Opportunity for all?

Technology and learning in lower-income families

Victoria Rideout
Vikki S. Katz

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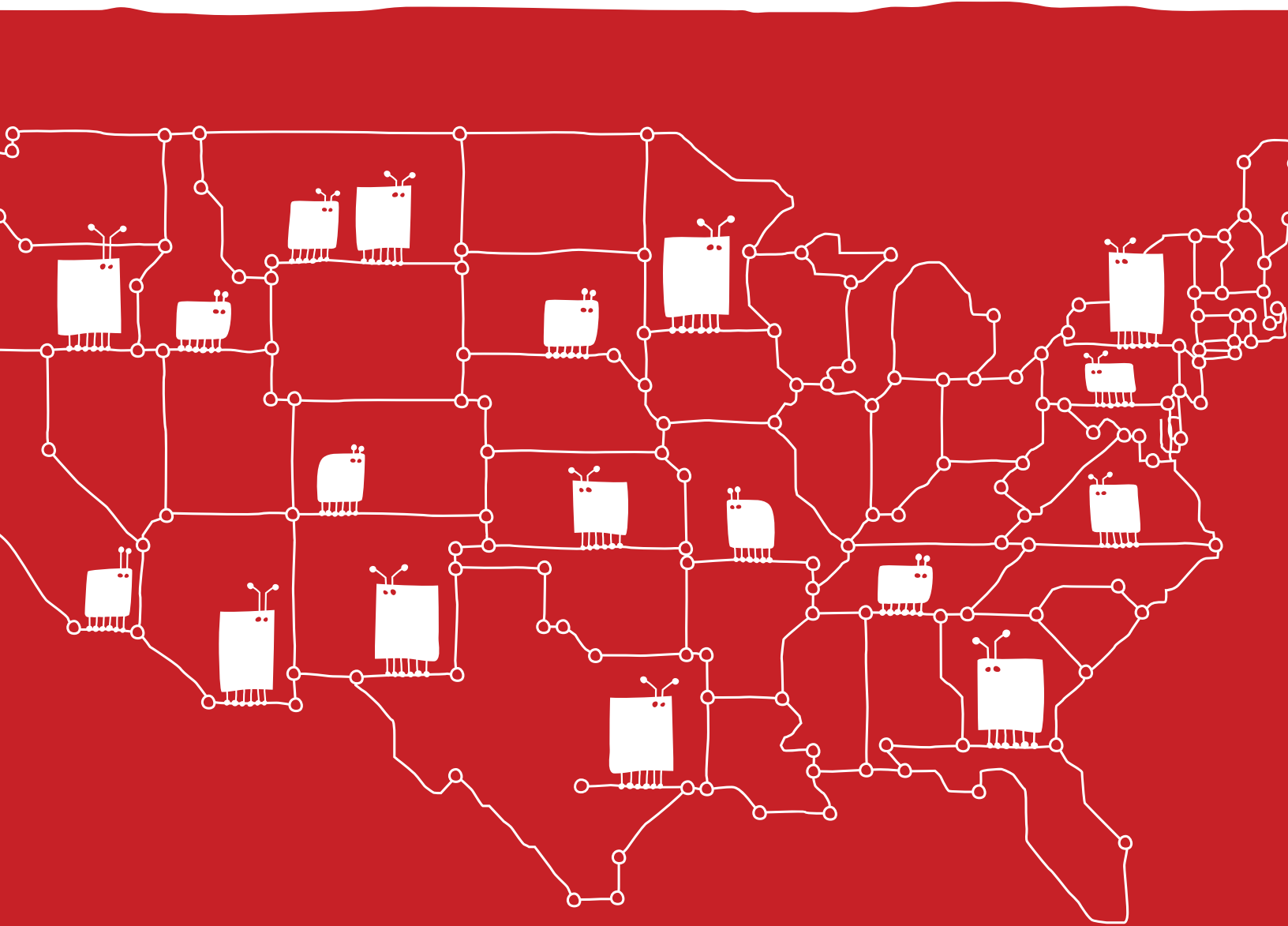
About the authors
Victoria Rideout, MA, is president of VJR Consulting, where she conducts research on children and media for academic and non-profit organizations. Recent research includes studies about teens' use of the Internet for health information, digital media use among infants and toddlers, and media use among 8- to 18-year-olds. From 1997-2010 she was director of the Kaiser Family Foundation's *Program for the Study of Media and Health,* and prior to that she directed the Children & Media program at the children's advocacy group Children Now. She is the editor for Reviews and Commentaries at the *Journal of Children and Media.* Ms. Rideout graduated with honors from Harvard University and received her Masters from the Maxwell School of Public Affairs at Syracuse University.

Vikki Katz, Ph.D., is Associate Professor in the School of Communication and Information at Rutgers University and a Senior Research Scientist at the Joan Ganz Cooney Center at Sesame Workshop. She is author of *Kids in the Middle: How Children of Immigrants Negotiate Community Interactions for their Families* (Rutgers U. Press, 2014) and co-author of *Understanding Ethnic Media: Producers, Consumers, and Societies* (Sage, 2011). Her research focuses on the challenges that lower-income and immigrant families face in addressing a broad range of social disparities, with particular interest in how media and technology are implicated in these experiences. Her work has been funded by the Bill & Melinda Gates Foundation and the Russell Sage Foundation. Vikki received her M.A. and Ph.D. from the Annenberg School for Communication and Journalism at the University of Southern California, and her B.A. from UCLA. For more information about her work, please visit www.vikkikatz.com.

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introduction

The information and resources available on the Internet are now integral features of daily life for most Americans. Searching for employment and filling out job applications; researching the availability of government services; looking up health information, providers, and insurance options; learning how to fix a home appliance; mapping public transportation routes: these tasks are part and parcel of day-to-day life. Being connected to the Internet has become all the more essential as helpful resources for accomplishing these tasks have migrated online.

This is especially true for families with school-aged children. Computers and online connectivity are becoming increasingly important to ensuring that educational opportunity is open to all children, regardless of their economic status. Whether it is keeping up with school assignments and tracking grades; selecting an appropriate new school; watching tutorials on how to complete a math problem; researching papers and typing essays; investigating colleges and financial aid opportunities; looking for local after-school activities and community resources; or taking advantage of educational software, games and videos—digital tools have become key components of children's education.

Because digital devices and the Internet have become so essential, digital inequality can exacerbate educational and economic inequality as well. Therefore, it is critical that we understand how low- and moderate-income families in the U.S. are engaging digital technologies and how they perceive the opportunities—and potential risks—that these innovations present for their children.

This report presents the results of the first nationally-representative telephone survey of lower-income parents on issues related to digital connectivity. The survey included 1,191 parents with school-aged children (ages 6 to 13). All parents in the survey have household incomes below the national median for families with children.[1] These families are referred to throughout the report as either "lower-income" or as "low- and moderate-income" families.

Development of the survey instrument was directly informed by prior in-person interviews with 170 lower-income, Hispanic families in three communities, located in Arizona, California, and Colorado. Quotes from those qualitative interviews are interspersed throughout the report, where they illustrate a finding from the nationally-representative survey. Several profiles of interviewed families from those three communities are included in the report as well.

Because lower-income parents are not usually the focus of studies on technology and learning, this report offers a unique perspective into the varying degrees of connectivity that exist among these families. The purpose of the survey is to document, at a national level:
- the types of devices and Internet connections that lower-income parents and children have, including their use of discounted Internet service plans;
- the frequency of, and goals for, their Internet use;
- what constrains some families from being as connected as they would like to be;
- parents' comfort and confidence using computers, mobile devices, and the Internet;
- which families are not connected, and why;
- the degree to which families without home access are using libraries, community centers, and other local places to connect;
- the ways in which children and parents collaborate to learn about and use technology together;
- how lower-income children and parents use technology for educational purposes and to connect with schools; and
- how families with mobile-only Internet access differ from those with home access in their use of technology for educational and other purposes.

Our goal is to shine a spotlight on an important segment of the U.S. population that too often goes unnoticed as we celebrate the progress and promise afforded by new technologies. Understanding families' experiences and perspectives is critical, particularly as stakeholders from the national to local levels work to address inequalities in Internet connectivity and device ownership. We hope these data will help inform public policies, industry practices, and non-profit efforts toward digital inclusion for lower-income children and their families.

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[1] According to the U.S. Census Bureau Current Population Survey's Annual Social and Economic Supplement, median household income for families with one or more children under age 18 in 2014 was $63,767. In this survey, all respondents have a household income of $65,000 or below.

key findings

1. Most low- and moderate-income families have some form of Internet connection, but many are under-connected, with mobile-only access and inconsistent connectivity. Nine in ten (94%) families have some kind of Internet access, whether through a computer and Internet connection at home, or through a smart mobile device with a data plan. Even among families below the poverty level,[2] nine in ten (91%) are connected in some way. However, many lower-income families are under-connected. For example, one quarter (23%) of families below the median income level and one third (33%) of those below the poverty level rely on mobile-only Internet access. And many experience interruptions to their Internet service or constrained access to digital devices. Among families who have home Internet access, half (52%) say their access is too slow, one quarter (26%) say too many people share the same computer, and one fifth (20%) say their Internet has been cut off in the last year due to lack of payment. Among families with mobile-only access, three in ten (29%) say they have hit the data limits on their plan in the past year, one-quarter (24%) say they have had their phone service cut off in the past year due to lack of payment, and one fifth (21%) say too many people share the same phone for them to be able to get the time on it that they need.

2. Families headed by Hispanic immigrants are less connected than other low- and moderate-income families. One in ten (10%) immigrant Hispanic families have no Internet access at all, compared with 7% of U.S.-born Hispanics, 5% of Whites, and 1% of Blacks. Four in ten (41%) Hispanic immigrant parents report mobile-only Internet access, compared with 25% of Blacks, 16% of Whites, and 17% of U.S.-born Hispanics below the median income. One in five (20%) immigrant Hispanic parents say that they do not go online at all, even occasionally (compared with just 4% of Whites and U.S.-born Hispanics, and 2% of Blacks). And just under half (44%) of immigrant Hispanic parents say they do not use computers, whether at work, school, or home, even occasionally.

3. The main reason some families do not have home computers or Internet access is because they cannot afford it, but discounted Internet programs are reaching very few. Four in 10 parents without a home computer (40%) or home Internet access (42%) say the main reason they do not have these items is because they are too expensive. This is three times as many as those who said they decided they did not need Internet access (13%) and nearly twice as many as the proportion who said they do not need a computer (22%). Yet only 6% of those with incomes below 185% of poverty (a common eligibility level for discounted service) say they have ever signed up for low-cost Internet access through programs specifically for lower-income families.

> **Home versus mobile-only Internet access:** In this report, "home access" is defined as having a laptop or desktop computer and a way to connect those devices to the Internet while at home. "Mobile-only access" is defined as being able to connect to the Internet through a smart device such as a tablet or smartphone, without having a computer at home. "No access" is defined as not being able to connect to the Internet through a device owned by the respondent or in the respondent's household.

[2] The federal poverty level for a family of four in 2015 was $24,250. https://aspe.hhs.gov/2015-poverty-guidelines

4. Low- and moderate-income parents use the Internet for a broad range of purposes, but mobile-only families are less likely to do certain online activities. Parents with Internet access say they often or sometimes go online to look for information (95%), stay in touch with family and friends (83%), get news (78%), bank or pay bills online (67%), shop online (58%), and apply for jobs or services (52%). But parents with mobile-only access are much less likely to engage in many of these online activities. For example, they are 30 percentage points less likely to shop online (36% vs. 66% of those with home access), 25 percentage points less likely to use online banking or bill-paying (49% vs. 74%), 14 percentage points less likely to apply for jobs or services online (42% vs. 56%), and 12 percentage points less likely to get news or follow local events online (70% vs. 82%).

