposure group when they are asked about television (64%).

TABLE 67

Percentage of 8-18 Year-Olds in Low, Medium and High Media Use Groups Reporting Good or Fair/Poor School Grades

A. Print

School Grades	Amount of Previous Day Reading		
	Low	Medium	High
Good	57% <sup>a</sup>	65% <sup>b</sup>	68% <sup>b</sup>
Fair/Poor	37% <sup>a</sup>	30% <sup>ab</sup>	23% <sup>b</sup>

B. Television

School Grades	Amount of Previous Day Television Viewing		
	Low	Medium	High
Good	61%	68%	60%
Fair/Poor	29%	27%	35%

C. Computers

School Grades	Amount of Previous Day Computer Use		
	Low	Medium	High
Good	62%	66%	66%
Fair/Poor	34% <sup>a</sup>	22% <sup>b</sup>	29% <sup>ab</sup>

Note: All percentages based on column totals; columns may not sum to 100% due to rounding error, and because some youngsters failed to report school grades. Within each row and sub-group, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

TABLE 68

### Percentage of 8-18 Year-Olds in Low, Medium, and High Media Use Groups from Constant TV Households or Households with TV Viewing Rules

#### A. Print

Television environment	Amount of Previous Day Reading		
	Low	Medium	High
Television on in household “most of the time”	55% <sup>a</sup>	46% <sup>b</sup>	42% <sup>b</sup>
Television usually on during meals	69	66	59
Family rules about television viewing	32 <sup>a</sup>	37 <sup>a</sup>	47 <sup>b</sup>

#### B. Television

Television Environment	Amount of Previous Day TV Viewing		
	Low	Medium	High
Television on in household “most of the time”	35% <sup>a</sup>	46% <sup>b</sup>	63% <sup>c</sup>
Television usually on during meals	57 <sup>a</sup>	64 <sup>a</sup>	77 <sup>b</sup>
Family rules about television viewing	39	38	35

#### C. Computers

Television Environment	Amount of Previous Day Computer Use		
	Low	Medium	High
Television on in household “most of the time”	48%	43%	50%
Television usually on during meals	67	61	64
Family rules about television viewing	38	40	33

Note: All figures represent the percentage of youngsters answering yes. Within each row, only those proportions that do not share a common superscript differ from one another with statistical reliability. Those proportions without a superscript, or those that share a common superscript, do not differ by a large enough margin to ensure statistical reliability.

TABLE 69

### Attitudes Toward Television and Computers Among 8-18 Year-Old Low, Moderate, and High Users of Print Media, Television, and Computers

#### A. Print

When I watch/use...I am:	Attitudes toward television			Attitudes toward computers		
	Low	Medium	High	Low	Medium	High
Entertained “most of the time.”	51%	55%	55%	43%	51%	52%
Learning interesting things “most of the time.”	14 <sup>a</sup>	17 <sup>a</sup>	32 <sup>b</sup>	19 <sup>a</sup>	25 <sup>a</sup>	36 <sup>b</sup>
Just killing time “some” or “most of the time.”	56 <sup>a</sup>	50 <sup>ab</sup>	45 <sup>b</sup>	33	33	31

#### B. Television Exposure

Entertained “most of the time.”	46% <sup>a</sup>	54% <sup>b</sup>	65% <sup>c</sup>	48%	49%	54%
Learning interesting things “most of the time.”	17	20	23	23	27	30
Just killing time “some” or “most of the time.”	54	51	45	33	35	28

#### C. Computers

Entertained “most of the time.”	54%	54%	54%	40% <sup>a</sup>	56% <sup>b</sup>	78% <sup>c</sup>
Learning interesting things “most of the time.”	19	18	25	23 <sup>a</sup>	29 <sup>ab</sup>	33 <sup>b</sup>
Just killing time “some” or “most of the time.”	51	49	52	30	33	39

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



## VIII. SUMMARY AND CONCLUSIONS

As far as we have been able to determine, this is the first study in at least several decades to gather information about all kinds of media behaviors from a nationally representative sample of American youth. A few other national surveys have looked at children's use of some – but not all – media, typically focusing on amount of use (e.g., how much time is devoted to television viewing), but we have found no study that has asked a representative sample of kids how much time they spend, how often, with what kinds of content, through which media, under what kinds of conditions. Arguably, then, it is the first study that enables us to sketch a complete picture of U.S. children's overall media behavior at the beginning of the 21st century.

