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Residential Internet Survey Report

Prepared for Baltimore County, Maryland
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1. Executive summary

As part of its efforts to perform a comprehensive evaluation of broadband gaps during the Covid-19 pandemic, Baltimore County, Maryland, commissioned a mail survey of households. The survey was intended to gather basic data about the types of services to which residents subscribe and their use of these services (including subsidized programs such as Comcast Internet Essentials). Moreover, the survey was designed to provide insights about how the pandemic has impacted residents' use of the internet at various locations inside and outside the home and whether internet service is sufficient to meet the needs of households across the County.

Almost all respondents have access to the internet. At the same time, internet service may be inadequate to meet the needs of some respondents during the pandemic. Usage in the home for various activities has increased significantly during the pandemic, at the same time that fewer lower-income households have access to the internet and computers.

This report documents the survey process, discusses methodologies, and presents results intended to assist the County in developing strategies to close the identified gaps. The survey sample was stratified by household income, and the report highlights some key results for the lower-income cohort (less than $50,000 annual household income).

2. Key findings

Key findings are presented here thematically in four subsections: broadband access gaps, device utilization gaps, Covid-19 impacts on broadband use, and skills gaps in broadband and computer use. These and other findings are presented in greater detail in the body of the report.

Broadband access gaps

The survey found very few gaps in acquisition of residential internet services, but also that relatively few residents are taking advantage of available subsidized programs. The following are key findings:

- **Most respondents do use the internet, including outside of the home.** Almost all respondents access the internet from any location, including a range of locations outside the home. This shows that people are connected in some way, but other data point to a number of challenges they face in terms of affordability, access, and skills.

- **Some lower-income households may be underserved.** While most respondents (97 percent) reported having internet service (either home or mobile/cellular connection), 11 percent of lower-income households earning under $50,000 per year have no internet service. The takeaway is that broadband gaps disproportionately affect the lowest-income residents—which points more to affordability gaps than to infrastructure gaps.

- **Respondents say their children are heavily impacted by these gaps.** Forty-two percent of lower-income households with children strongly agreed that the children in their care cannot complete their homework because they do not have access to the internet (although this is based on a small number of lower-income families with children, n=31).

- **Residents may be significantly underutilizing existing broadband subsidy programs.** Just 35 percent of all lower-income Comcast customers are enrolled in the ISP's Internet Essentials program for low-income households. Just 7 percent of lower-income subscribers receive the $9.25 subsidy under the FCC's Lifeline program. Nine percent are unsure if they receive the subsidy, and 36 percent never heard of the program. The takeaway here is that as many as two out of three eligible customers do not know about, have not applied for, or were rejected for the $10 Comcast program—and less than one in 10 receive the federal government's subsidy. This indicates that many residents would benefit from assistance in navigating these programs.

- **Residents want affordable broadband internet service.** Most respondents strongly agreed the County should ensure all students (75 percent) and residents (71 percent) have access to affordable broadband service. Sixty-five percent of respondents strongly agreed that the County should provide free access at home to internet-based educational resources for economically-disadvantaged students. This implies the County would have popular support for programs and services to help residents acquire low-cost services.

Device utilization gaps

Most respondents have access to home internet service and computers, but a sizeable segment may face significant challenges in using, maintaining, and potentially repairing these devices. The following are key findings:

- **Most respondents have access to the internet and computers in the home.** Nine in 10 respondents have both internet access and a computer in the home (desktop, laptop, tablet). In comparison, only eight in 10 lower-income households have both internet access and a computer.

- **Many households have experienced frequent issues with their computing devices not working properly.** Two-thirds of respondents with internet access have experienced trouble with their computer not working properly; 19 percent experience problems at least weekly and more than **one-fifth of respondents may have trouble maintaining their computers.** This points to the need for programs to connect residents with tech support and training on how to use and maintain computers.

