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Use of the Computer and Internet among Italian Families: First National Study

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ABSTRACT

Although home Internet access has continued to increase, little is known about actual usage patterns in homes. This nationally representative study of over 4,700 Italian households with children measured computer and Internet use of each family member across 3 months. Data on actual computer and Internet usage were collected by Nielsen//NetRatings service and provide national baseline information on several variables for several age groups separately, including children, adolescents, and adult men and women. National averages are shown for the average amount of time spent using computers and on the Web, the percentage of each age group online, and the types of Web sites viewed. Overall, about one-third of children ages 2 to 11, three-fourths of adolescents and adult women, and over four-fifths of adult men access the Internet each month. Children spend an average of 22 hours/month on the computer, with a jump to 87 hours/month for adolescents. Adult women spend less time (about 60 hours/month), and adult men spend more (over 100). The types of Web sites visited are reported, including the top five for each age group. In general, search engines and Web portals are the top sites visited, regardless of age group. These data provide a baseline for comparisons across time and cultures.

INTRODUCTION

The computer and Internet have become so vital to business, education, communication, and entertainment that they no longer can be viewed as a luxury of the few and the rich; they are an essential resource for all. The impacts of the computer and Internet on society are multifaceted and far-reaching, and therefore, understanding how families use the them is important. The present study provides national baseline information on how Italian families use computers at home.

Technology influences behavior; even the simplest form of technology can influence individuals by restricting behaviors or enforcing rules. Latour[1] noted, "Early this morning, I was in a bad mood and decided to break a law and start my car without buckling my seatbelt. My car usually does not want to start before I buckle up the belt. It first flashes a red light 'FASTEN YOUR SEAT BELT!', then an alarm sounds; it is so high pitched, so relentless, so repetitive, that I cannot stand it. After ten seconds I swear and put on the belt. This time, I stood the alarm for twenty seconds and then gave

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in." Latour's description illustrates how technology is engineered to limit or impose behaviors. However, much remains to be learned about "digital behaviors."

The impact of information technology on individuals and society has only recently begun to be studied systematically. For example, there is a growing body of research on the effects of violent video games on aggressive thoughts, feelings, and behaviors,[2–4] on the effects of video games on visual attention,[5] on video game play and surgical skills,[6] on the uses of information technology to create digital archives of health and social information,[7] and on the potential for pathological use of the Internet, computers, and video games.[8–12] These and other demonstrated potential effects of digital media demonstrate the importance of having some statistical data about the distribution and use of computer and Internet inside individuals' homes. Parents are often the ones who pay for computers and Internet connections, and usually they are the ones who decide where to place them in the home. Interestingly, it has been found parents place the computer either in children's bedrooms or in family rooms.[13] In addition, parents rarely set boundaries for the use of video games and computer/Internet.[13] It is unclear, however, how well these data generalize to families in Italy.

In Italy, 56.5 million people (households) have had Internet access for at least 2 years at home. In 2004, 9.2 million had Internet access and 21.2 million families in 2005 with an average of 2.7 people in each household have Internet access at home. Almost two-thirds (65%; 31.7 million) of Italians aged 16 and older have Internet access, with 29% of them having access at work and 55% having access at home.[14]

The number of Italian families with home computers has been rising steadily: 46% in 2002, 53% in 2003, and 58% in 2004.[14] Home Internet access among families with computers has remained relatively steady (80% in 2002 and 2003, 81% in 2004), but this rate indicates that home Internet access is increasing, since the percentage of families with computers continues to rise. The percentage of Italian families with home Internet access has risen from 34% (7.3 million) in 2002 to 38% (8.1 million) in 2003, and to 43% (9.2 million) in 2004.[14]

These trends indicate that computers and the Internet are becoming a part of everyday life. Home uses of the Internet have rarely been examined. The present representative national study was designed to provide the first benchmark data on how computers and the Internet are used in homes throughout Italy.