As the results of this study show, there can be little argument that the sobriquet “Media Generation” fits the current cohort of American youth as they meet the new century. Today's kids spend more time with more media than any generation before them, and there is every reason to assume that their media use and exposure will continue to increase. The environment of today's youth – their homes, their schools, the automobiles they ride in, and, we suspect, most of their other gathering places – is filled with media of all kinds. Their bedrooms contain televisions, print materials, radios and audio systems, gaming systems, and with growing frequency, computers. They can choose content from dozens of television channels and radio stations, hundreds of print publications, thousands of videos, and virtually an unlimited number of World Wide Web sites. More and more they exercise the opportunity to carry portable – indeed, even miniaturized – versions of most media with them wherever they choose to go, and it is not unusual to see a youngster use two, even three, media simultaneously. It is no exaggeration to say that in the U.S. today the average junior high stu-

dent spends more time with media than he or she devotes to any other waking activity – they give almost 7 hours per day to media, and because they often use several media simultaneously, they are exposed to over 8 hours per day of media content.

On the other hand, in addition to illustrating that the average U.S. 12 year-old is awash in media messages, the results of this study also demonstrate that there may be nothing so elusive as “the average kid.” Every bit as noteworthy as the substantial amounts of time that some youngsters devote to communication media is the remarkable variation among kids in how much of what they are exposed to, and under what conditions. Some kids encounter media a good deal more than 8 hours per day, others a good deal less. Some kids devote most of their media time to television, others to print, others to music media. Variations in media behavior are related to age, race and ethnicity, gender, household socioeconomic status, and various indicators of social and psychological adjustment. Finally, the findings from this survey seem to call into question several stereotypes attached to popular conceptions of the media behavior of today's kids. For example, the popular contention that today's kids may be giving up the television screen in favor of the computer screen does not receive much support, nor does the claim that television has killed reading. In short, the data from this study give us a profile of today's young media user with the kind of detail never before available, and the picture it paints is not always the one that might have been expected.

In these final few pages, then, we will summarize some of the major findings to emerge from this survey of the media behavior of American youth, and will offer a few observations concerning what the findings may tell us about today's youngsters and the kinds of messages most likely to reach them.

**The media environment.** Clearly, our children are immersed in media. The typical American child enters the 21st century living in a household with three television sets, two VCR's, three radios, three tape players, two CD players, a video game system, and a computer. Since most media have reached saturation levels in most households, such factors as household income or parental education levels do not differentiate among a child's likelihood in having access to most media. Of the two media that have not yet diffused to all kids – computers and video game systems – only computer ownership varies systematically with such things as income and race. Children are more likely to be in a household with a computer if they live in a community where the median annual household income exceeds \$40,000, and if they are Caucasian. On the other hand, there is at least tentative evidence that youngsters from lower income communities and from minority households have a good deal of access to computers in their schools.

Our results reveal that a remarkable number of children have their own personal media – that is, media in their bedrooms. Over half of children have televisions, tape players, or CD players in their bedrooms; 70% report having their own radios; a third have video game systems. Although the likelihood of youngsters having media in their bedrooms increases as children get older, parents tell us that a substantial percentage of even the very youngest children have media in their bedrooms. Over a quarter of 2-4 year-olds have televisions and a third have radios in their bedrooms; by 5 through 7 years, almost 40% have TV sets and over half have radios. There are also variations in personal bedroom media related to socioeconomic indicators and to race/ethnicity, but the differences are not always in the expected directions. Our admittedly rough indicators of socioeconomic status reveal a relatively slight tendency for more kids from higher income and higher education households to have computers in their bedrooms. On the other hand, just the reverse is true for television; higher proportions of kids from lower income and lower education households have televisions in their bedrooms. Differences in frequency of bedroom media are also located by race/ethnicity. African American kids are substantially more likely than either Hispanics or Whites to have both a television (indeed, a television with a VCR and cable access) and a video game system in their bedroom.