- **One-fourth of internet subscribers would not be able to quickly replace non-working computers.** Six percent of respondents said they could not replace their computer in the foreseeable future if it became unusable, and another 19 percent said it would take one to six months to replace it. Adding these two datapoints, 25 percent of households with home internet service are at risk of not being able to use broadband for very long periods because of computer problems, rather than residential internet connectivity problems. This once again points to the need for device acquisition and maintenance programs to ensure people can actually use the internet effectively.

- **Lower-income households are at greater risk of computer issues**. One-fourth of internet subscribers earning under $50,000 experience issues at least weekly with their primary computer becoming inaccessible or unusable More than one-half of lower-income subscribers would not be able to replace their computer (15 percent) or would take one to six months to replace it (37 percent) should their computer become unusable.

Covid-19 impacts on broadband use

Respondents reported increased use of and demand for broadband services during the Covid-19 pandemic. They are utilizing the internet more at home and less often outside the home, as may be expected, and they are engaged in more online activities for work and education. The following are key findings:

- **As expected, daily use of home internet service at various times has increased during the pandemic**. Prior to the Covid-19 pandemic, approximately one-half of respondents made daily use of the internet in the morning or early afternoon, compared with approximately eight in 10 respondents during the pandemic. Four in 10 households have at least three members online during peak usage times during the Covid-19 pandemic.

- **Engagement in online activities for work, education, and medical appointments has increased dramatically during the Covid-19 pandemic.** While this is not surprising, the dependence on home broadband greatly raised the stakes for having reliable broadband and devices for all County residents. Use of the internet increased substantially from pre-pandemic to during-pandemic for telework (46 percent vs. 61 percent), telemedicine or medical appointments (34 percent vs. 74 percent), attending online classes (35 percent vs. 48 percent), and attending homeschool (6 percent vs. 19 percent). Additionally, 49 percent of respondents use the internet for teleworking on a *daily* basis, compared with 15 percent of respondents before the pandemic.

Skills gaps in using broadband and computers

Most respondents have adequate internet and computer skills. However, a small segment of respondents reported significant challenges with respect to their ability to perform basic functions online and avoid harms. Respondents also expressed some interest in improving those skills. In general, these findings point to a significant need for training and education programs to ensure that residents—particularly older and lower-income residents—know how to use devices and avoid harms. Key findings include:

- **Some respondents may be vulnerable to online harms and disinformation.** When asked if they knew how to recognize and avoid a phishing scam, 12 percent disagreed or strongly disagreed. Ten percent disagreed or strongly disagreed that they knew how to recognize false information online and find credible sources of information.

- **Most respondents have the skills to perform basic tasks on the internet.** Overall, most internet subscribers strongly agreed that they know how to use the internet for various functions, including: accessing a bank account online (83 percent), bookmarking a website

or adding to list of favorites (74 percent), uploading content to a website (70 percent), and creating/managing a social media profile (69 percent).

Respondents were less likely to agree that they are skilled in creating their own content or personal website or in troubleshooting issues with technology.

- **Many respondents are interested in becoming more confident in using computers, smartphones, and the internet.** Specifically, 43 percent of respondents agreed or strongly agreed that they would like to become more confident in using computers and related technology, and 34 percent agreed or strongly agreed they would like to attend training.

- **Many caregivers report that children under their care have adequate broadband skills.** Among those with children, 66 percent agreed or strongly agreed they are sufficiently skilled in computer use to complete their homework on their own. However, 22 percent disagreed or strongly disagreed.

- **Some caregivers do not have adequate skills to help their children when needed.** Although more than one-half (56 percent) of respondents with children strongly agreed that their computer skills are good enough to help their children complete their homework, and 17 percent agreed, 11 percent disagreed or strongly disagreed that they have sufficient computer skills. These findings skew to lower-income parents, showing that significant numbers of children do not have support at home for mastering computer skills.

- **Many respondents disagreed that their children can minimize or avoid specific online risks.** Many respondents disagreed or strongly disagreed that their children have the skills to detect and avoid false or misleading information (49 percent), avoid online bullying (35 percent), get help for online bullying (27 percent), detect and avoid financial scams and predators (51 percent), avoid exposure to graphic violence or pornography online (50 percent), and get help if exposed to graphic violence or pornography online (27 percent).