5. Children from low- and moderate-income families use computers and the Internet for a variety of educational activities, but those without home access are less likely to go online to pursue their interests. Among 10- to 13-year-olds who use computers or the Internet, 81% often or sometimes use computers or the Internet to do homework, and about four in ten use computers or the Internet to write stories or blogs (44%), connect with teachers (40%), and talk with other students about school projects. Among all 6- to 13-year-olds who use computers or the Internet, eight in ten use them to play educational games (81%) and to look up things that they are interested in (81%), while seven in ten (70%) use them to do something creative, such as make their own art or music. But children without home Internet access are less likely to go online to look up information about things that they are interested in: 35% of those with mobile-only access say they "often" do this, compared to 52% of those with home access.

6. Parents feel largely positive about the Internet and digital technology, but many also have concerns. The vast majority of parents agree that computers and mobile devices help children learn important skills (89%); that the Internet exposes children to important new ideas and information (88%); using computers and tablets in class helps prepare children for important tests (84%); that the use of technology in the classroom improves the quality of children's education (80%); and that computers and mobile devices offer children new and interesting means of self-expression (78%). At the same time, three out of four parents (74%) worry about their child being exposed to inappropriate content online; 63% believe that time with technology detracts from time spent in other important activities; 51% worry about online bullying; 34% worry that teachers know less about their child's individual needs due to time spent using technology at school; and 18% say technology in the classroom is a distraction that hurts children's education. Immigrant Hispanic parents are more likely than White, Black, or U.S.-born Hispanic parents to worry that teachers know less about their child's individual needs due to technology use in the classroom.

7. Children and parents frequently learn with, and about, technology together, especially in families with the lowest incomes and where parents have less education. Among families in which the parent and child both use the Internet, 77% of parents say they have helped their children with using digital technology, and more than half (53%) say their children have helped them. Among parents who did not graduate from high school, 62% say their child has helped them with technology, compared with 45% of parents who graduated from college. Among families with more than one 6- to 13-year-old and a computer in the home, 81% of children often or sometimes help each other learn about computers or mobile devices (including 44% who "often" do so). More than half (53%) of children from the lowest income group (less than $25,000 a year) "often" help each other learn about computers and technology, compared to 33% of those in the higher-income group ($45,000–65,000 a year).

access to computers and the Internet at home and in the community

The question of whether low- and moderate-income families have access to the Internet and digital devices remains a critical national issue. Families with no connectivity are tremendously disadvantaged in accessing a wide range of opportunities, especially as more and more resources and services move online.

But access is no longer just a yes/no question. The quality of families' Internet connections, and the kinds and capabilities of devices they can access, have considerable consequences for parents and children alike. In this section, we outline what lower-income families' access to digital technologies looks like today.

Lower-income families may connect to the Internet in different ways: through broadband access at home, via a data plan on a mobile device, or by using Wi-Fi-enabled devices in local places that offer them access. When Internet access is intermittent—either because families have trouble paying monthly service charges or are using the Internet only in community locations—they face constraints on what they can access online, compared with those who have consistent access. The devices that families own and feel comfortable using also matter; complex tasks, like submitting a job application or a homework assignment, are much more difficult to accomplish on a smartphone than on a computer.
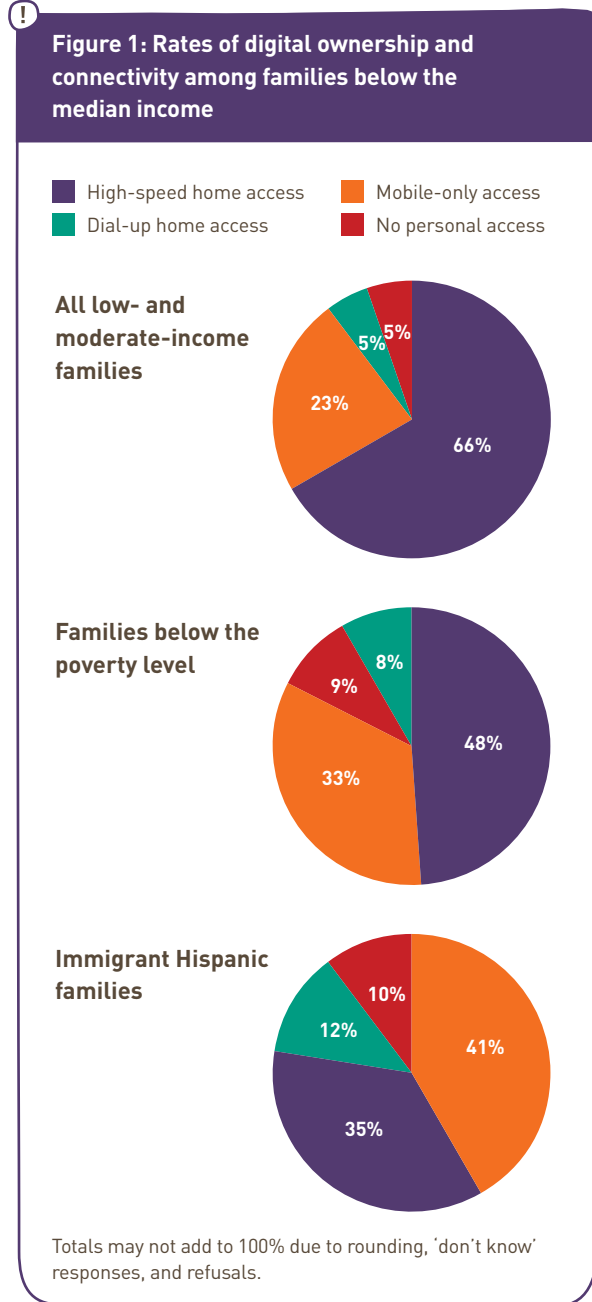
Access points in the community, including public libraries, have been highlighted by other researchers as important pathways to connectivity for adults and children who do not have Internet or Internet-capable devices at home (Dailey, Bryne, Powell, Karaganis, & Chung, 2010; Zickuhr, Rainie, & Purcell, 2013). We explored these questions as well.

Our findings indicate that cost remains the primary explanation for why families are less connected than they would like to be—or why they are not connected at all. But it is also important to explore why families with limited discretionary income prioritize purchasing digital devices. We find that many lower-income families are making the most of whatever forms of connectivity they can afford. Furthermore, parents' motivations for their purchases indicate that they see connectivity as crucial to their children's educational success, as well as to their families' well-being.

Device ownership and Internet access

The vast majority of low- and moderate-income families with children between 6 and 13 years old report having computers, mobile devices, and some type of Internet access. Ninety-one percent own a mobile device (smartphone or tablet), 81% own a computer (laptop or desktop), and 94% have either home or mobile access to the Internet. Even in families living below the poverty level ($24,250 for a family of four in 2015), access to devices and the Internet is widespread: 85% have some type of mobile device, 69% have some type of computer, and 91% have some type of Internet.

While these rates of digital ownership and connectivity are high, many families do not have home Internet access, which is defined as having a laptop or desktop computer and an Internet connection at home. Among all families below the median income, 23% have mobile-only access (meaning that they can connect to the Internet through devices like smartphones or tablets), while 5% have no access (meaning that the household does not own any device that is connected to the Internet). Among families living

Figure 1: Rates of digital ownership and connectivity among families below the median income

Legend:
- High-speed home access
- Dial-up home access
- Mobile-only access
- No personal access

All low- and moderate-income families
- 66% High-speed home access
- 23% Mobile-only access
- 5% Dial-up home access
- 5% No personal access

Families below the poverty level
- 48% High-speed home access
- 33% Mobile-only access
- 8% Dial-up home access
- 9% No personal access

Immigrant Hispanic families
- 35% High-speed home access
- 41% Mobile-only access
- 12% Dial-up home access
- 10% No personal access

Totals may not add to 100% due to rounding, 'don't know' responses, and refusals.

in poverty, 33% have mobile-only access and 9% have no access. Among immigrant Hispanics, 41% have mobile-only access and 10% have no access.

When explored through the lens of race and ethnicity, immigrant Hispanic parents report markedly less digital technology in their homes than White, Black, and U.S.-born Hispanic parents.

Nearly four in ten (37%) immigrant Hispanic parents report that their families have neither desktop nor laptop computers—among Whites, Blacks, and U.S.-born Hispanics, that proportion is under 20%. Differences in mobile device ownership are smaller: 16% of immigrant Hispanic parents indicate that their families do not own a mobile device, compared with 10% of U.S.-born Hispanics, 8% of Whites, and 2% of Black families. Black families below the median income level are the most likely to have a smartphone: 91% have one, compared with 85% of U.S.-born Hispanics, 78% of White families, and 72% of immigrant Hispanics.

Where families live can also impact their online access, as some rural areas lag behind in terms of having higher-speed Internet service available

to residents. Overall, however, we found that low- and moderate-income families have an equal likelihood of having home Internet access regardless of whether they live in an urban, suburban, or rural community. In fact, rural families were no more likely than other families to have dial-up access. This may be because some families in urban areas cannot afford broadband even though it is available to them, and because some living in rural areas choose to forego Internet access if dial-up is their only option. However, we did find differences in rates of smartphone ownership in rural areas, where 75% of families own a smartphone, compared with 85% of families in urban areas. This difference could be due to poorer quality cellular service in more remote communities.

Table 1: Computers, mobile devices, and Internet access at home, by income, race/ethnicity, and Hispanic immigrant generation

Percent with:	Among all	By income		By race/ethnicity			Among Hispanics	
		Below poverty	Above poverty	White	Black	Hispanic	Immigrant	U.S.-born
Computer in the home								
Any computer	81	69[a]	87[b]	88[a]	84[a]	69[b]	63[a]	81[b]
Desktop	51	41[a]	55[b]	55[a]	54[a]	42[b]	34[a]	58[b]
Laptop	68	53[a]	75[b]	76[a]	70[a]	55[b]	49[a]	66[b]
No computer	18	31[a]	13[b]	12[a]	16[a]	31[b]	37[a]	19[b]
Mobile ownership								
Any mobile device	91	85[a]	93[b]	92[a]	98[b]	86[c]	84	90
Smartphone	80	73[a]	84[b]	78[a]	91[b]	76[a]	72[a]	85[b]
Tablet	67	58[a]	72[b]	74[a]	61[b]	58[b]	53[a]	70[b]
No mobile device	9	14[a]	6[b]	8[a]	2[b]	14[c]	16	10
Internet access								
Any Internet access	94	91	97	95	99	91	90	93
Home access	72	57[a]	78[b]	79[a]	73[a]	56[b]	48[a]	76[b]
High-speed	66	48[a]	72[b]	77[a]	64[b]	44[c]	35[a]	64[b]
Dial-up	5	8[a]	6[a]	3[a]	9[b]	12[b]	12	12
Mobile-only access	23	33[a]	19[b]	16[a]	25[b]	34[b]	41[a]	17[b]
No Internet access	5	9[a]	3b	5[a]	1[a]	9[b]	10	7

Items with different superscripts (a, b, c) differ at p < .05. Significance should be read horizontally within column groups.
The table is among families with 6- to 13-year-olds and with incomes below the national median. Totals may not add to 100%, due to rounding, 'don't know' responses, and refusals.

Table 2: Computers, mobile devices, and Internet access at home, by metro status

Percent with:	Among all	By metro status		
		Urban	Suburban	Rural
Computer in the home				
Any computer	81	81	81	85
Desktop	51	50	51	54
Laptop	68	69	68	68
No computer	18	19	19	15
Mobile ownership				
Any mobile device	91	93[a]	91[a,b]	88[b]
Smartphone	80	85[a]	80[a,b]	75[b]
Tablet	67	63[a]	72[b]	67[a,b]
No mobile device	9	7	8	12
Internet access				
Any Internet access	94	96	95	94
Home access	72	71	72	74
High-speed	66	61	66	67
Dial-up	5	9	6	6
Mobile-only access	23	25	23	20
No Internet access	5	4	5	6

Items with different superscripts (a, b) differ at p < .05. Significance should be read horizontally within column groups.
The table is among families with 6- to 13-year-olds and with incomes below the national median. Totals may not add to 100% due to rounding, 'don't know' responses, and refusals.

Quality of access and interruptions in service

While most low- and moderate-income families have some type of digital device and Internet access, those data do not tell the full story. Not all connectivity is created equal, and not all devices provide the same kinds of online experiences. Many families face limitations in the form of service cutoffs, slow service, older technology, or difficulty using equipment because too many people are sharing devices.