**Media exposure/media use.** Today's children not only inhabit a world teeming with media, they devote a great deal of time to using media. It is a rare child who is unexposed to media on any given day, and most kids actively use at least one or

two different media on a daily basis, and many use several media simultaneously. On any given day, only 5% of youngsters are exposed to media for an hour or less, and almost three quarters are exposed for 3 hours or more. The average child in our sample between 2 and 18 years actively gives 5½ hours per day of his or her available time to media. Moreover, by dint of using several media simultaneously, most kids are typically exposed to at least an additional hour of media content each day – 6½ hours of daily exposure to media content. Indeed, it is worth emphasizing that this is one of the few studies ever to attempt to differentiate between children's media use (the amount of their daily time that kids spend with media) and media exposure (the additional hours of media kids are exposed to because they are using several media simultaneously). Our results indicate that kids encounter from 14% to 18% more additional media content per day (in units of time) because of such overlapping exposure.

Media exposure begins quite early – average daily media exposure among 2-4 year-olds is well over 4 hours – and increases rapidly from the preschool years onward. Media use peaks at about 6¾ hours daily and exposure at just over 8 hours daily around 12 or 13 years of age, just before kids enter middle school or junior high school. Then, as they face the academic and social demands of these new school settings, overall media use and exposure begins to decline a bit, and the mix of media making up the total media diet changes somewhat.

Television dominates the media budget throughout childhood and adolescence, but its dominance wanes substantially during later teen years. By 14 through 18 years, television viewing declines and use of music media increases until the two are almost neck-and-neck. Indeed, were it not for the increased time adolescents devote to music (radio music, CDs, and tapes), the drop off in total media use beyond 13 years of age would be even more dramatic. That is, high school students reduce not only their time watching television, but they read less, play video games less, and go to movies less. Again, we suspect this has to do with the myriad other demands placed on teenagers' time, and it points to the hypothesis that one of the best predictors of media use is available time – time not filled by other, more structured and/or more attractive activities.

Finally, there is no question that over the past decade new media such as computers and video games have begun to vie for and win a significant chunk of young people's media time. Nevertheless, it is quite clear that "traditional media" still claim the lion's share of attention. For example, on any given day 42% of 2-18 year-olds report using a computer either at home or at school, and 30% report playing a video game. On the other hand,

68% listen to radio, 82% engage in recreational reading, and 83% watch television. In terms of time devoted to each medium, data from the supplemental diaries indicate that computers and video games take up about 10% of the average 2-18 year-olds daily media budget, while television alone accounts for 42% of all media exposure time.

**Sub-group differences in media use.** On average, African American kids are exposed to 2 more hours of media content per day than White kids, and Hispanic kids spend about one hour more per day. Most of the difference is accounted for by television exposure, although African American youngsters also report more time with taped TV shows, movies, and video games. Television also accounts for about 10% more of African American children's overall media budget than it contributes to White kids' total media budget. Television's attraction for African American kids is also reflected in their responses to several of the attitudinal questions. More Black kids than White say they learn interesting things from television, and fewer say they are just killing time when they watch.

High overall media exposure is inversely related to socioeconomic status, although the pattern is mixed depending on whether exposure is examined in relation to community income levels, parent education, or family composition. Kids who live in or go to school in communities where the annual median household income is over \$40,000 report about an hour less daily media exposure than kids from communities with lower median household incomes. Youngsters in the higher income group report a few minutes more of daily print use and daily computer use, but trail their counterparts from the lower income subgroups in time devoted to most other media – the difference ranging from a few minutes to about half an hour (again, for television). The pattern is more mixed when media exposure is examined as a function of parent education. Kids whose parents completed no more than high school continue to be the heaviest users of media, but next in line are those who parents completed college, with the least exposure reported by kids in the middle group, whose parents completed some college. The differences range from 15 minutes (some college vs. completed college) to 35 minutes (some college vs. completed high school). Finally, kids from single-parent families spend over an hour more per day with media than kids from two-parent households. The overall picture from our three indicators of socioeconomic status, then, is that media exposure increases as household resources decline.

Several factors may account for children's increased media use as socioeconomic level declines. One concerns the relation-

ship between economic resources and the number and variety of activities available to kids. As noted in relation to age differences in media exposure, a possible explanation for some of the variation is simply available alternatives: as attractive alternatives to media use become available, media use declines. A similar mechanism probably operates in relation to socioeconomic status. To the extent that fewer attractive alternatives exist in lower income neighborhoods, children may turn to media as an easily available alternative.