  Although 63 percent of respondents agreed or strongly agreed that they have the time and skills to protect their children from online risks, this leaves a significant number of parents unable to do so, again pointing to the need for training and support.

3. Survey process

In close coordination with Baltimore County, CTC managed the survey project, including development of the questionnaire, sample selection, mailing and data entry coordination, survey data analysis, and reporting of results.

Mailing and responses

CTC developed the draft survey instrument based on the project objectives and provided it to County staff for review and comment. The County provided revisions and approved the final questionnaire. (A copy of the survey instrument is included in Appendix A.)

A total of 6,500 survey packets were mailed first-class in June 2021 to a random selection of residential households in Baltimore County, stratified by income group: 1) lower-income, <$50,000 estimated annual income and 2) upper-income, $50,000+ estimated annual income.

Recipients were provided with a postage-paid business reply mail envelope in which to return the completed questionnaire by July 7, 2021. Responses were accepted after the reply-by date, through August 16, 2021, given the delayed delivery of some survey packets by the U.S. Postal Service and the lower than anticipated response rate. A total of 546 useable questionnaires were received by the date of analysis, providing a gross response rate of 8.4 percent.

The margin of error for aggregate results at the 95 percent confidence level for 546 responses is ±4.2 percent. That is, for questions with valid responses from all survey respondents, one would be 95 percent confident (19 times in 20) that the survey responses lie within ±4.2 percent of the target population as a whole.

Data analysis

The survey responses were entered into SPSS[1] software and the entries were coded and labeled. SPSS databases were formatted, cleaned, and verified prior to the data analysis. The survey data was evaluated using techniques in SPSS including frequency tables, cross-tabulations, and means functions. Statistically significant differences between subgroups of response categories are highlighted and discussed where relevant.

The survey responses were weighted based on the age of the respondent and household income. The sample was stratified by income level to ensure a sufficient number of responses to analyze data among lower-income households. Also, since older persons are more likely to respond to surveys than younger persons, the age-weighting corrects for the potential bias based on the age of the respondent. In this manner, the results more closely reflect the opinions of the County's adult population.

The following sections summarize the survey findings. In some cases, the upper-income group is split into $50,000–$99,000 and $100,000+ groups, to highlight key differences with the highest income group.

[1] Statistical Package for the Social Sciences (http://www-01.ibm.com/software/analytics/spss/)

4. Survey results

The results presented in this report are based on analysis of information provided by 546 residents of Baltimore County. Unless otherwise indicated, the percentages reported are based on the "valid" responses from those who provided a definite answer and do not reflect individuals who said "don't know" or otherwise did not supply an answer because the question did not apply to them. Key statistically significant results ($p \leq 0.05$) are noted where appropriate.