Nearly six in ten surveyed parents who have a home computer say it runs too slowly (59%), which likely indicates that they are using technology that is outdated. Half (52%) say their Internet service is too slow, a challenge that is likely to be especially prevalent among households unable to pay for "premium" Internet connections. A quarter of respondents (26%) have difficulty getting enough time on their home computer because too many people are sharing a device. And one in five (20%) say their Internet service at home has been cut off at least once during the past year because they could not pay the bill.

Among those with Internet access through their mobile devices, about three in ten (29%) say that they have hit the data limits on their cell plans. Nearly one-quarter (24%) say that they have had their cell service (and thus their Internet connection) interrupted in the past year due to lack of payment, and one in five (21%) say they have a hard time getting enough access to their family's smartphone because too many people are sharing the same device.

Table 3: Computer and Internet service challenges families have faced in the last year			
Among those who have a computer/smartphone/Internet access, percent who have experienced each issue in the past year:	**Among all**	**By income**	
		Below poverty	**Above poverty**
Computer runs too slowly	59	58	59
Internet runs too slowly	52	50	53
Hit data limit on smartphone	29	39[a]	25[b]
Too many people sharing computer; cannot get time	26	31[a]	23[b]
Cell service cut off due to lack of payment	24	31[a]	21[b]
Too many people sharing phone; cannot get time	21	26[a]	18[b]
Home Internet service cut off due to lack of payment	20	29[a]	16[b]

Items with different superscripts (a, b) differ at p < .05. Significance should be read horizontally within column groups. The table is among families with 6- to 13-year-olds and with incomes below the national median.

Not surprisingly, many of these access issues are especially prevalent among families living below the poverty line. For example, nearly three in ten (29%) families living in poverty who have a computer and home Internet access say that their Internet has been cut off at least once in the past year due to non-payment. Similarly, nearly four in ten (39%) families who have Internet access through a smartphone say that they have reached the limits on their data plan, nearly one-third (31%) have had their service cut off in the past year due to non-payment, and one-quarter (26%) have trouble getting access to the phone because too many people share the same device.

Despite the challenges that families experience when it comes to affording Internet connectivity, few have benefited from discounted Internet services available to low-income families through programs such as Comcast's Internet Essentials. Among all surveyed parents, only 5% had ever signed up for discounted Internet service. Among those living in poverty, the rate was 7%, and it was 6% among those at 185% of the poverty level.

> " I had (Internet Essentials[3]) because (my children) had assignments that they needed the computer for... I hated it. It wasn't working. It was too slow, it would freeze and they couldn't get anything done. We had it for almost a year. I just got rid of it. I was paying $10 (a month) to not use it. "
>
> —*Parent of a seventh grader in Colorado*

The latter is the income level at which children qualify for free or reduced-cost school meals, which is also an eligibility requirement for many discounted Internet offerings. Among those who had used discounted Internet services, nearly three-quarters (74%) were "very" or "somewhat" satisfied with the service and about one-quarter (23%) were either "not very" or "not at all" satisfied (note the small sample size, n = 78).

[3] Internet Essentials is Comcast's initiative to offer low-cost Internet access to parents whose children qualify for free- or reduced-cost school meals.

Case study: Melissa and Linda

Interview location: Chula Vista, California
Annual household income: $35,000–$45,000
Mother's education: high school graduate

Melissa is an 8-year-old fourth grader who lives with her parents and two brothers. Melissa's mother, Linda, is currently unemployed and is originally from Tijuana, Mexico. Melissa's family signed up for an offer from her school that allowed them to purchase a discounted refurbished desktop computer. The family had previously shared one computer that was kept in her brothers' bedroom, so they purchased the second one for Melissa to keep in hers.

Melissa was very happy with the decision to purchase another computer, and while Linda had to wait in line for a long time to buy it, she was happy the school had made this opportunity available to them. The family had also tried to sign up for discounted broadband Internet through the Connect2Compete program, but learned that they did not qualify because they had outstanding debt with the cable company.

Linda feels that it is important to have Internet at home because it is a basic necessity, enabling everything from "keeping in touch with other people, to making payments, to finding information related to the children's schooling," she says. While she does not have much experience with computers, she feels confident navigating the Internet to locate resources she needs, especially on her smartphone. In fact, as her 11-year-old son's math homework becomes more challenging, Linda goes online to research ways that she can better assist him.

Melissa likes to play computer games with her brothers. They go on the Cool Math website and play games like Fire Boy and Water Girl. While she knows how to access online games, Melissa often asks her parents or older brother for help when she needs to search for something. She is confident using the family iPad on her own, and has also helped her dad learn how to use it to map directions and access Facebook.

> " When [my daughter] first got her laptop I didn't have Internet because it was too expensive…Then once they gave me the brochure [for Connect2Compete], and I called them and they approved me, it was something that I could afford. "
>
> —*Parent of a fourth grader in Arizona*

Motivations for technology purchases

In the survey, we also explored parent motivation for making their most recent digital device purchases, as a way to gather insight into the priorities that drive lower-income families' decisions to adopt these technologies.

We asked parents whether they were primarily motivated by wanting a tool to get things done, to support their child's education, to stay in touch with friends and family, or to provide family entertainment. Parents' responses make it clear that children's academic development, and their family's connections to loved ones, are primary motivators for adopting new technology. For desktop, laptop, and tablet purchases, parents most frequently said that the purchase was intended to support their children's education (53%, 44%, and 41%, respectively), with the family's

entertainment a strong second when it comes to tablet purchases (28%). Not surprisingly, the most common reason for a smartphone purchase was for communication (47%). The variations we noted in motivations for device purchases suggest that parents associate different primary functions with each of these technologies.

> " Having (Internet at home) is necessary for homework, so that (my kids) don't have to go online in other people's homes to do their homework; instead they can be here at home doing it. We often don't purchase things in order to pay the bills. My son's birthday is on Sunday, and since we have to pay the bills, we won't be able to do anything for him. "

—*Parent of a fourth grader in Arizona*

Why some families are not connected at home

Among all low-and moderate-income families, 18% do not own a computer, 23% have mobile-only Internet access, and 5% have no access. There are many possible reasons why families do not have computers or Internet access at home: the cost may be prohibitive; family members may have access at other locations (school, work, libraries); they may not perceive a need for Internet access; they may have poor Internet service in their communities; or they may feel they lack the skills to use computers and the Internet effectively.

However, the dominant reason for not being connected at home is financial. Forty percent of surveyed parents who do not have a computer say money is the main reason (by contrast, only 4% say it is because they use computers elsewhere). Similarly, 42% of those without home Internet access indicated that cost is the main reason that they do not have it. This is particularly true among families below the poverty level, where half of those without a home computer (53%) or home Internet access (50%) cite money as the main reason.

Table 4: Reasons for most recent purchase of digital device				
	Among those whose most recent purchase was a:			
Percent who say the main reason for the purchase was:	**Smartphone**	**Tablet**	**Desktop**	**Laptop**
For their child's education	10[a]	41[b]	53[b]	44[b]
For their family's entertainment	4[a]	28[b]	10[a,c]	11[c]
To stay in touch with friends and family	47[a]	5[b]	5[b]	2[b]
As a tool to get things done	13[a,b]	7[b]	5[a,b]	17[a]
For work	11[a]	6[a]	11[a]	10[a]
To stay informed	7[a]	5[a]	3[a]	3[a]
For the parent's education/school	*[a]	1[a,b]	5[b,c]	8[c]
As a replacement/upgrade	5[a]	1[b]	0[a,b]	1[a,b]
Other	4[a]	6[a]	8[a]	5[a]

* Less than one-half of one percent, but more than zero. The table is among families with 6- to 13-year-olds and with incomes below the national median. Totals may not add to 100% due to rounding, 'don't know' responses, and refusals.

> **Well, we have to keep paying those 40 dollars per month (for Internet service)... And it's an expense that we can't avoid because our daughter needs it. It makes us very proud that she is good at math.... and the teacher told me it was very important that she use the computer programs.**
>
> —*Parent of an eighth grader in Colorado*

At the same time, some of these families say that they just do not need a home computer or Internet access. One in five (22%) without computers say that they do not think they need one, and 13% of those who do not have home Internet access say they had it but decided that they do not need it. We cannot be sure if parents truly feel that they do not need a home computer or Internet access, or if they offered this response because it was easier than admitting that these technologies were too costly. We can, however, assess how many families have forgone a home computer and Internet access because they have mobile connectivity instead. Eight percent say

that they do not have a home computer because they access the Internet through other devices, and 12% say they do not have home Internet because they go online via their mobile devices. Using a mobile device in locations with free Wi-Fi can be a cost-effective form of connectivity, even if it is intermittent.

Use of community access points and resources

For families who do not have computers or Internet access at home, libraries or community centers have often been highlighted as places that parents and children go to get online and receive help using the Internet. We found, however, that the majority of families do not access these community resources. Only 8% of parents without home access use computers at a library "often," and 21% do so "sometimes." Their children use libraries more frequently: 43% say that their children use computers at the library at least "sometimes." Some parents and children without home access use community centers, but much less frequently than at public libraries (10% of parents use community centers at least "sometimes," as do 24% of children). Community access points are more of a resource for families who are living below the poverty line and do not

Table 5: Why those without a computer at home do not have one	
Too expensive	40
Just don't need one	22
Had one, but it broke/doesn't work	9
Access Internet through other devices	8
Internet too slow in my community	6
Use computers/Internet elsewhere	4
Am planning to get one	3
Don't know how to use a computer	1

Totals do not sum to 100% because of the exclusion of 'don't know' responses, refusals, and 'other' responses.

Table 6: Why those without home Internet access do not have it	
Too expensive	42
Just don't need it	13
Access Internet through other devices	12
Internet too slow in my community	9
Use computers/Internet elsewhere	5
Computer isn't working	4
Am planning to get it	3
Parental concerns	2

Totals do not sum to 100% because of the exclusion of 'don't know' responses, refusals, and 'other' responses.

have home computers or Internet access; more than one-third (36%) of these parents say they use computers at a public library at least "sometimes," and nearly half (48%) say their children do.

At the same time, a substantial number of parents who do not have home Internet access, but do have a mobile device, make regular use of Wi-Fi at places like coffee shops and restaurants. Indeed, they are much more likely to connect in this way than to use a public library or a community center, with half (50%) saying that they do so at least "sometimes" (compared with 29% who say the same about libraries and 10% about community centers). This finding suggests that some lower-income families are developing strategies to make connectivity as affordable and convenient as possible, purchasing mobile devices but avoiding the cost of a data plan by using Wi-Fi in the places they frequent in the community.

Table 7: Use of libraries, community centers, and publicly available wi-fi					
	Percent of all those without a home computer or Internet access			**Percent by income (among those without a home computer or Internet access)**	
				Below poverty	**Above poverty**
	Often	**Sometimes**	**Often or sometimes**[+]	**Often or sometimes**	**Often or sometimes**
Parent uses at					
Library	8	21	29	36[a]	23[b]
Community center	4	7	10	11	10
Coffee shop/restaurant (Wi-Fi)	22	29	50	51	50
Child uses at					
Library	14	29	43	48	39
Community center	10	14	24	26	22

The table is among families with 6- to 13-year-olds and with incomes below the national median.
+ Totals may not sum properly due to rounding.
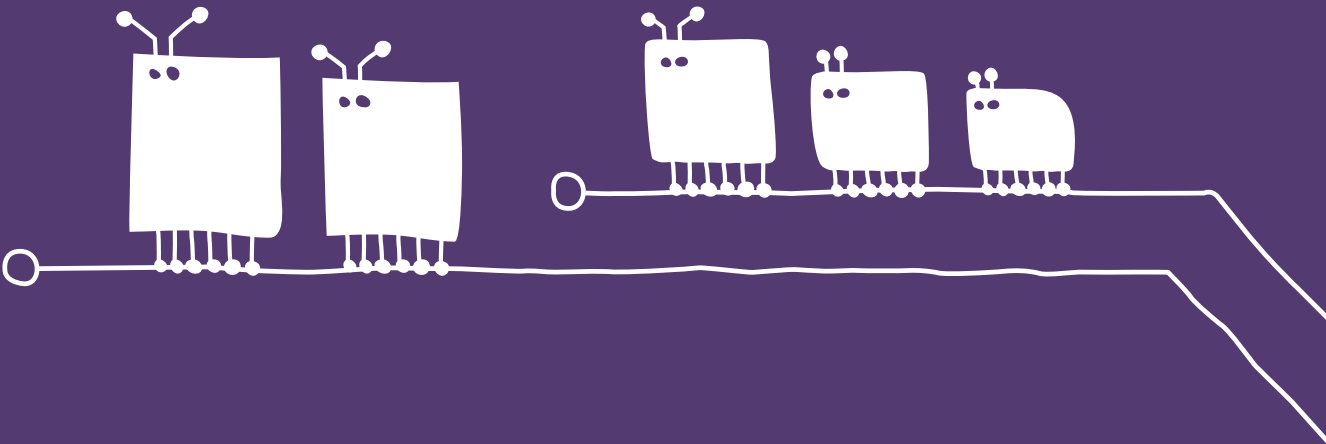
use of computers and the Internet by parents and children

Once we had established what families' media environments were like, we asked low- and moderate-income parents a series of questions about how they and their children use computers, mobile devices, and the Internet.