Earlier studies (e.g., Bower, 1973, 1985) have found that as education levels increase, attitudes toward many of the media – particularly screen media – become less positive, implying that families in which the parents have completed college might place more restrictions on at least some kinds of media use. This line of argument is supported by results on our measures of the child's household television environment. They show that television is substantially more likely to be on “most of the time,” and during meals for children who live in households where parents completed no more than high school than in those where parents completed college. Similar findings emerge for levels of community income and for family composition: lower socioeconomic levels are related to more “constant television.” In the same vein, children who live in homes where high school is the highest level of their parents' education are also those least likely to have family rules about television viewing.

**Heavy vs. light media use.** An interesting finding to emerge from this study is how little support it provides for the “displacement hypothesis,” that is, the idea that when new media come along and children begin to adopt them, they will necessarily reduce the amount of time they devote to older media. There may be such a shifting in the proportions of time different media contribute to the overall media budget among children who spend a moderate or small amount of time with media, but no such displacement effect emerges among heavy media users in this study. When we looked at 8-18 year-olds who use television, the computer, and print a great deal (roughly the 20% of youngsters who used each medium the most), we found that heavy use of one medium was strongly associated with heavy use of most others. For example, the 24% of in-school kids who watch television more than 5 hours daily use other media over 2 hours more per day than do kids who watch less television; the 22% of 8-18 year-olds who read more than an hour per day use other media over 2 hours per day more than do those who read less. And most remarkable, kids who spend more than an hour per day on the computer use other media over 4 hours per day more than those who use the computer

less or not at all. It seems that there is a small, but by no means trivial, cohort of kids who are simply into media — a group well worth further examination.

**Computers.** The computer, of course, is the newest addition to the large array of media available to American youth. As such, it has received a great deal of attention and comment. Images in the popular press of kids devoting hour upon hour to interactive games, surfing the Web (often, we are told, to visit violent or sexually explicit sites), or jabbering away in teenage chat rooms are not uncommon. Also familiar are predictions that because the computer and its link to the Internet offers today's youth fingertip access to more information than any generation before them has even dreamed of, it is rapidly changing most youngsters' media behavior. There probably is some truth to each of these conceptualizations of how today's youth use the computer, but as already noted the results of this study indicate that we have a way to go before the computer and the linkages it enables become the heart of young people's media experience. Given that about 40% of kids use computers on any given day, it is not surprising that the average U.S. youngster spends only about half an hour a day with the new medium (only about 20 minutes if one excludes school and work), substantially less time than they give to non-interactive screen media (i.e., television, videos, taped TV programs and movies), to audio media, or to print.

On the other hand, those who use computers tend to use them a great deal. For example, among 8-18 year-olds, those kids who used computers the previous day used them more than any other medium but television. They average over 1½ hours per day with a computer when recreational use and in-school use are combined (compared to 45 minutes spent with print media, about an hour given to CDs and tapes, and 45 minutes with the radio).

We did uncover evidence that a "digital divide" does indeed exist — that young people's access to and use of computers does vary substantially by median income of the community in which they live or go to school, and, to a lesser degree, by race. Those children who live or go to school in low-income areas have much less access to computers at home, and are much less likely to use a computer in a typical day, than are those youngsters who live or go to school in higher income areas. Similarly, Black and Hispanic children also have much less access to computers at home. Hispanic youngsters are less likely than White children to use a computer. Interestingly, Black, Hispanic and White kids average the same amount of time using computers each day, because although kids from minority groups are somewhat less likely than White kids to use a computer in a typical day, those

who do sit down at the keyboard tend to stay there longer. We believe these data testify to the importance of programs designed to make computers available in schools, where slightly more minority than white youth use computers on any given day. When access is made available, kids without computers at home spend as much (or more) time using them as do kids who can logon within their own households.

Finally, the frequently noted gender gap in time spent with computers, while real, is not very large, and it is limited almost exclusively to the fact that boys play more games than girls. In the total sample, boys 8 and older spend 10 minutes more per day than girls with the computer; in the sub-sample of computer users, boys in this age group spend about 20 minutes more per day than girls. But when computer games are removed from the equation, there is no gender difference in time spent with computers.