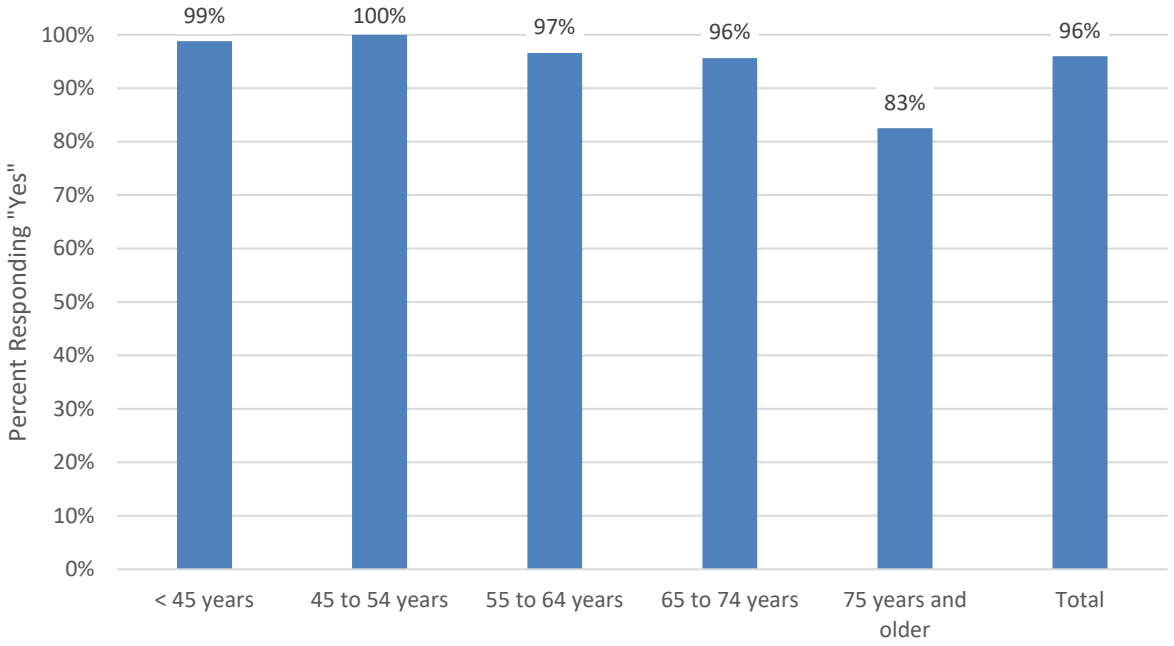
Internet connection and use

Respondents were asked about their use of the internet, including home internet connection providers, internet costs and enrollment in programs for low-income subscribers, and devices used. This information provides valuable insight into residents' need for various internet and related communications services.

Internet usage

Almost all (96 percent) respondents make some use of the internet, on any device from any location, as shown in Figure 1. Usage is somewhat lower among seniors ages 75+, but is still relatively high across all demographic groups.

Figure 1: Internet Usage by Respondent Age



Agreement with reasons for not accessing the internet are highlighted in Figure 2 and Figure 3. The leading barriers to internet access include concern with safety and privacy (17 out of 29 strongly agree), cost of internet service (16 out of 32 strongly agree), and lack of interest or need (14 out of 30 strongly agree).

Figure 2: Reasons for Not Using the Internet (Mean Ratings)