We were interested in how, and how frequently, parents use the Internet and digital devices. We also wanted to know how many years they had been online. Prior studies have established a relationship between how long adults have been online and how broadly—and productively—they use the Internet to address a variety of needs (Hargittai, 2002; Jung, Qiu, & Kim, 2001; Litt, 2013). Predictably, Internet tenure and use are also correlated with parents' confidence online and using Internet-capable technologies. These factors affect parents' abilities to address immediate family needs by accessing goods and services, as well as the opportunities for social mobility that result from identifying new job, training, and educational opportunities online that will ultimately benefit the entire family.

We were also interested in parents' technology use and confidence, because their capabilities impact possibilities for intergenerational transmission of tech-related knowledge and skills. The devices that parents are most confident using matter too; our qualitative interviews with lower-income parents had already revealed that it is easier for parents and children to gather around a computer or laptop together than to do so on a mobile phone. Parents who are not comfortable using a computer may feel less confident engaging with their children on that device, thereby constraining what parents and children can do together online.

Parents who report more frequent tech use themselves also have children who go online more frequently and for a wider range of activities. Furthermore, parents' perceptions of technologies' risks and opportunities are a good indicator of how restrictive or encouraging parents are, with regard to children using these tools to explore their interests, express themselves in new ways, and develop new skills (Clark, 2012; Livingstone, 2009).

Parents' use of computers, mobile devices, and the internet

In this section of the report, we document the proportion of low- and moderate-income parents who use computers, mobile devices, and the Internet; how frequently they go online; their level of confidence about using digital devices and the Internet; and whether those who do not go online feel that they are missing out by not being connected.

Overall computer and Internet use
Nearly all (94%) of the low- and moderate-income parents in our sample use the Internet or email at least occasionally (whether through a computer or mobile device). Among those in poverty, 89% do so, while among Hispanic immigrants, about 8 in 10 (79%) ever use the Internet.

Low- and moderate-income parents are more likely to use mobile devices than computers. In fact, about one-quarter (24%) do not use computers at all, even occasionally (whether to go online or for other functions). Among those living in poverty,

Table 8: Computer and Internet use among parents

Percent who:	Among all	By income		By race/ethnicity			Among Hispanics	
		Below poverty	Above poverty	White	Black	Hispanic	Immigrant	U.S.–born
Use the Internet or email at least occasionally+	93	89[a]	94[b]	96[a]	98[a]	84[b]	79[a]	96[b]
Access the Internet through a mobile device, at least occasionally+	86	83[a]	88[b]	86[a]	94[b]	82[a]	80[a]	86[a]
Use a computer at work, school, or home, at least occasionally	76	65[a]	81[b]	83[a]	83[a]	64[b]	56[a]	81[b]

+A total of 94% of respondents answered at least one of the first two items in this table positively. Therefore, we consider that 94% of all respondents use the Internet. Note: These questions were originated by the Pew Internet and American Life Project. The table is among families with 6- to 13-year-olds and with incomes below the national median.

that proportion rises to more than a third (35%) and to almost half (44%) among immigrant Hispanic parents. We also explored computer use by parent education, in order to see whether education might have more of a relationship with computer use than income alone. The results were very similar to those by income.

Frequency of computer and Internet use
Nearly three-quarters (72%) of low- and moderate-income parents use the Internet on a daily basis, and 41% use computers every day. Parents living below the poverty level use the Internet and computers less often than those whose household incomes are above it. Sixty percent of parents below the poverty line use the Internet every day, compared with 76% of those above. Only one-quarter (25%) of parents below the poverty line use computers every day, compared with nearly twice as many (48%) above the poverty line. Once again, immigrant Hispanic parents are least likely to be daily users: 44% go online every day, and 12% use computers every day. These percentages contrast sharply with non-immigrant Hispanic parents: 76% access the Internet daily, and 41% use a computer daily.

Parents who do not go online at all
Six percent of surveyed parents do not use the Internet at all, even occasionally. Among immigrant Hispanics that proportion rises to one in five (20%). It is possible that these parents do not go online themselves, but do have their children or

other family members connect on their behalf. It is also possible that they do not go online because they do not see benefits to doing so. However, our findings indicate that most of these parents do perceive advantages to being online. Ninety-five percent of them agree that the Internet makes it much easier to find information today than was the case in the past (70% strongly agree). And two-thirds (65%) of them agree that "people without Internet access are at a real disadvantage because of all of the information they might be missing." (It should be noted, however, that the sample size of parents who never go online is small, n = 70.)

Internet tenure
Most low- and moderate-income parents who are online have been using the Internet for quite some time. Two-thirds (67%) of parents who are now online have been using the Internet for more than 10 years.

This broader finding contrasts sharply with the reality for families living in poverty. Nearly one-third (31%) of parents below the poverty level who use the Internet have been online for less than five years (compared with 11% of parents reporting incomes above the poverty line, but still below the median U.S. income). Immigrant Hispanics are most likely to be Internet newcomers, with 45% of those who are online reporting that they have been using the Internet for less than five years.

Parental confidence
Among parents who go online, most (57%) feel "very" confident using the Internet, and a total of 91% say they feel "very" or "somewhat" confident doing so. Those parents who have both a computer and a mobile device tend to be more confident going online through the computer than the mobile device (56% vs. 42%). White and higher-income respondents are the most likely to feel more confident going online via computers, as compared with mobile devices. For example, among all low- and moderate-income White parents with both types of devices available to them, 64% are more confident with computers and 24% with smartphones. Among Blacks, 53% are more confident with computers and 42% with phones; for Hispanics, the split is more even,

Table 9: Frequency of computer and Internet use, among parents

Percent who use:	Computer	Internet
Daily	41	72
Several times a week	19	14
Once a week	3	3
Several times a month	4	3
Once a month or less	7	3
Never	24	6

Table 10: Years on Internet among parents (among those who use the Internet at least occasionally)								
Percent who have been online for:	**Among all**	**By income**		**By race/ethnicity**			**Among Hispanics**	
		Below poverty	Above poverty	White	Black	Hispanic	Immigrant	U.S.-born
1–4 years	17	31[a]	11[b]	10[a]	11[a]	35[b]	45[a]	15[b]
5–9 years	16	18	15	11[a]	17[a,b]	22[b]	26[a]	13[b]
10–14 years	27	27	27	27[a]	33[a]	19[b]	16	25
15–19 years	24	15[a]	29[b]	33[a]	20[b]	15[b]	7[a]	29[b]
20+ years	16	8[a]	18[b]	19[a]	19[a]	8[b]	3[a]	17[b]

The table is among families with 6- to 13-year-olds and with incomes below the national median. Totals may not sum to 100% due to rounding, 'don't know' responses, and refusals.

with 47% being more confident on smartphones as compared with 44% on computers. Parental education is also strongly related to which device parents feel most confident using to go online: 76% of college-educated parents with both types of device available to them are more confident with computers, compared with 39% of those with less than a high school education.

" Learning more about how to use computers (would make me feel more confident). Maybe I should take a computer class... so that way I can also teach my kids. "

—Parent of a fourth grader in California

What parents use the Internet to do

How frequently parents use the Internet and Internet-capable devices is important, but the actual activities they engage in online is a more vivid indicator of how broad and productive their connectivity is for addressing their families' everyday needs. As more and more information resources migrate online, the range of activities that parents conduct online becomes increasingly important to family well-being.

" (My children help me) because I don't know how to use (the computer) alone. If my daughter is around and I want to see something, I go to her. But I never do it alone. "

—Parent of a fourth grader in Arizona

Table 11: Parental confidence using the Internet	
How confident parents feel using the Internet (among the 94% who use the Internet)	
Very	57
Somewhat	33
Not too	8
Not at all	2
Which device parents feel most confident going online with (among the 77% with both a mobile device and a computer)	
Computer	56
Smartphone	34
Tablet	8

Totals may not add to 100% due to rounding, 'don't know' responses, and refusals.

Table 12: Among those with both a computer and a mobile device, percent who are more confident going online with each device

	Computer	Mobile device
All	56	42
By race/ethnicity		
White	64[a]	24[a]
Black	53[b]	42[b]
Hispanic	44[c]	47[b]
By income		
Lower (←$25,000)	52[a]	38[a]
Middle ($25–45,000)	54[a,b]	38[a]
Higher ($45–65,000)	62[b]	27[b]
By education		
No high school diploma	39[a]	49[a]
High school diploma	47[a]	41[a]
Some college	60[b]	31[b]
College or advanced degree	76[c]	19[c]

Statistical significance should be read vertically within columns.

The 94% of low- and moderate-income parents who use the Internet do so for a broad range of reasons, but the primary use, by far, is to look up information (77% say they "often" do this). About half (49%) "often" go online to get news and find out about community events, and one in five (21%) "often" use it to apply for jobs or services (52% do this at least "sometimes"). Internet connectivity also facilitates staying in touch with friends and family; more than half (59%) say they "often" use the Internet for this purpose. And many families are taking advantage of online financial services: just under half (46%) of parents say they often use online banking or bill-paying services (67% do this at least sometimes), and one in five (22%) often shop online (58% do so at least "sometimes").

> " When something breaks, like the washer, I go there [online] and type 'How to fix this,' and it explains it to me.... That's how I finish tasks. I learn through it. "
>
> —*Parent of a fifth grader in Arizona*

Table 13: What parents use the internet to do (among the 94% who use it)

Percent who use it for:	Often	Sometimes	Total+
Looking up information	77	18	95
Staying in touch with family/friends	59	24	83
Finding places to go/mapping directions	49	37	86
Keeping up with news/ local events	49	29	78
Online banking/ bill paying	46	20	67
Shopping	22	36	58
Signing up/applying for jobs or services	21	32	52

+ Totals may not sum properly due to rounding.

For lower-income families, Internet access is particularly important for locating and applying for opportunities that support family well-being and mobility, including jobs, services, health care access, and poverty alleviation programs. We find no difference in the proportion of parents who use the Internet for these purposes, either often or sometimes, on the basis of income (either between families who live below or above the poverty level, or when examined by total family income). Parents' education level, however, does make a difference; those who have not completed high school are least likely to use the Internet for these purposes, with 40% doing so at least sometimes, compared with 52% of parents with a high school diploma and 61% of college graduates. There are also large differences by race/ethnicity, with 74% of online Black parents using the Internet for these purposes either often or sometimes, as compared with 47% of White or Hispanic online parents. And among online Hispanics, Spanish-speaking parents are much less likely than English-speaking parents to explore available services or job opportunities online, with 39% doing so often or sometimes, compared with 56% of English-speaking Hispanics.

Some online activities are more universal among surveyed families, regardless of income, education, or race/ethnicity. For example, nine out of ten online families use the Internet to look for information at least sometimes, and eight in ten use it to stay in touch with friends and family. On the other hand, online shopping and banking are more often in the purview of higher-income families: 75% of online families earning $45–65,000 a year shop online at least sometimes, compared with 42% of those earning less than $25,000 a year. Higher-income families are also more likely to pay bills online (81% of online parents), compared with 52% of the lowest-income group.