**Gender differences.** The two major differences we found between how boys and girls use media are that boys spend more time playing games — both video and computer games — and that they have a much stronger preference for media content related to sports or action/adventure. Whatever the medium, boys choose sports or action-related content more than girls — whether it is in their choice of TV shows, computer games, videos or magazines. Girls are much more likely to read teen or entertainment-related magazines; they also listen to more music than boys (20 minutes more a day), and watch a little less TV (about 20 minutes less a day).

**Music tastes.** The only other striking differences in terms of content preferences emerge in racial differences in older children's tastes in music. Although most teenagers are heavy consumers of popular music, and although two genres — rap/hip-hop and alternative rock — dominate most teenagers' listening, kids from different racial and ethnic backgrounds consume different music diets. African American teens immerse themselves almost exclusively in rap and hip-hop, which are the overwhelming favorites among African American teenagers (84% listen to this genre), although substantial percentages also listen to rhythm & blues and to gospel. No other music genre attracts more than 5% of Black kids. White adolescents, on the other hand, spread their listening out over a number of different genres. Rap/hip-hop is the second most preferred genre among White adolescents, second only to alternative rock. In addition, a lot of White kids spend time listening to hard rock and heavy metal, and 10% or more of them of them listen to country & western, to classic rock, to soft rock,

and to ska or punk. Finally, Hispanic teenagers listen to the most varied types of music. Rap/hip-hop ranks as their favorite, followed by alternative rock, but over 15% of them also listen to latin/salsa. In addition, 10% or more of Hispanic teenagers listen to hard rock/heavy metal, to rhythm & blues, and to soft rock.

**Absence of adults.** Another finding that emerges from this study concerns the substantial amount of children's media exposure that occurs absent adult presence. In light of recent public concern about youth and media voiced everywhere from local PTA meetings, to the mass media, to the halls of Congress, it is somewhat surprising to discover not only how many youngsters have their own personal media, but how many spend much of their media time either alone or with other children, rather than with adults.

Given that half of all children and two thirds of older kids have their own televisions, not to mention the almost complete saturation of music media in older children's bedrooms, it should not be surprising that kids spend a great deal of their media time in their own rooms. Half of their reading, a fifth of their television viewing, and a third of their music listening and video game playing occurs in kids' bedrooms. Small wonder that so much of youngsters' media exposure is solitary. Almost 15% of the youngest and a full third of the oldest youngsters watch television "mainly alone." The numbers for solitary use of other media are even larger. Among junior and senior high school students, over 60% of all computer time is spent mainly alone; so too is more than a quarter of the time they spend watching videos.

Moreover, when kids are not using media alone, they are substantially more likely to be with other kids (siblings or peers) than with their parents. Even during the evening hours, when parents are most likely to be available, only 2-7 year-olds are more likely to watch television with a parent than with siblings or peers; from 15% to 20% more older kids watch evening television with other kids than watch with a parent. And again, the differences get much larger with other media. For example, 11% of 7th through 12th graders go to the movies with parents – 60% attend motion pictures with siblings or peers. Responses to the one other question that taps into parental controls on children's media use – the item about whether there are rules about television viewing in the household – also converge with this picture of the unsupervised media behavior of a large proportion of kids. Over 70% of the parents of the 2-7 year-olds in our in-home sample state that there are rules about television viewing in their household, but this figure declines rapidly with age. Forty-seven percent (47%) of 8-13 year-olds said they experience such controls; 25% of kids 14 years and

older have such rules. The likelihood of there being rules about viewing television in a family also declines as the household income goes down, as the level of parent education goes down, and as the number of parents in the household goes down – all factors associated with increased media exposure. But regardless of socioeconomic level, or any other demographic characteristic, only half of children live in households that have such rules, and by the time children enter the third grade, the likelihood of there being family television viewing rules drops off rapidly.

Perhaps it is because the media have become such a ubiquitous part of our environment, perhaps it is because many parents do not really believe that media messages make all that much difference in their children's lives (maybe in some other children's lives, but not *their* child's life), perhaps it is simply because the demands placed on most of today's parents make monitoring their children's media behavior too difficult a task – but whatever the reason, it appears that more and more children spend more and more time with media messages absent adult supervision, adult oversight, adult presence, or an adult game plan.