METHOD

Participants

Data were collected January through March 2005. The sample was a nationally representative panel of Italian households, including individuals from age 2 to over 65. The sample size was 4,811 individuals in January; 4,750 in February; and 4,714 in March. Across the 3 months, 11,602 were male and 8,017 were female. The sample was initially contacted by Nielsen//NetRatings by random-digit dialing, which generates an equal probability sample of residential phone numbers. Households are interviewed during the initial recruitment call to identify households eligible to be in the panel (i.e., they have a computer and Internet access at home). Up to 15 contact attempts are made to ensure that all eligible households are identified and recruited. Households that agree to participate in the panel are mailed a membership packet including the tracking software and installation instructions.

Measurement of Internet activity

Measurement of Internet activity is designed to be unobtrusive. After installation and completion of a demographic profile, panel member households with multiple computer users see a screen at the beginning of each browser session that asks them to identify the particular active member. This is the only nontransparent measurement from the panel members' perspective. All data is securely and unobtrusively transmitted to Nielsen//NetRatings in real time as each panel member browses the Internet. No activity is required on the part of panel members to record Internet activity or save or transfer data. What is unique is that the data reported here are not based on self-reports of activity but are actual measurements of computer activity by each participating person.

Population reporting method

Nielsen//NetRatings provides data generalizing to the general Italian population from the panel. To provide population statistics, each panelists' data are weighted on the basis of sex, age, household income, education level, and region of the country. With sample sizes of approximately 4,700, data generalizations about the entire population are accurate to $\pm 3\%$ with a 95% confidence level.

Data were grouped six ways: children aged 2–11, adolescents 12–20, males 35–44, males 45–55, females 30–40, and females 41–51. Because the data were pro-

vided as population statistics, inferential statistical comparisons between groups are not possible and are not presented here. The data are entirely descriptive, and they provide a strong population baseline snapshot at the beginning of 2005 across Italy.

RESULTS

Average monthly computer and Internet time

Table 1 displays the average amount of use of computers and the Internet for the total population and each age group. Surprisingly, even young children access the computer on average once a day for a total of 22 hours per month, and adolescents average more than three sessions a day for an average of 87 hours per month spent on the computer. Adolescents' computer use is not much lower than the two groups of adult males, but adolescents are heavier computer users than the two groups of adult females. This pattern is similar when examining the amount of computer time specifically spent on the Internet. Young children spend an average of 13 hours per month on the Internet, with adolescents tripling that time (39 h/mo). It is interesting that use of the Internet as a percentage of total computer time decreases as the total amount of computer time increases. That is, young children spend the least amount of time on the computer (M = 22 h/mo on average) but have the highest percentage of time spent on the Internet (58% of computer time is spent on the Web), whereas adult males, aged 45 to 55, spend the greatest amount of time on the computer (M = 115 h/mo) but have the lowest percentage of time spent on the Internet (39%). Because this study measured only home use of the computer, this pattern cannot be due simply to heavier computer users being required to use computer programs more frequently than they access the Internet.

The bottom half of Table 1 displays the average number of Internet users each day of the week across Italy, and Figure 1 displays the percentage of each age group that these averages represent. On any given day, about 4% of children aged 2 to 11 access the Internet from home. The age groups and sexes differ on how likely they are to access the Internet, with adult men the most likely group to use the Internet. Yet, what is perhaps most striking is how little it varies day to day, by no more than 5% during the week.

When analyzing the times of day that people access the Internet from home, there is much greater variation. Figure 2 displays the percentages of each age group and sex that access the Internet each hour of the day (averaged across all days in March 2005). As would be expected, Internet use is highest for young children in the daytime between 8 a.m. and 6 p.m., but for all older age groups, Internet use is highest in the afternoon and evening.