Table 14: Use of the Internet to apply for jobs or services

Among those who use the Internet, percent often/sometimes go online to sign up or apply for jobs or services	
By income	
Below poverty level	53
Above poverty level	53
By race/ethnicity	
White	47[a]
Black	74[b]
Hispanic	47[a]
By education	
No high school diploma	40[a]
High school diploma	52[b]
Some college	55[b]
College or advanced degree	61[b]
Among Hispanics	
Spanish-dominant	39[a]
English-dominant	56[b]
Immigrant	43
U.S.-born	56

Statistical significance should be read vertically within sections.

Mobile-only versus home access

Some families connect to the Internet through laptop or desktop computers at home; others use mobile devices such as smartphones or tablets. In this report, those with computers and Internet access at home are considered to have "home access," while those who only connect through a smartphone or tablet are considered to have "mobile-only" access.

A primary digital equity concern is whether having mobile-only Internet access limits families' abilities to engage in certain types of online activities. Our findings indicate that those concerns may be well-founded; parents with mobile-only Internet access are less likely than those with home access to go online for some purposes.

The largest differences are in online shopping and banking. There is a 30 percentage-point difference in shopping online (36% of those with mobile-only access do so at least sometimes, vs. 66% of those with home access) and a 25 percentage-point difference when it comes to

online banking or bill-paying (49% of mobile-only parents vs. 74% with home access). There are smaller, but still substantial, differences in the proportion who apply for jobs or services online (a 14 percentage point difference) and who keep up with news and local events online (a 12 percentage point difference).

We cannot be sure from this survey whether these differences are due to having mobile-only as opposed to home access, or whether some other causal variables may be at work. But, we do know that these differences exist, and that they could have serious implications for the kinds of opportunities that are practically accessible to lower-income families.

Children's use of computers, mobile devices, and the internet

According to parents' reports, close to half of children use computers or the Internet every day, and another 38% do so weekly. Older children are

more frequent users than younger ones (56% of 10- to 13-year-olds are daily users, compared with 35% of 6- to 9-year-olds). There are also substantial differences by income, with 39% of the lowest-income children (less than $25,000 a year) using computers or the Internet every day, compared with 53% of the higher-income children ($45–65,000 a year).

Children of Hispanic parents are less likely than children of White or Black parents to be daily users (35%, compared with 50% of White or Black children). Among Hispanic youth, language is a

Table 15: What parents use the Internet for, by type of access (among the 94% who use it)		
Percent who often/ sometimes go online for:	**Mobile-only access**	**Home access**
Looking up information	93[a]	97[b]
Staying in touch with family/ friends	83	85
Finding places to go/ mapping directions	80[a]	89[b]
Keeping up with news/ local events	70[a]	82[b]
Online banking/ bill paying	49[a]	74[b]
Shopping	36[a]	66[b]
Signing up/ applying for jobs or services	42[a]	56[b]

Statistical significance should be read horizontally, across rows.

Case study: Erica and Denise

Interview location: Denver, Colorado
Annual household income: less than $15,000
Mother's education: some college

Erica is an 8-year-old third grader who lives with her mother Denise, an older sister, and her grandparents. Denise remembers getting a computer and Internet service for the first time about nine years ago when completing her GED required being online. Denise made the decision to forgo cable service, as she feels that Internet service is more important. She also purchases used items rather than new ones, including electronics, as a way to save money.

Erica and her family members generally engage with technology independently. Erica only asks her sister for help when she has trouble accessing an app or a website. Denise is very comfortable with technology, and rarely has to ask her daughters for tech-related help. She sees Google as a very important resource for her family; when her daughters ask questions, she feels confident that she can find an answer online. She finds this particularly useful when helping Erica with her homework: "there are things that she is learning that I completely space out on, so I'll look at her and she'll be like, 'help me,' and I'll say, 'I don't even remember how we did that.' So I'll get online and look it up, and oh yeah, I remember," she says.

key factor: only 27% of Hispanic children in Spanish-dominant homes use computers or the Internet on a daily basis, compared with 44% of those in English-dominant homes.

Parents who use the Internet frequently are more likely to report that their children do so as well. Among children whose parents are frequent users, half (52%) use computers or the Internet daily, compared with 27% of those whose parents are moderate users and 35% whose parents are infrequent users. ("Frequent" users are parents who use computers or the Internet daily, "moderate" are those who do so weekly or monthly, and "infrequent" are those who do so less than monthly or never.)

Not surprisingly, children with better access use computers and the Internet more often. For example, parents report that half (51%) of children with a home computer are daily users, compared with 30% of those without one; nearly half (48%) of children whose parent has a mobile device are daily users, compared with 22% of those without a device; and half (51%) of children with home Internet access are daily users, compared with 31% of those whose access is mobile-only. This may be because there is more competition for mobile devices within the household.

Parents' views about children's internet use

Most low- and moderate-income parents have generally positive views about the impact of the Internet and technology on their 6- to 13-year-old children. Nearly nine in ten agree that computers and mobile devices help their children to learn important skills (89%) and that the Internet exposes their child to important new ideas and information. Nearly eight in ten (78%) agree that computers and mobile devices offer their child

Table 16: Daily computer/Internet use among children, by type of access

Percent of 6- to 13-year-olds who are daily computer/Internet users, among those with:

By home computer access	
Computer and Internet access at home	51[a]
Computer but no Internet	36[b]
No computer at home	30[b]
By mobile device ownership	
A mobile device at home	48[a]
No mobile device at home	22[b]
By type of Internet access	
Home Internet access	51[a]
Mobile-only access	31[b]

Table 17: Frequency of computer or Internet use among children ages 6–13

	Among all	By age		By income		
Percent who use computers or the Internet:		**6–9**	**10–13**	**Lower (←$25,000)**	**Middle ($25–45,000)**	**Higher ($45–65,000)**
Daily	45	35[a]	56[b]	39[a]	43[b]	53[c]
Weekly	38	43[a]	33[b]	37	40	37
A few times a month or less	12	16[a]	8[b]	16[a]	13[a,b]	8[b]
Never	4	6[a]	2[b]	5[a]	4[a,b]	2[b]

new and interesting means of self-expression. However, parents also have concerns about their children's technology use: 74% say they worry about their child being exposed to inappropriate content online, 63% worry that tech use takes away from the time their child would spend on other important activities, and half (51%) worry about online bullying.

Surveyed parents' views about the benefits and dangers of technology and the Internet do not vary consistently by education or income, but they do vary by race and ethnicity. Black parents are the most likely to see the benefits of technology, and least likely to worry about the dangers. More Black parents "strongly" agree that the Internet exposes their children to important new ideas and information (55%, vs. 42% of Whites and 43%

of Hispanics) and helps their children learn important new skills (55%, vs. 41% of Whites, with no statistically significant difference with Hispanics). And Black parents are less likely to "strongly or somewhat" agree that time with technology takes away from other important things that their children could be doing (51%, vs. 63% of Whites and 68% of Hispanics). They are also less likely to worry about their children being exposed to inappropriate content (68%, vs. 78% of Whites, with Hispanics in between), or about online bullying online (36%, vs. 48% of Whites and 63% of Hispanics). Hispanic parents are far more likely to express concern about online bullying than either White or Black parents. As noted above, 63% agree that they worry about bullying, compared with 48% of White parents and just 36% of Black parents.

Table 18: Parents' views on children's use of technology and the Internet					
Percent who agree that:	**Among all**		**By race/ethnicity (percent who strongly/somewhat agree)**		
	Strongly	**Strongly/somewhat**	**White**	**Black**	**Hispanic**
Time with technology takes away from other important things	32	63	63[a]	51[b]	68[a]
They worry about online bullying	21	51	48[a]	36[b]	63[c]
They worry about inappropriate content online	49	74	78[a]	68[b]	71[a,b]
The Internet exposes children to important new ideas and information	45	88	88	90	88
Computers/devices help children learn important skills	47	89	86[a]	90[a,b]	92[b]
Computers/mobile devices offer children new/interesting means of self-expression	33	78	77	76	79
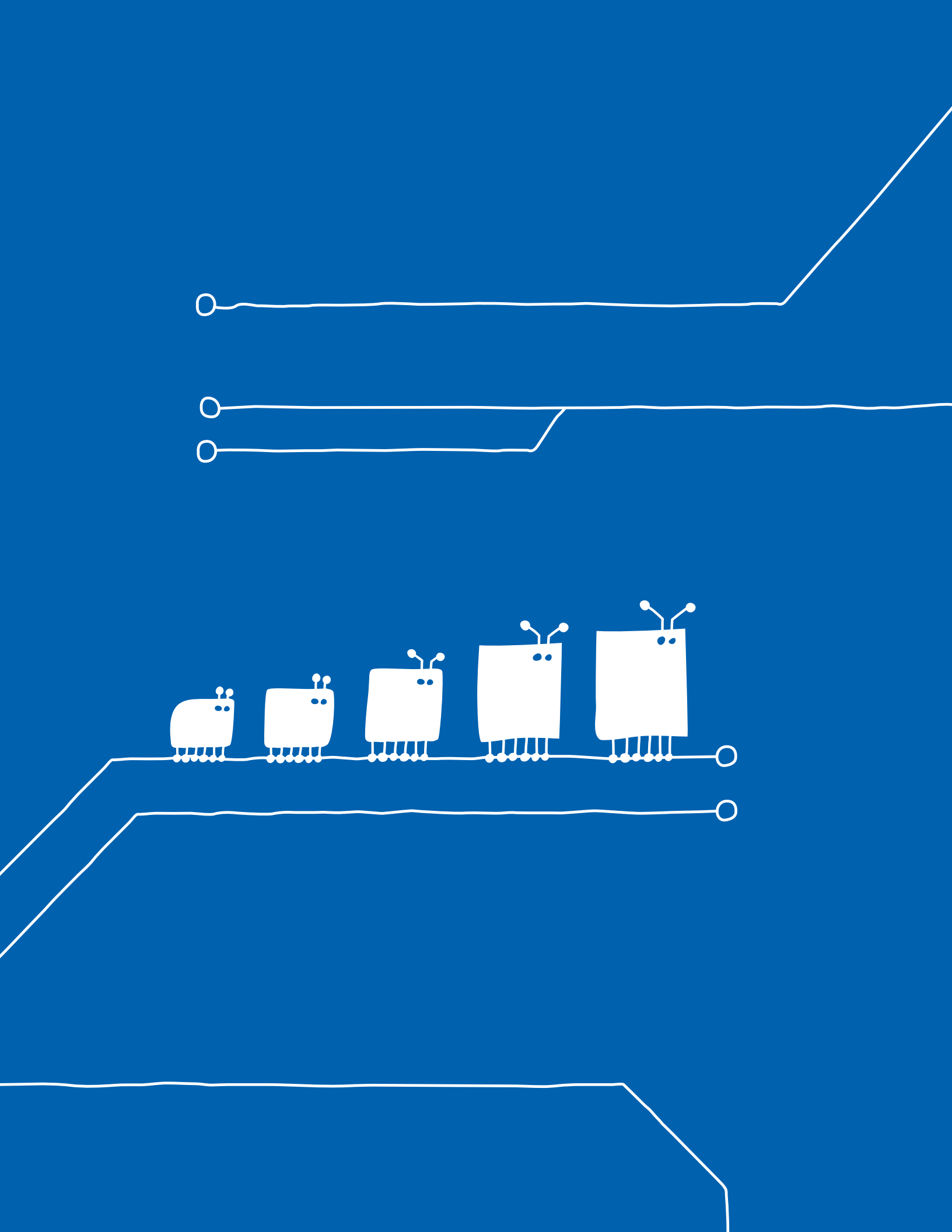
families as digital learning teams

How family members help each other learn with technology—both within and across generations—matters a great deal. Particularly for families with limited access to other digital learning supports, parents and children enabling each other's learning can be a critical compensating mechanism. These family interactions effectively mean that new skills acquired by one member benefit the family collective.