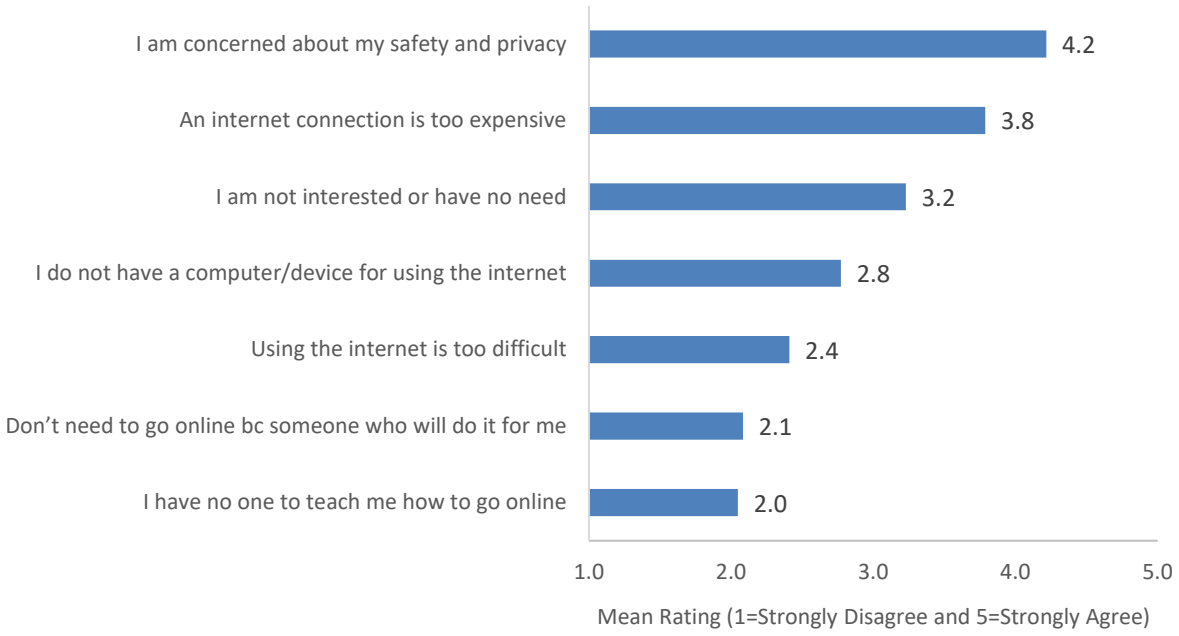
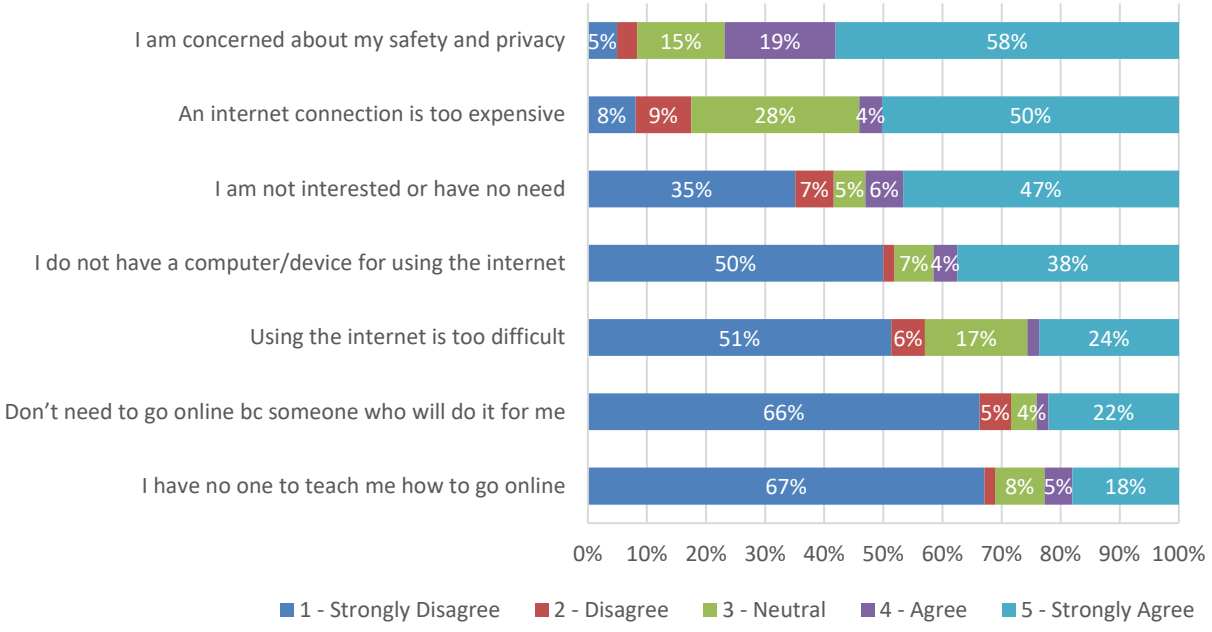


Figure 3: Reasons for Not Using the Internet



Importance of communication services

Respondents were asked to indicate the importance of various communication services to their household, using a scale where 1=Not at all important and 5=Extremely important. The mean importance of various service aspects is illustrated in Figure 4, while detailed responses are illustrated in Figure 5.