Table 1. Average Use of Home Computers and the Web and Average Daily Internet Audience Size, Split by Group

	Children 2–11	*Adolescents 12–20*	*Males 35–44*	*Males 45–55*	*Females 30–40*	*Females 41–51*
PC sessions/person/mo	29/mo	102/mo	138/mo	140/mo	81/mo	69/mo
PC time/person/mo	22 hrs	87 hrs	103 hrs	115 hrs	64 hrs	57 hrs
Web sessions/person/mo	23/mo	75/mo	80/mo	83/mo	61/mo	50/mo
Web time/person/mo	13 hrs	39 hrs	41 hrs	45 hrs	30 hrs	26 hrs
Web pages/person/mo	1002/mo	3535/mo	3669/mo	3826/mo	2619/mo	2314/mo
Percent Web time	58%	45%	40%	39%	48%	46%
Average daily audience	*Children 2–11*	*Adolescents 12–20*	*Males 35–44*	*Males 45–55*	*Females 30–40*	*Females 41–51*
Monday	40,188	623,642	492,411	484,868	249,146	171,360
Tuesday	40,083	622,717	493,897	484,868	255,507	191,504
Wednesday	38,846	609,249	488,355	485,472	243,758	196,645
Thursday	44,847	596,891	498,693	473,624	251,331	183,551
Friday	43,476	617,331	473,460	439,423	239,835	176,799
Saturday	40,746	564,794	523,873	469,749	219,934	157,562
Sunday	52,099	603,997	539,765	536,800	234,575	158,239

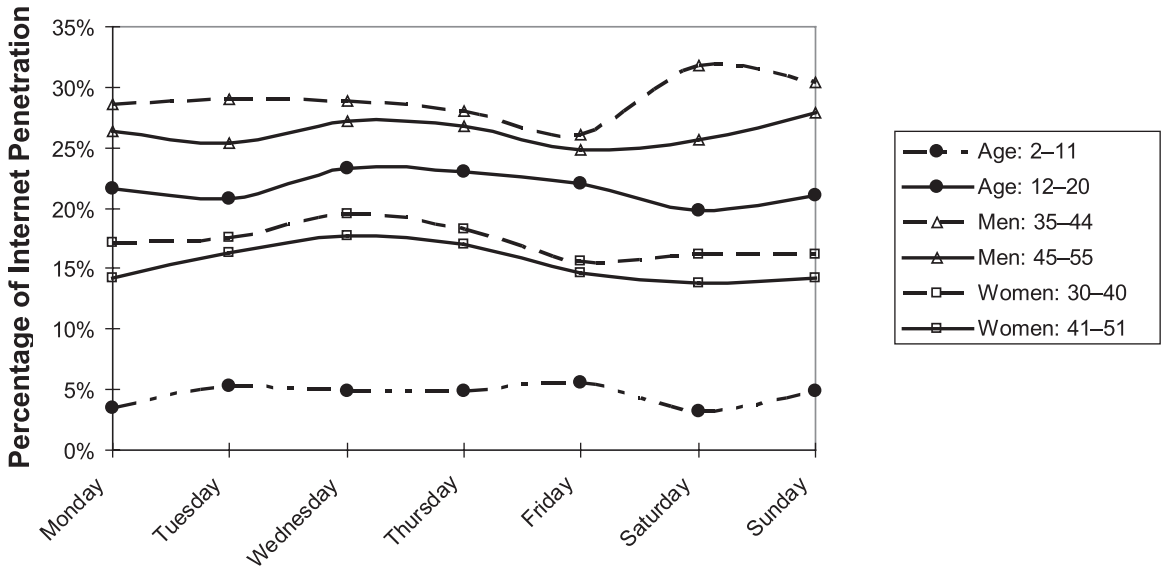

FIG. 1. Average percentage of people accessing the Internet from home by day (split by age; March 2005).

Internet usage: Categories of Web sites visited

The Web sites visited were categorized by Nielsen into 15 types. Table 2 displays the percentages of each age group and sex that access each category of Web site (averaged across January to March 2005).

Several measures were taken for every Web site visited by each participant: the size of the unique audience, the percentage (reach) for each Web site, the number of pages viewed at each site, the pages viewed per person, the number of visits to each site by site, and the average time spent on each site per person. Due to space constraints, not all data can be shown here but are available at www.psychology.iastate.edu/faculty/dgentile/publications.htm. In general, there is a common trend that threads through each of these measures. The tables show a pattern of adolescents aged 12 to 20 viewing more pages, spending more time, and having the most number of visits on a Web page than any other age group. In general, looking across these various measures of Internet use, males aged 45 to 55 are the next heaviest users, followed by males aged 35 to 44, females aged 30 to 40, females aged 41 to 51, and children aged 2 to 11. In addition to this overall pattern, search engines/portals are by far the most viewed category of Web sites, a trend likely due to search