We asked parents a series of questions about how they use technology with their children. The forms of connectivity that parents and children have to the Internet and their access to digital devices influence how they use these technologies independently, but also together. We asked how parents help their children learn with technology, and about how children help their parents learn as well. In families with more than one child between ages 6 to 13, we also asked how siblings help each other. The specific activities that we asked parents about were informed by the qualitative interviews we had previously conducted with 170 lower-income families.

We find that family members are resources for each other when it comes to learning with, and about, technology. Parents, children, and siblings supplement each other's capabilities (and sometimes compensate for each other's limitations). For example, parents with less education and lower incomes tend to help their children less, but to depend on their children more. While children may facilitate their parents' interactions with digital technologies, it is important to stress that these activities are often dynamic interactions between parents and children. Children are often more adept at using new devices than their parents, but parents contribute to these collaborative experiences by helping their children evaluate and interpret content that children have located for them online (Katz, 2014).

> **We're a team, and we achieve things together. When I don't know something, my wife helps, or we ask our other son. We solve the problem together. In that aspect, technology has helped us, because it has made us closer.**
>
> —*Parent of a fifth grader in Arizona*

Children helping parents, and parents helping children, should be understood as powerful learning opportunities, because family members can fluidly exchange expert and learner roles to facilitate mutual skill- and confidence-building. Among siblings, these exchanges are most common in families where parents have less education, lower incomes, and report helping their children less frequently. This pattern suggests a compensating mechanism, in that children depend on each other more often when parents have less ability to guide their technology engagement.

Children helping parents learn

Children frequently help their parents use devices that connect to the Internet, such as computers, tablets, and smartphones. Half (53%) of all low- and moderate-income parents who use the Internet say that their child helps them, including 63% of those whose child is between 10 and 13 years old. Parents with lower educational attainment are more likely to turn to their children for help: 62% of those who did not graduate from high school do so, compared with 45% of those with a college degree.

Hispanic parents are the most likely to say that their child has helped them use Internet-connected devices (63%, compared with 45% of Whites), but there were no statistically significant differences within the Hispanic community by income, language, or immigrant generation.

Table 19: Children helping parents with computers, tablets, and smartphones (among parents and children who both use computers or the internet)

Percent of parents whose child has ever helped them with digital technology:	
Among all	53
Frequency (among those who ever help) Often Sometimes Hardly ever	21 58 20
By child's age 6–9 years old 10–13 years old	44[a] 63[b]
By parent education No high school diploma High school diploma Some college College or advanced degree	62[a] 55[a,b] 51[b] 45[b]
By race/ethnicity White Hispanic Black	45[a] 63[b] 60[b]

Statistical significance should be read vertically within sections.

Among the 53% of parents who say that their child helps them with computers or mobile devices, 21% say this "often" happens. Parents who have less confidence in their own Internet skills are more likely to report getting help from their children (38% often do so, compared with 16% of parents who consider themselves very confident). Here again, we find that children with lower-income or less highly-educated parents are more likely to "often" help their parents with technology. Among parents whose child helps, 32% in the lowest income group say their child does so "often," compared with 15% of those in the higher income group. Twenty-seven percent of those with less than a high school diploma say that their child "often" helps, compared with 11% of parents who are college graduates. And 27% of Hispanic parents whose child helps them with technology say they "often" do so, compared with 17% of White parents (Black parents are in between). Among Hispanics, however, there are no statistically significant differences by language or immigrant generation.

Table 20: Children helping parents with technology—frequency

Among those parents whose child helps them with Internet-connected devices such as computers or smartphones, percent who say their child "often" does so:	
By income	
Lower (←$25,000)	32[a]
Middle ($25–45,000)	17[b]
Higher ($45–65,000)	15[b]
By race/ethnicity	
White	17[a]
Black	22[a,b]
Hispanic	27[b]
By parent education	
No high school diploma	27[a]
High school diploma	29[a]
Some college	16[b]
College or advanced degree	11[b]
By parent Internet confidence	
Least confident	38[a]
Most confident	16[b]

Statistical significance should be read vertically within sections.

Parents helping children learn

Most low- and moderate-income parents help their children to use Internet-enabled devices. More than three-quarters (77%) do so, and among those, 28% say that they do so "often." The trend is the opposite of that observed with children helping parents: that is, the parents with the highest education are the most likely to help their children. Among those with a college degree, nine out of ten (90%) say that they have helped their child with technology, compared with 68% of those without a high school diploma. Some of the most common tasks parents help children with include finding information online (84% do so); learning how computers or mobile devices work (78%); fixing things that go wrong (70%); and downloading things (68%).

Table 21: Parents helping children with computers, tablets, and smartphones (among parents and children who both use computers or the Internet)

Percent of parents who have helped their children with digital technology:	
Among all	77
Frequency (among those who ever help)[+] Often Sometimes Hardly ever	28 54 17
By child's age 6–9 years old 10–13 years old	82[a] 72[b]
By parent education No high school diploma High school diploma Some college College or advanced degree	68[a] 74[a,b] 79[b] 90[c]
By race/ethnicity White Hispanic Black	83[a] 73[b] 71[b]
By income Lower income Middle income Higher income	74[a] 75[a] 84[b]

+ Does not sum too 100% due to rounding, 'don't know' responses, and refusals.

Table 22: How children and parents help each other with technology

| Percent helping with:	Child has helped parent with	Parent helped child with
Learning how the computer or mobile device works	68	78
Fixing things that go wrong	59	70
Finding information online	70	84
Downloading things like apps, software, music, or movies	69	68
Translating content (among foreign-language speakers)	58	55

Children helping each other learn

Parents report that their children often learn with each other, including teaching one another about technology. Just over half (56%) of 6- to 13-year-olds with siblings in the same age group often watch TV or videos together to learn things, and half (50%) often help each other with their homework. Slightly fewer than half (47%) read together, or to each other, "often," or help each other learn about computers or mobile devices. About three in ten (29%) often do art or science projects together.

These activities are more intensive among siblings in the lowest income group and those whose parents have less education. Just over half (56%) of siblings in families with a household income below $25,000 a year often help each other with their homework, compared with 43% whose family income is between $45–65,000 a year. Similarly, 60% of siblings whose parents did not graduate from high school often help each other with their homework, compared with 41% of those whose parent has a college degree. Lower-income youth are also more likely to help each other learn about computers or mobile devices: 53% do so often, compared with 33% of those in the higher-income group.

Table 23: How children help each other learn (Among the 48% of families with more than one 6- to 13-year-old in the home)

Percent of children who:	Often	Often/ sometimes
Watch TV or videos together to learn things	56	89
Help each other with homework	50	81
Read to each other or together	47	80
Help each other learn about computers or mobile devices	44	81
Do art or science projects together	29	70
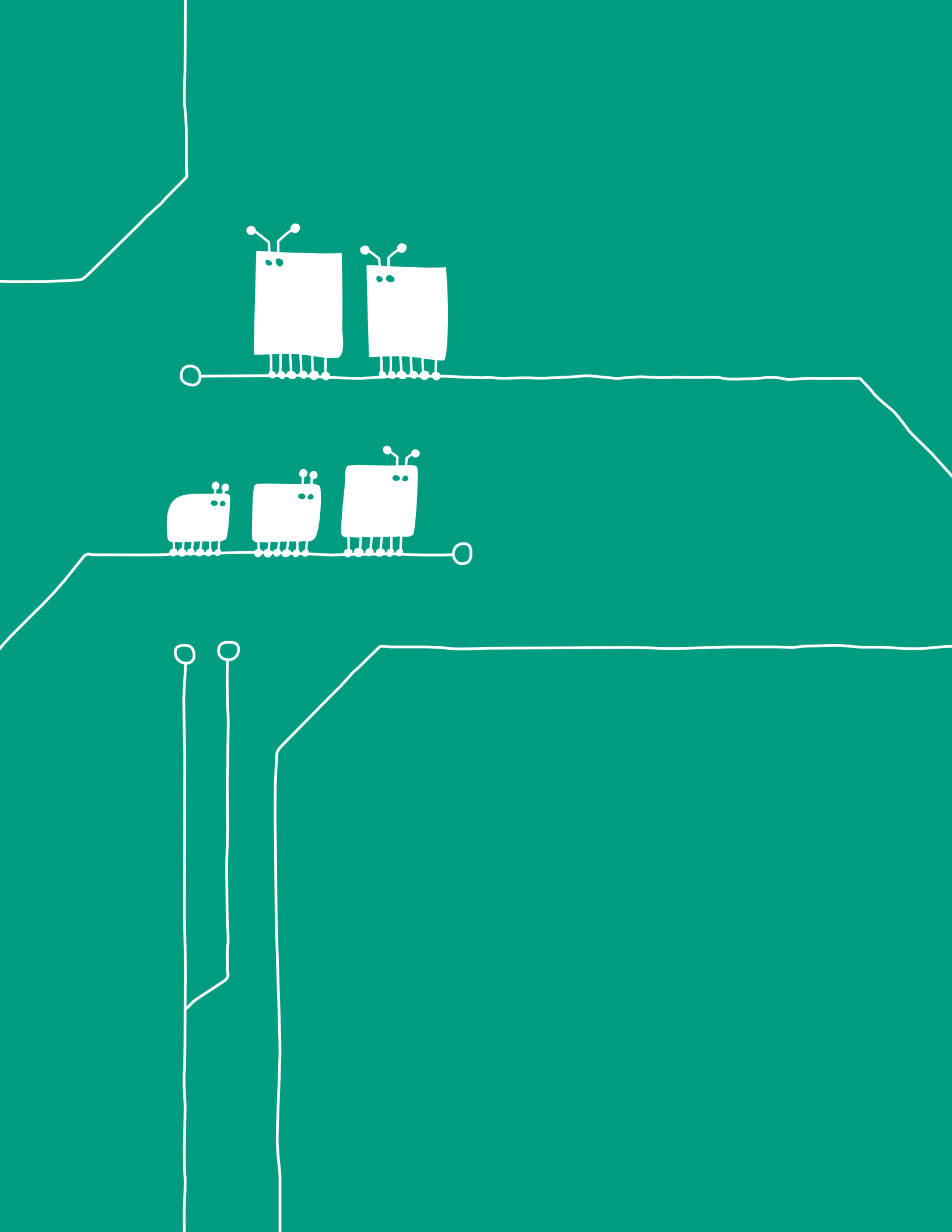
technology for learning at home and at school

In the final section of our report, we address how low- and moderate-income children use digital technology for educational purposes at home, and how parents assess the value of technology for their children's formal education. In recent years, technological and educational innovation have effectively become integrated; these linkages are evident in national policies as well as in programs developed at state and local levels (e.g., the National Education Technology Plan or ConnectED). Likewise, equitable access to broadband Internet and digital devices has become fundamental to initiatives aimed at making education itself more equitable. We were interested in assessing how lower-income parents perceive the impact of technology on how their children learn at school.

Two areas where these changes to education are most visible are in standardized testing and personalized learning. Increasingly, states are taking high-stakes testing online; we were interested in whether lower-income parents felt these moves advantage or disadvantage their children. Likewise, increased classroom technology use provides teachers with opportunities to help students learn at their own pace. We wanted to assess whether parents thought the consequent changes to the student-teacher relationship were improving their children's learning.

Our findings reveal important distinctions among parents with regard to technology's place in public education and whether it enables more equitable access to learning opportunities. They also show that children's classroom activities are intertwined with their home connectivity and their families' tech use.

Children's use of computers and the Internet for learning at home

The survey findings indicate that many children in low- and moderate-income families use computers and Internet access for a variety of educational activities.

Among 10- to 13-year-olds who use computers or the Internet, eight in ten (81%) do so to do homework, and four in ten (44%) to write stories or blogs. Many also use the Internet to connect with teachers (40%) and other students (46%) about school projects. Among 6- to 13-year-olds, 81% play educational games and use the Internet to look up things that they are interested in. Seven in ten (70%) use computers or the Internet to do something creative, such as make their own art or music.