Figure 4: Importance of Communication Service Aspects (Mean Ratings)

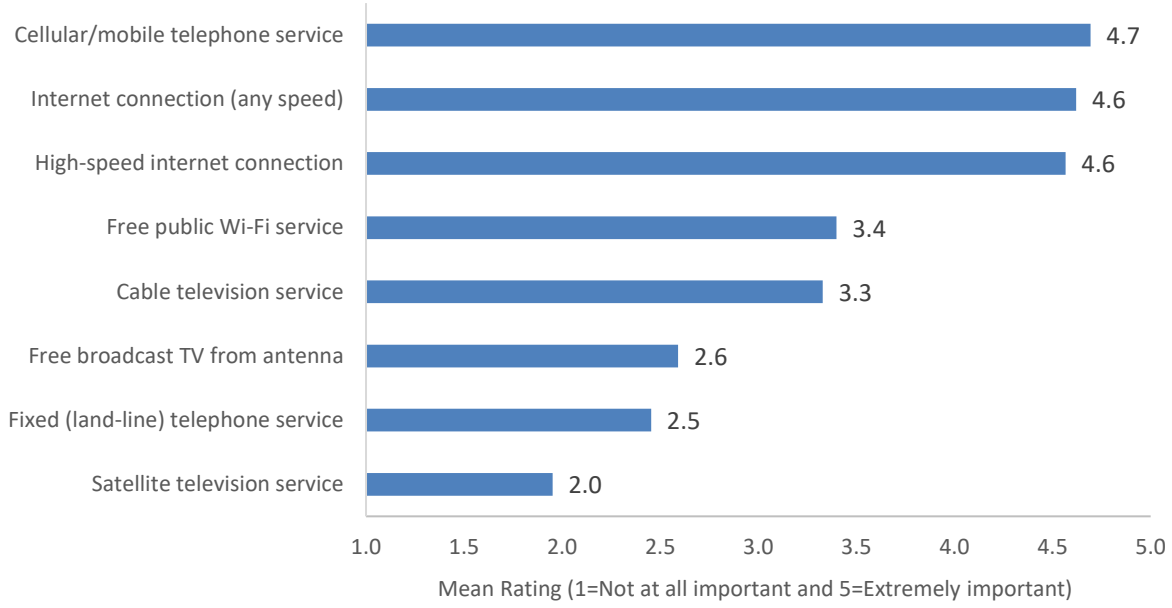
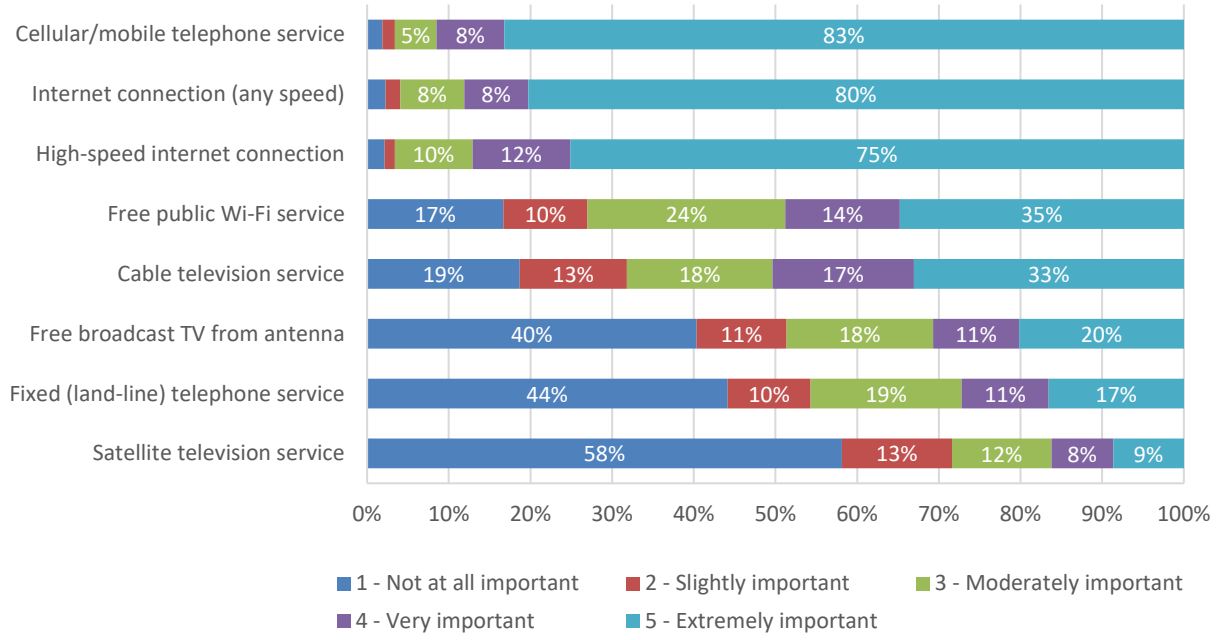