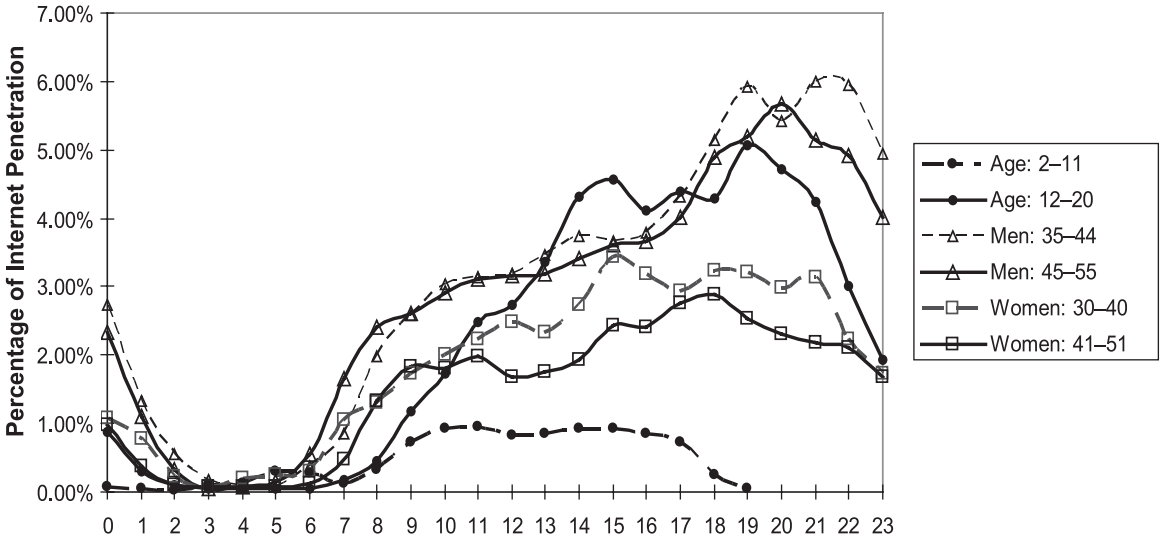

FIG. 2. Average percentage of people accessing the Internet from home by time of day (split by age; March 2005).

TABLE 2. AVERAGE MONTHLY REACH OF WEB SITE CATEGORIES, SPLIT BY GROUP

Average monthly reach	*Children 2–11*	*Adolescents 12–20*	*Males 35–44*	*Males 45–55*	*Females 30–40*	*Females 41–51*
Search engines/portals	32%	79%	89%	83%	76%	72%
Entertainment	21%	64%	72%	70%	55%	52%
Telecom/Internet services	19%	61%	67%	60%	43%	39%
Computers/consumer electronics	15%	47%	64%	61%	39%	38%
News & information	15%	46%	58%	51%	40%	35%
Family & lifestyles	14%	39%	48%	43%	34%	32%
Multicategory commerce	8%	35%	45%	38%	30%	27%
Education & careers	8%	28%	40%	39%	29%	24%
Government & nonprofit	6%	25%	31%	31%	28%	23%
Special occasions	1%	20%	26%	30%	28%	23%
Travel	5%	17%	27%	22%	21%	21%
Finance/insurance/investment	5%	14%	23%	23%	19%	14%
Corporate information	4%	13%	18%	15%	12%	13%
Home & fashion	3%	10%	13%	12%	7%	6%
Automotive	2%	5%	6%	6%	7%	6%

engines/portals being the first page accessed when viewing the Internet. However, these general patterns are not always observed, as described in the following paragraphs.

Table 3 displays the average number of pages each person views in a month by category. Adolescents' use of portals/search engines is double that of any other group. Since portals are often the first pages viewed when individuals log onto the Internet, this could imply that adolescents are getting on the Internet more often or are viewing search engines more frequently. Males are the most likely group to view computer/consumer electronics and family and lifestyle Web pages, with males aged 35 to 44 viewing these categories an average of 102 and 128 times per month respectively. Women aged 30 to 40 are the most likely group to access education and career sites, with males aged 45 to 55 being second.