> " (My son) likes to draw, so he'll say 'Mom, can you pull up pictures or drawings of Spiderman or Transformers?' So then I'll Google the cartoons and he'll try to draw whatever is on the screen. "
>
> —*Parent of a first grader in Colorado*

> " When we have problems with math…I go straight to Google. "
>
> —*Parent of a third grader in California*

> **!**
>
> **Case study: Cynthia and Angelica**
>
> **Interview location:** Denver, Colorado
> **Annual household income:** less than $15,000
> **Mother's education:** completed 8th grade
>
> Cynthia is a 9-year-old fourth grader who lives with her parents. About eighteen months ago, the family got its first computer and Internet access. Her mother, Angelica, signed up for the Internet Essentials program offered through Cynthia's school, which provides them broadband Internet service for $9.95 per month.[4] In order to afford the Internet, the family had to cancel its cable service.
>
> Angelica is not very familiar with computers, so she often asks Cynthia to help her look for things online. She is more comfortable going online on a tablet, "because they are smaller and you can take them with you." Because she is diabetic, Angelica frequently looks for healthy recipes online.
>
> The family has one laptop, an iPad, a tablet, and two smartphones. Cynthia talks with her parents about her online activity, especially when she is unsure of something: "They said they have to help me so that I don't get into problems that could hurt my family, like applications that ask for your identity." Since Cynthia's schoolwork now requires more computer use, Angelica wants to further develop her own tech skills so that she can continue helping her daughter with her homework.

Children with home Internet access are more likely to go online to look up information about things they are interested in than those with mobile-only access (52% do so "often," compared to 35% of those with mobile-only access). But in all other cases, we did not find significant differences between those with home access and those with mobile-only access with regard to whether or how often they used digital devices to do homework, play educational games, make art or music, connect with teachers, work with other students, or write stories or blogs.

---

[4] Internet Essentials is Comcast's initiative to offer low-cost broadband access to parents whose children qualify for free- or reduced-cost school meals.

Table 25: Children's educational activities on computers and the Internet (Among the 96% who use computers or the Internet)

Percent who use computers/ Internet to:	Among all			Age 6–9	Age 10–13
	Often	Sometimes	Often/ sometimes++	Often	Often
Do homework+	45	36	81	—	45
Play educational games	45	37	81	50[a]	39[b]
Look up things they are interested in	47	34	81	36[a]	58[b]
Make art or music or do something creative	34	36	70	32	36
Work with other students on school projects+	17	29	46	—	17
Connect with teachers+	17	23	40	—	17
Write stories or blogs+	16	28	44	—	16

+ Among 10- to 13-year-olds only.
++ Totals may not sum properly due to rounding.

Table 26: Children's educational activities on computers and the Internet, by home versus mobile-only access

Among those who use computers or the Internet, percent who "often" use them to:	Among those with home Internet access	Among those with mobile-only access
Do homework+	46	40
Play educational games	46	43
Look up things they are interested in	52[a]	35[b]
Make art or music or do something creative	30	36
Work with other students on a school project+	15	17
Connect with teachers+	16	19
Write stories or blogs+	11	18

+ Among 10- to 13-year-olds only.

We note no consistent differences by either income or education with regard to the likelihood of youth engaging in these educational activities with technology. There were, however, differences by race/ethnicity. Black parents are more likely to indicate that their children engage in several of these educational activities than are parents of White or Hispanic youth; namely, playing educational games, looking up information about things they are interested in, working with other students, and connecting with their teachers. Hispanic youth are more likely to write stories or blogs than either Black or White youth.

Parents' views about technology in the classroom

The vast majority of low- and moderate-income parents (80%) believe using technology improves the quality of education, while 18% think it is a distraction that hurts education. Parents' views on this issue (as a general matter, rather than how they feel about their own child's education) do not vary by income, or by race/ethnicity. But parents' views on classroom technology use do relate to their own level of education; nearly a quarter (23%) of parents who did not complete high school think that using technology hurts children's education,
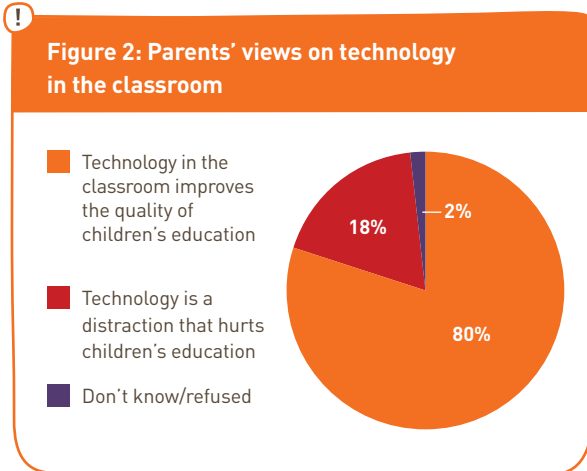
compared with just 11% of parents who graduated from college. We also found that English-speaking Hispanics are much more likely to say that using technology improves the quality of children's education than are Spanish-speaking parents (90% vs. 72%). The qualitative interviews conducted prior to the survey offer a possible explanation: English-speaking parents were more likely than Spanish-speaking parents to have attended U.S. public schools, in which many had used technology themselves. Their experiences may have predisposed them to positive attitudes toward classroom technology use.

Figure 2: Parents' views on technology in the classroom

- Technology in the classroom improves the quality of children's education — 80%
- Technology is a distraction that hurts children's education — 18%
- Don't know/refused — 2%

Table 27: Children's educational activities, by race/ethnicity

Percent who "often" do each educational activity on a computer or the Internet:

	White	Black	Hispanic
Do homework+	42	54	47
Play educational games	41[a]	56[b]	43[a]
Look up things they are interested in	47[a,b]	56[a]	43[b]
Make art or music or do something creative	33[a]	44[b]	32[a]
Work with other students+	10[a]	30[b]	21[b]
Connect with teachers+	12[a]	25[b]	23[b]
Write stories or blogs+	13[a]	15[a]	21[b]

+ Among 10- to 13-year-olds only.

Table 28: Frequency of computer use at school, and parents' opinions on that amount of use

Percent who say their child uses computers at school:	
Daily	30
A few times a week	37
A few times a month	9
Less than a few times a month/never	6
Do not know	16
Percent who say the amount of computer use at their child's school is:	
Too much	7
Too little	15
Just the right amount	76

Totals may not sum to 100% due to rounding, 'don't know' responses, and refusals.

Table 29: Parents' views about technology in the classroom (among those whose child ever uses computers or tablets in the classroom)

Percent who	Strongly agree	Strongly or somewhat agree
Believe that computers/ tablets in class help prepare children for important tests	41	84
Worry that the teacher knows less about children's individual needs because of time spent using technology	10	34

Most low- and moderate-income parents report that their child uses computers at school at least a few times a week. Three in ten (30%) say they do so daily, and another 37% say they do so weekly. And three-quarters of parents (76%) feel that the amount of computer use their child gets at school is "just the right" amount. However, 15% of parents think that their child does not get enough computer time at school, and 7% think they spend too much time with computers in class.

> " My son has made really big changes in his math and his reading because he likes computers. He loves getting into that laptop, that computer, and doing what he has to do. Ever since he started (with) his laptop, his grades went up. "

—*Parent of an eighth grader in Arizona*

Sixteen percent of parents say they do not know how often their child uses a computer at school. The proportion of parents who are not familiar with their child's school computer use does not

vary by the child's age or the family's income, but it does vary by race/ethnicity and parental education. Black and Hispanic parents are more likely to say that they "don't know" how often their child uses computers at school (19% and 23% respectively, compared with 11% of Whites). And parents who did not graduate from high school are more likely to say they do not know how often their child uses computers at school (26%, compared with 12% of college graduates). Among Hispanic parents, the proportion who do not know how often their child uses computers at school does not vary by income, language, or immigrant generation.

Most parents whose children do use computers or tablets at school said that they consider technology use helpful in preparing for important tests (84%). On the other hand, one-third of parents (34%) worry that classroom technology use may result in teachers knowing less about their children's individual needs.

Lower-income parents, non-White parents, and those with a lower level of educational attainment are all more likely to "strongly" agree that technology helps prepare children for important tests. Forty-eight percent of parents

from the lowest-income group strongly agree that technology serves this purpose, versus 38% of those from the middle-income group and 36% of those in the highest-income group. Fifty-two percent of Hispanic and 44% of Black parents hold this opinion as well, compared with 32% of Whites. The parents who are least likely to be connected to technology themselves—that is, those with lower incomes or lower levels of educational attainment—have the most positive views about the benefits of technology in preparing students for important tests. This may reflect parents' hopes that technology will even an unequal playing field for their children. Conversely, that better-connected parents were less sanguine about digital testing may be cause for concern, as these parents are in a relatively better position to evaluate whether online testing actually advantages or disadvantages children growing up below the median U.S. household income.

> " I feel like that's the way we're going: the more they can learn to use (technology) and to conquer each thing that they can on it—as far as homework or research—I think the better and easier they're going to be able to understand the big picture when they're in college or if they are in the workforce. "
>
> —*Parent of a fifth grader in Colorado*

> " I think (time with technology at school) has helped her... Her reading level has gone up dramatically and she had lots of trouble in math. It's helped her, the website that the (teacher) gave her, so she could practice at home. "
>
> —*Parent of a fourth grader in Colorado*

Hispanic parents are much more likely to worry that classroom technology use results in teachers knowing less about their child's individual needs: 59% agree with that statement, including 17% who do so "strongly." This proportion compared with just 24% of Black parents and 23% of Whites who agree (5% of Blacks and 7% of Whites "strongly" agree). This fear is especially strong among immigrant Hispanics: 75% of foreign-born Hispanics worry that teachers know less about their child's individual needs due to the time spent using technology in class, as compared with 26% of U.S.-born Hispanics. This finding underscores the importance of engaging parents as meaningful partners in efforts to address digital equity concerns related to formal education. The parents with the most serious misgivings about technology's consequences in the classroom are among those whose children should benefit most from self-paced or personalized instruction: that is, children who begin formal schooling speaking a language other than English.

conclusion

The data in this survey offer a unique perspective from low- and moderate-income families with school-age children in the United States. They reveal many of the nuances and complexities of digital life among lower-income families today. These are the main findings that should stimulate national debate and purposeful action:

- The vast majority of low- and moderate-income families have some form of online connection, and use digital technology for a range of purposes from doing homework and connecting with schools to looking for jobs and applying for services.

- Most parents feel comfortable and confident with technology, and they have an overwhelmingly positive view about the advantages it can offer their children. Parents and siblings are serving as resources for one another to learn how to engage meaningfully with digital tools.

- Substantial digital inequalities still exist. Many parents and their children are under-connected, and are not fully included in the digital revolution. Among families living below the median income level, one in five connect to the Internet only through a mobile device—a clear hindrance for students trying to research and write papers or complete online work, or for parents searching for employment or community services.

- Among some segments of our population—especially Hispanic immigrants and those living in poverty—an even more substantial number of families are not yet experiencing the benefits and educational opportunities that technology and the Internet can offer. As many as half have either no access or mobile-only access. And as our study reveals, even among those who are connected in some way, many often encounter serious limitations in their access to devices and to the Internet, such as slow or aging devices that are shared by multiple family members, and Internet service plans that are too often unaffordable.
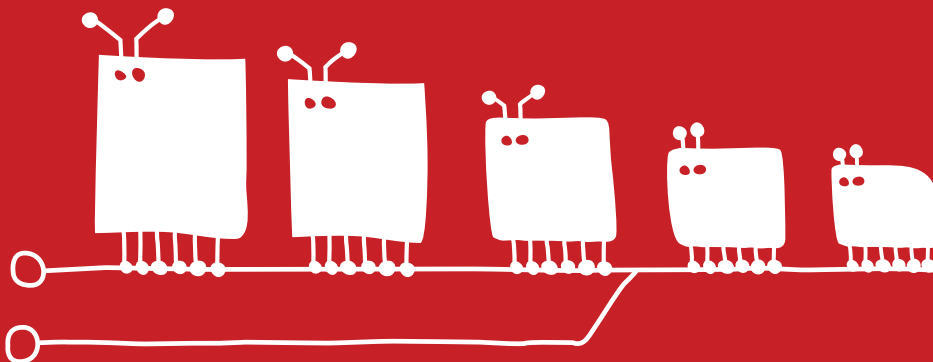
These constraints on connectivity are likely to have lifelong individual and societal consequences. Among youth, being under-connected means that critical opportunities to develop creative projects, take advantage of educational media, explore extracurricular programs, and complete homework, are limited. These limitations can compound over a child's school years. Educational pathways become restricted, and with them, career opportunities as well. Parents are less able to find or deploy resources to aid the whole family. Today, those most in need of finding services, obtaining jobs, and increasing educational opportunities are the least likely to have full access to the digital technologies that can help provide a level playing field. In sum, digital inequality can contribute to educational inequality, which in turn perpetuates economic inequality.