Figure 5: Importance of Communication Service Aspects



Cellular/mobile telephone and internet services are extremely important to respondents, while broadcast television service, landline telephone, and satellite television service are significantly less important. Specifically, 83 percent said cellular/mobile phone service is extremely important, and 80 percent said an internet connection of any speed is extremely important. Another 75 percent of respondents said high-speed internet is extremely important.

Figure 6 and Figure 7 illustrate the importance of internet services and mobile telephone service by respondent age and household income. Those in higher-income households and those under age 75 placed more importance on internet services and mobile telephone service compared with their counterparts.

Figure 6: Importance of Communication Services by Respondent Age

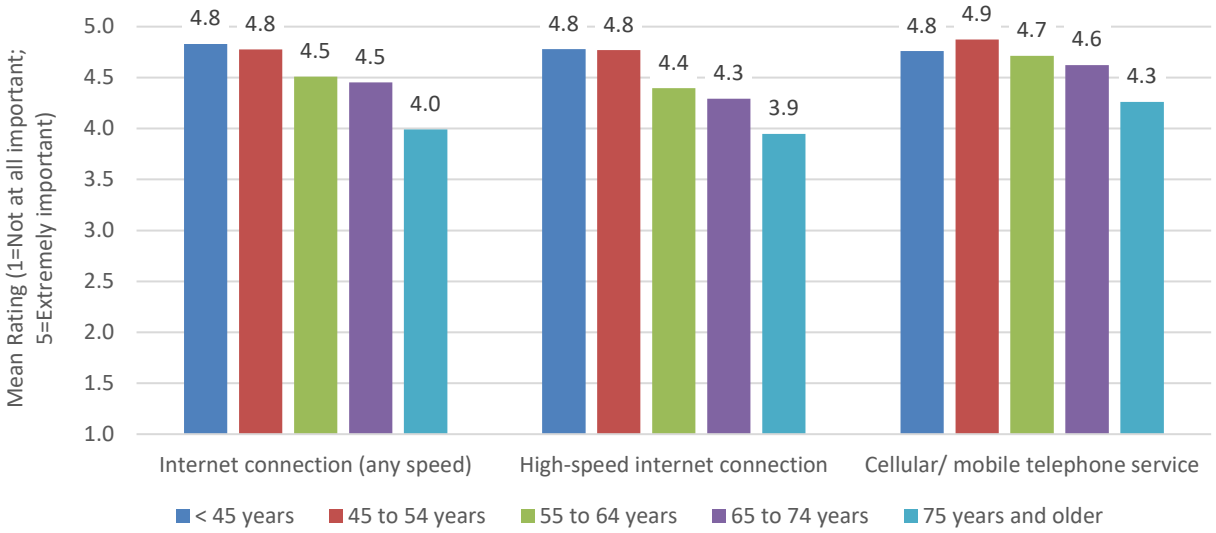
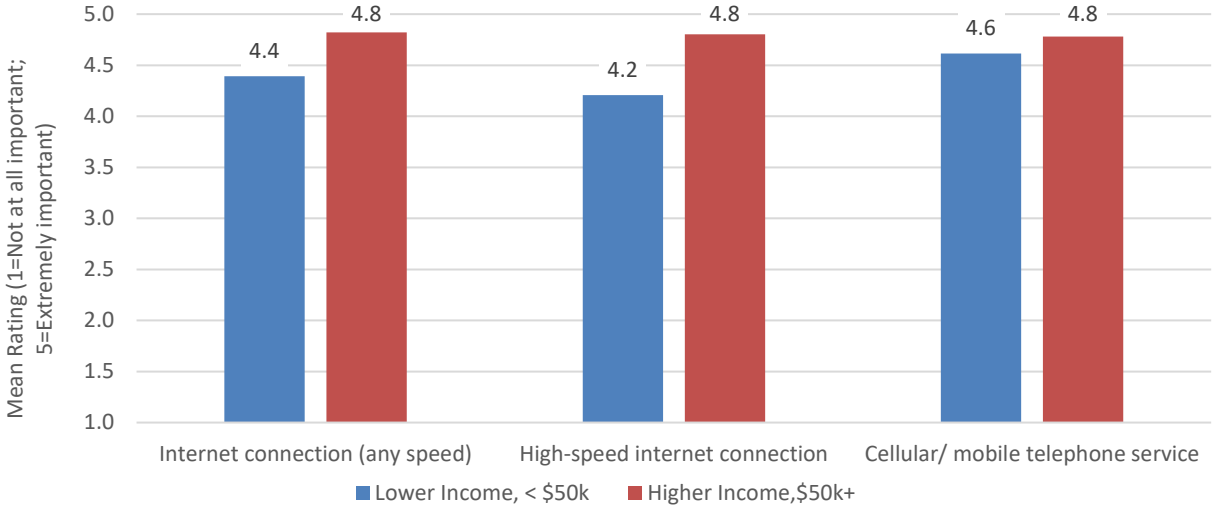