Table 4 displays the average amount of time per month spent visiting each category of Web site per person. Children aged 2 to 11 spend the most time visiting sites on entertainment, automotives, and family and lifestyles. They tend to spend, on aver-

TABLE 3. AVERAGE NUMBER OF PAGES EACH PERSON VIEWS IN A MONTH BY CATEGORY

Average pages per person	*Children 2–11*	*Adolescents 12–20*	*Males 35–44*	*Males 45–55*	*Females 30–40*	*Females 41–51*
Search engines/portals	66	265	130	184	133	161
Entertainment	73	136	113	118	91	70
Telecom/Internet services	38	120	48	100	50	49
Computers/consumer electronics	47	44	102	59	43	22
News & information	14	41	31	52	20	52
Family & lifestyles	47	43	105	128	36	36
Multicategory commerce	19	125	97	35	129	86
Education & careers	9	14	30	118	125	60
Government & nonprofit	7	25	40	29	37	35
Special occasions	44	17	18	27	38	52
Travel	21	15	33	18	41	17
Finance/insurance/investment	17	36	57	21	21	27
Corporate information	6	53	36	44	35	40
Home & fashion	3	19	30	19	21	28
Automotive	18	20	11	9	26	23

Table 4. Average Amount of Time in Each Web Site Category per Person Spent Monthly (in minutes)

Time per person	*Children 2–11*	*Adolescents 12–20*	*Males 35–44*	*Males 45–55*	*Females 30–40*	*Females 41–51*
Search engines/portals	18.05	54.13	40.17	65.05	43.22	42.3
Entertainment	38.19	52.32	47.38	51.13	43.03	33.18
Telecom/Internet services	16.42	44.24	27.27	46.25	27.24	34.02
Computers/consumer electronics	22.27	16.36	44.07	32.25	24.29	15.27
News & information	5.08	13.36	18.17	32.33	12.16	27.39
Family & lifestyles	31.13	15.14	48.15	54.21	21.11	17.11
Multicategory commerce	7.23	35.22	58.26	20.03	73.08	31.30
Education & careers	2.29	5.30	16.28	104.33	80.10	24.25
Government & nonprofit	2.31	11.06	20.29	15.01	17.07	19.27
Special occasions	14.08	6.37	10.18	11.15	20.15	41.31
Travel	8.17	4.42	12.17	8.12	20.18	9.08
Finance/insurance/investment	10.12	22.38	19.13	8.22	12.04	10.40
Corporate information	3.15	12.30	16.37	15.26	10.31	15.18
Home & fashion	2.17	7.02	10.02	7.27	9.13	10.18
Automotive	31.21	7.18	4.35	4.12	16.37	8.19
Totals (min. sec)	212.16	307.12	392.16	475.08	428.29	338.26

age, a half hour a month viewing these types of sites, whereas on other sites they spend between 2 and 22 minutes. Adolescents aged 12 to 20 spend the most time viewing sites on search engines/portals, entertainment, and telecom/Internet services; typically 44 minutes to 54 minutes a month are spent viewing these sites. Adolescents view all other sites only about half as much, with the exception of multicategory commerce. What is surprising about these adolescent data is that although adolescents generally view more Web sites and individual pages than do other age groups, the adults spend more time per month on the Internet. Therefore, adolescents must not be spending as much time on each Web page as adults, but click through faster. The younger adults and adolescents spend the most time on commerce Web sites, perhaps because they are the most comfortable making purchases over the Internet. Adult males are the most likely group to spend time on computer/consumer electronic Web sites, although this is not the category where males spend the greatest amount of time. Males aged 45 to 55 spend the greatest amount of time on education and career sites, averaging 104 minutes per month, with search engines/portals next at 65 minutes per month, then family and lifestyles at 54 minutes. Females aged 30 to 40 spend the most time on education and career sites, spending on average 80 minutes per month, with multicategory commerce close behind. All other categories are viewed about half as much time (or less). Females aged 41 to 51 tend to spend less time on the Internet than females aged 30 to 40. They tend to divide their time fairly equally across Web site categories.