Our study makes clear that the primary obstacle preventing greater equity in access and digital participation—at least among families with school-aged children—is financial. Most surveyed families who do not have computers or home Internet access are not holding back because of a lack of confidence or interest in what the Internet or new tech tools can offer. For most, cost is the primary reason. Interrupted service is also cost-related, as is having to share devices between too many people to have enough time with them. And currently, only a small proportion of families are benefiting from discounted Internet services designed to get low-income families with school-age children online.

Most importantly, we believe that the challenges to connectivity that our study has showcased are solvable. Policymakers can address these issues with well-crafted policies that promote the right incentives and supports for families. Existing digital equity programs are not reaching their potential. Programs that provide discounted Internet access to low-income families are broadly under-utilized by those who would qualify for them. One-quarter of those who have signed up for these programs were dissatisfied with them. We can do better.

In addition, policymakers can develop approaches that build on families' existing assets. Lower-income families are too often only discussed in terms of constraints like limited formal education, income, language proficiency, and tech-related skills. Our findings uncover the kinds of family strengths that can be more strongly supported by well-crafted digital equity programs and policies. In particular, we find that family members are resources for each other when it comes to learning about and through technology. Parents help kids use tech, but kids help their parents too, particularly if their parents have less education and/or lower incomes. And siblings help each other, especially in families where parents cannot help as much.

The Internet, and the digital devices we use to connect to it, are enhancing the lives of children and their families in countless ways. But not all families are fully participating. Digital technology can expand opportunities for lower-income parents and their children. But unless we make concerted, proactive efforts to reduce digital inequality, these remarkable technological advances will have the unintended consequence of exacerbating differences, rather than diminishing them. The solution to this challenge will require innovative partnerships and new commitments aligning government, industry, education, and community leaders—including families themselves.

methodology

This report is based on a nationally-representative telephone survey of 1,191 low- and moderate-income parents of children ages 6 to 13. For eligible respondents with more than one child in this age range, one child was randomly selected to be the reference child for specific questions in the survey. A copy of the full questionnaire and all topline results can be found in the Appendix to this report, available online at www.joanganzcooneycenter.org/publication/opportunity-for-all/.

The survey was fielded by the research firm SSRS from April 16 through June 29, 2015, via landline and cell phones. Those who preferred being interviewed in Spanish were interviewed by bilingual interviewers. A total of 196 interviews were completed in Spanish.

The survey sample includes families with household incomes no higher than $65,000, which we selected as the threshold because the median household income in the U.S. was approximately $64,000 in 2014.[4] Thirty-one percent of our sample is families with incomes below the federal poverty level, 42% are between 100–185% of poverty, and 24% have incomes above 185% of poverty but below $65,000 a year. Poverty level was calculated based on families' annual income and number of household members, using federal poverty guidelines. Because the survey recorded family income in $5,000 increments, there were 32 respondents for whom we were unable to determine poverty level status; these families were therefore excluded from analyses that differentiated by poverty level.

Definitions of terms. Throughout the report, when we refer to "families" or "parents" we mean low- or moderate-income parents with children between ages 6 and 13. When we refer to families "above" the poverty level, we mean those whose incomes are above the federal poverty level, but below $65,000 annually. For some analyses, we have divided respondents into three economic categories of "lower income" (less than $25,000 a year), "middle income" (between $25,000 and $44,999 a year), and "higher income" (from $45,000 to $65,000 a year).

We define a "computer" as either a desktop or laptop computer. "Mobile devices" include smartphones and tablets. When we refer to "home access" to the Internet, we mean families that have a computer and some type of Internet access for that computer. "Mobile-only access" includes those who do not own a computer but do own a smartphone or tablet through which they can connect to the Internet through a cellular data plan or Wi-Fi.

Statistical significance. Where relevant, differences among demographic groups have been tested for statistical significance. Findings are referred to in the text in a comparative manner (e.g., "more than," "less than") only if the differences are statistically significant at the level of $p < .05$ (i.e., differences as great as those noted would occur by chance no more than five times in 100). In tables where statistical significance has been tested, superscripts indicate whether results differ at $p < .05$. Items that share a common superscript, or that have no superscript, do not differ significantly.

[4] U.S. Census Bureau, Current Population Survey, Annual Social and Economic Supplement, Table FINC-03. Presence of Related Children Under 18 Years Old—All Families by Total Money Income 2014. The median income for families with one or more child under 18 was $63,767. Retrieved from http://www.census.gov/hhes/www/cpstables/032015/faminc/toc.htm

For example, in Row 1 below, none of the items differ in a statistically reliable way. In Row 2, each item differs from the others significantly. In Row 3, the items in the first and third columns differ from the item in the second column, but not from each other. And in Row 4, items in Columns 1 and 3 differ from each other, but not from Column 2.

	Column 1	Column 2	Column 3
Row 1	93%	97%	95%
Row 2	22%a	36%b	55%c
Row 3	15%a	50%b	20%a
Row 4	13%a	17%a,b	23%b

Sampling. The sampling procedures were designed to efficiently reach the low-incidence target population, while still maintaining population representativeness. According to the 2013 American Community Survey (ACS), about 6% of the adult population in the U.S. earns less than $65,000 and has a child aged 6 to 13. With the challenges of low incidence in mind, the sample capitalized on the ability to reach respondents using the SSRS Omnibus survey, which is conducted weekly and draws a random sample of U.S. households. Respondents for this study were selected through the SSRS omnibus surveys being fielded during the study period (n = 320), and by calling back past Omnibus survey respondents who met eligibility criteria (n = 871). SSRS Omnibus uses an overlapping dual-frame design, with respondents being reached by both landline and cell phones. In total, 500 interviews were completed with respondents whose households can be reached by cell phone only. Efforts were made to maximize response rates, including multiple call attempts for non-responsive numbers (e.g., no answer, busy, answering machine), at varied times of day and days of the week. Respondents from the prescreened sample of past omnibus participants were offered a $5 incentive for participation.

Weighting. The survey data were weighted to adjust for the fact that not all survey respondents were selected with the same probabilities (given that some participants were recruited from a prescreened sample) and to account for systematic nonresponse along known population parameters that are generally present in surveys. The table below reports the sample size (n) and percentages for the weighted and unweighted data set.

	Unweighted		Weighted	
	N	%	N	%
White	555	47%	559	47%
Black	192	16%	178	15%
Hispanic	358	30%	356	30%
Other	86	7%	98	8%
Among Hispanics				
U.S. born	135	38%	110	31%
Foreign born	223	62%	248	70%
English language	166	46%	159	45%
Spanish language	189	53%	195	55%

Margin of sampling error. Weighting procedures increase the variance in the data, with larger weights causing greater variance. Complex survey designs and post data-collection statistical adjustments increase variance estimates and, as a result, the error terms applied in statistical testing. The design effect for the survey was 1.35 overall and 1.48 for Hispanics. Accounting for sample size and design effect, the margin of sampling error for this study was +/-3.3 percentage points for the overall sample and +/- 6.3 percentage points for Hispanics, at a 95% confidence level.

Qualitative research. The national survey research presented in this report was informed by qualitative interviews conducted with 336 low-income, Mexican-heritage parents and their school-age children (grades K–8) in Chula Vista, California; Denver, Colorado; and Sunnyside, Arizona in 2013 and 2014 by Vikki Katz and her research team. Findings from those interviews helped shape development of the questionnaire for the national survey. Quotes from those interviews, and profiles of some of the participants, have been included as pull quotes throughout this report. Beyond those quotes and profiles, however, all findings and data in this report are from the full national survey, with the demographic characteristics described earlier in the methodology. Reports from the site visits, and profiles of some of the families who participated, are available online at www.joanganzcooneycenter.org/publication/opportunity-for-all/.

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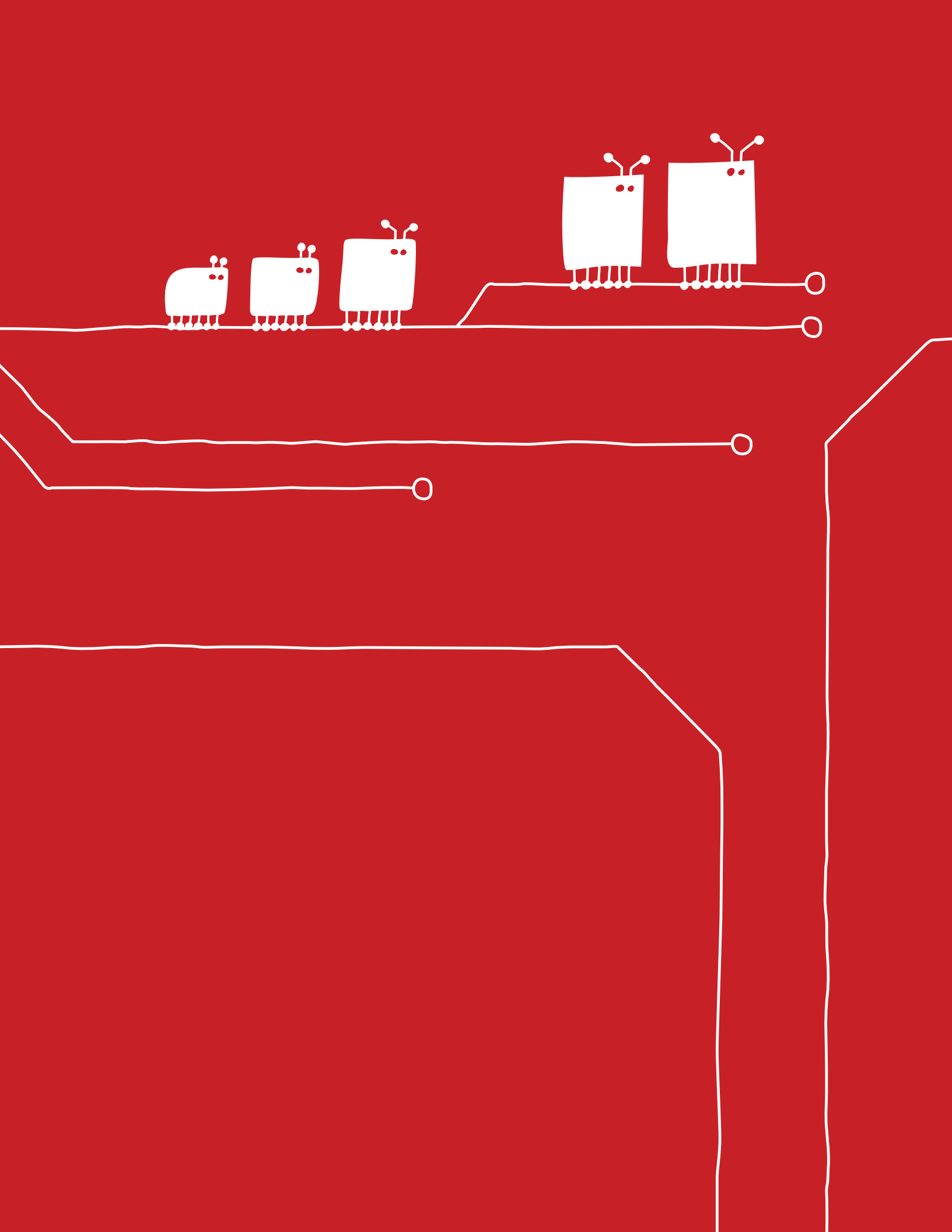
the Joan Ganz Cooney Center
at Sesame Workshop

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New York NY 10023
joanganzcooneycenter.org

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