**Attitudes toward media.** Clearly the great attraction of most media for most kids is entertainment – kids simply want to be diverted and have fun. Not surprisingly, a majority of youngsters say that this is precisely what television and computers do for them; 50% or more say that when they watch television or use a computer they are entertained "most of the time" (fewer than 10% say they are never entertained by television and fewer than 20% say this about computers). On the other hand, kids also realize that a substantial part of their media use occurs simply to "kill time," although that kind of a response is more associated with television than with computers. In other words, a substantial proportion of youngsters is quite aware that the same media can serve several different functions, some of which are perhaps more positive than others.

**Psychological and social adjustment.** Finally, some of the more intriguing findings from this study have to do with the relationship between media behavior and kids' scores on what we have called a "Contentedness Index," an index based on a number of items assessing youngsters' social and psychological contentment and/or adjustment. Although even kids who scored lowest on our Contentedness Index seem to be relatively contented (that is, they are not particularly unhappy), when their media behavior is compared with those in the middle or high groups, some interesting differences are revealed.

First and most important, less contented kids (who, it must be emphasized, we do not mean to say are *discontented*) spend more time with almost all media than do kids who fall into the most contented/well-adjusted group. The Contentedness Index also reveals that substantially more kids who score high on the index than kids who score lower on the index come from families where there are controls on watching television. Similarly, kids from the High Contentedness group tend to be less likely to inhabit “constant television households” – that is, live in households where the television is on during meals. In short, there is a fairly strong and consistent negative relationship between a measure of contentedness and amount of media exposure.

Of course, the fact that kids in the lowest group on the Contentedness Index were not all that discontented leaves some questions unanswered. We cannot say, for example, if the negative trend would continue with kids who are extremely discontented. (A good theoretical case can be made that very unhappy kids might consume very little media content.) Moreover, it is not possible to make any kind of causal inference on the basis of these results. We cannot say whether less happy kids are motivated to use more media or whether increased media use decreases kids’ happiness, or both, or whether some third factor(s) leads quite independently to both outcomes.

**The need to pay attention.** What is apparent, particularly in light of the central role that media play in the lives of today’s young people – central at least in terms of the time devoted to media and the vast amount of information media messages appear to provide – is that our findings point to a critically important question that warrants further exploration. Anything strongly related to the psychological and social adjustment of children deserves attention. Similarly, anything that impinges on them for half of their waking hours deserves attention. When the two come together in the form of results showing that scores on a measure of children’s contentedness and social adjustment are strongly and inversely related to amount of media exposure and to at least some common aspects of kids’ media environment, alarms should sound.

Similarly, the absence of a strong parental role in overseeing children’s media behavior is worthy of note. It is fairly clear that furnishing youngsters’ bedrooms with various media increases overall media exposure, particularly exposure that occurs without an adult presence. And yet, over half our children have a TV, a radio, a tape player and a CD player in their bedroom. There is also evidence that having television constantly available in a household is associated with increased media exposure. And yet, over 40% of our children say they live in households where “the TV is on most of the time even if no one is watching,” and almost 60% say it is on during most meals. And 50% of our children say no such rules operate in their homes. The point is, these are all conditions that parents can control. Parents can decide that television viewing or computer use is to be a family activity, and insist that those media be available only in common areas of the household. Parents (and children) can resolve to reduce use of media for background purposes, for example, turning the television set off when no one is watching or turning it on only when there is some particular program that someone wants to watch (less watching television, more watching television programs). Finally, parents and children can negotiate some ground rules governing family media use, guidelines that cover all media (not just television).

For most kids, most of the time, most media are a diversion – mostly entertaining, sometimes little more than a way to kill time, sometimes a source of new and interesting information, often a background activity that functions more like wallpaper than something kids actively “do.” Nevertheless, for most kids most of the time, media are ubiquitous. American youth spend more time with media than with any single activity other than sleeping. Substantial numbers spend the bulk of their media time absent adult presence; almost all spend at least some of their media time alone; many spend more media time with other kids than with parents.

Nothing that plays this much of a role in the lives of our children can be dismissed as simply a pastime or a diversion. Anything that plays this much of a role in the lives of children deserves our attention.

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