Table 5 displays the top five Web sites visited by each category, split by the six methods of measuring Web site use: unique audience, active reach, number of pages viewed, pages viewed in a month per person, Web site visits in a month per person, and time spent each month per person. Across all of the age groups and all of the categories, the most commonly visited Web sites are Google, Virgilio, Libero, MSN, Microsoft, eBay, and Yahoo! There are some differences by age, described here only as they deviate from the general trend.

Besides the previously mentioned Web sites, the top Web sites that children aged 2 to 11 visit are Disney International (children's movies and media), DPReview.com (digital photography reviews), 112.org (emergency number covering Europe), orisinal.com (children's games), GiochiOnline.org (online games), WWE (professional wrestling), pawda, Panda software (virus protection), and Nestlé (food company).

Other top Web sites adolescents view are Vodafone Omnitel (mobile phone/telecommunications), AlterVista (Web portal), and La Gazzetta dello Sport (sports).

Males aged 35 to 44 viewed the following sites: Fineco and UniCredit Banca (online banking), Mediasetonline (Italian private television), and LaRepubblica (government affairs). Males aged 45 to 55 visited LaRepubblica and UniCredit Banca in addition to the common top Web sites.

Table 5. Average Top Five Web Sites across Number of Pages Each Person Views, Pages Viewed Monthly, visits Monthly, and Time Spent per Person

Age group	*Unique audience*	*Actual reach*	*Page views*	*Pages per person*	*Visits per person*	*Time per person*
Children 2–11	1. Google	Google	Google	WWE	Pawda	Panda Software
	2. Virgilio	Virgilio	Virgilio	DPReview.com	MSN	Disney International
	3. Libero	Libero	MSN	Virgilio	Virgilio	Nestle
	4. MSN	MSN	Yahoo!	112.org	GiochiOnline.org	GiochiOnline.org
	5. Yahoo!	Yahoo!	Disney International	Orisinal	Google	DPReview.com
Adolescent 12–20	1. Google	Google	Google	eBay	Google	Vodafone Omnitel
	2. MSN	MSN	Virgilio	Vodafone Omnitel	MSN	eBay
	3. Virgilio	Virgilio	Alta Vista	Google	Virgilio	Yahoo!
	4. Libero	Libero	Libero	Virgilio	eBay	Virgilio
	5. Microsoft	Microsoft	MSN	Yahoo!	La Gazzetta dello Sport	Google
Males 35–44	1. Google	Google	Google	eBay	Libero	eBay
	2. Libero	Libero	eBay	Google	Google	Fineco
	3. MSN	MSN	MSN	Libero	Fineco	Mediasetonline
	4. Virgilio	Virgilio	Yahoo!	Yahoo!	Mediasetonline	UniCredit Banca
	5. Microsoft	Microsoft	Virgilio	Vodafone Omnitel	LaRepubblica	Vodafone Omnitel
Males 45–55	1. Google	Google	Google	eBay	LaRepubblica	eBay
	2. Libero	Libero	Libero	Libero	Google	Libero
	3. Virgilio	Virgilio	eBay	Google	Virgilio	LaRepubblica
	4. Microsoft	Microsoft	Virgilio	Virgilio	eBay	Yahoo!
	5. MSN	MSN	Yahoo!	Yahoo!	Libero	UniCredit Banca
Females 30–40	1. Google	Google	Google	eBay	Fineco	eBay
	2. Libero	Libero	eBay	Fineco	eBay	Fineco
	3. MSN	MSN	Libero	Google	LaRepubblica	Banco Posta
	4. Virgilio	Virgilio	MSN	Banco Posta	Macromedia	Vodafone Omnitel
	5. Microsoft	Microsoft	Virgilio	Vodafone Omnitel	Google	Yahoo!
Females 41–51	1. Google	Google	Libero	Libero	LaRepubblica	indire.it
	2. Virgilio	Virgilio	Google	indire.it	Virgilio	Real
	3. Libero	Libero	Virgilio	eBay	Universita degli	Studi di Bologna Libero
	4. MSN	MSN	eBay	LaRepubblica	MSN	eBay
	5. Microsoft	Microsoft	MSN	Google	Google	Virgilio

In addition to the common Web sites, females aged 30 to 40 viewed Banco Posta and Fineco (banking), LaRepubblica, Macromedia (Web software), and Vodafone Omnitel. Females aged 41 to 51 viewed LaRepubblica, indire.it (educational news), Real (games and entertainment), and the Universita degli Studi di Bologna.

DISCUSSION

The purpose of this study was to investigate how Italian families use the Internet from home. We found that one out of three children aged 2 to 11 (32%) accesses the Internet each month, with about 4% on the Internet on any given day. The average child 2 to 11 spends 22 hours a month on the computer, with an average of 23 Web sessions totaling 13 hours online. Children, like all age groups included in this study, are most likely to access search engines and Web portals, but they also access game and entertainment sites at a high rate.

More than three out of four adolescents aged 12 to 20 (79%) access the Internet monthly, with about 23% on the Internet on any given day. The average adolescent spends 87 hours a month on the computer, with an average of 75 Web sessions totaling 39 hours online. Adolescents begin accessing informational Web sites at a much higher rate than younger children, including 35% accessing commercial Web sites each month. We are unable to determine from these data what percentage are actually completing financial transactions over the Internet, but it is interesting that the percentage of adolescents accessing sites like eBay is similar to the percentage of adults accessing commerce sites (men 45% and 38%, women 30% and 27%).

We gathered data on two age groups of adult men in this study: 35 to 44 and 45 to 55. The two groups were very similar, with more than 8 out of 10 (89% and 83%, respectively) accessing the Internet monthly, about 28% on any given day. The average adult male spends over 100 hours a month on the computer (103 and 115 for the two age groups respectively), with an average of about 80 Web sessions per month totaling over 40 hours (41 and 45 respectively). Adult men continue the trend seen in adolescents: a high percentage of men access informational Web sites each month, but this finding expands to include information on family and lifestyle issues as well as education and career information.

Similarly, we gathered data on two age groups of adult women in this study: 30 to 40 and 41 to 51. Adult women tended to access the computer less than men, and although the two groups of women were similar, they do not appear to be as similar as the adult men. In general, the younger group were more likely to spend time on the computer and the Internet than the older group. Women spent about 60 hours a month on the computer (64 and 57 hours for the two age groups respectively), with about 55 Web sessions per month (61 and 50 respectively), totaling 30 and 26 hours online per month respectively. Adult women access Web site categories in a pattern similar to adult men, although at a lower rate than men and with a smaller percentage of women 41 to 51 accessing each category of Web site compared to women 30 to 40.

When examining the percentage of people accessing the Internet by day (Table 2), it is striking how little variation there is across days. This suggests that perhaps the Internet is so integrated into people's lives that it is a daily habit, which is also indicated by the average number of Internet sessions per month being at least 50 for people over 11 years old.

This study has several unique strengths. The data were not gathered by self-report but are actual use data across 3 months. The data were gathered using state-of-the-art techniques used by the international leader in household media and Internet monitoring (Nielsen). Furthermore, the sample was large and nationally representative across all age groups, regions of Italy, income levels, and education levels, providing a level of confidence in the accuracy of the data and population projections not typically possible in survey research.

The study has two clear weaknesses. First, the way age groups were defined for this study was less than optimal. Future studies should split the sexes for all age groups and should define adult male and female age groups identically. They should also increase the range of ages studies. Second, these data are solely descriptive. Although this study is very useful for providing benchmark data, it does not answer questions of practical importance to parents, educators, physicians, or policymakers. For example, although we have excellent information on how much time children spend on the Internet, we cannot tell whether it is having a beneficial or harmful effect on their school performance. Furthermore, these data do not provide answers to questions about how much or when children should access the Web or how to educate children to be media literate. Nonetheless, we agree with the old proverb that sometimes a good question is better than an easy answer, and we look forward to future research that will help to answer these questions.

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