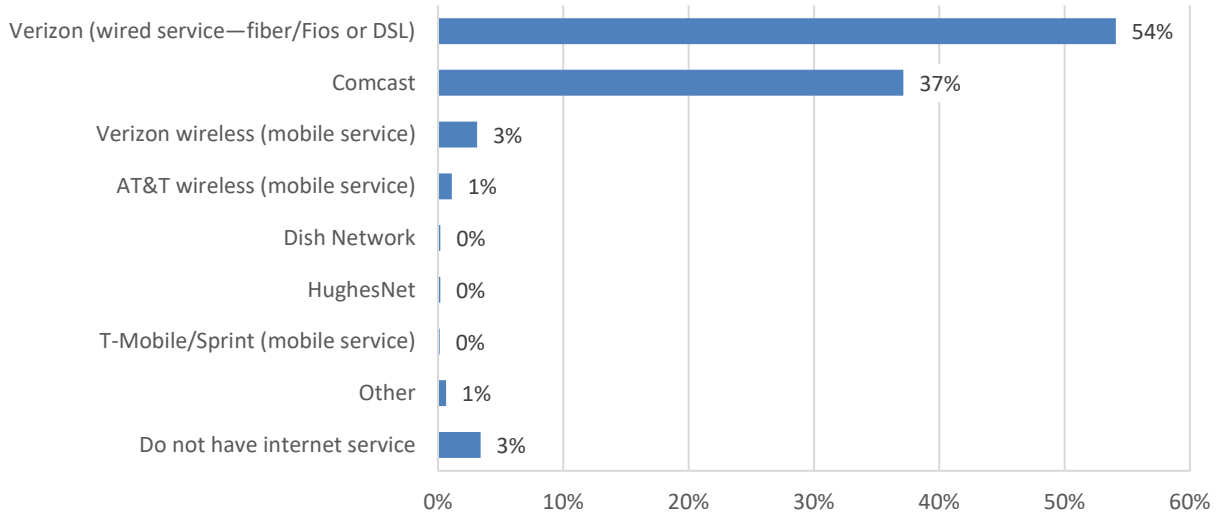
Figure 7: Importance of Communication Services by Household Income



Internet service provider

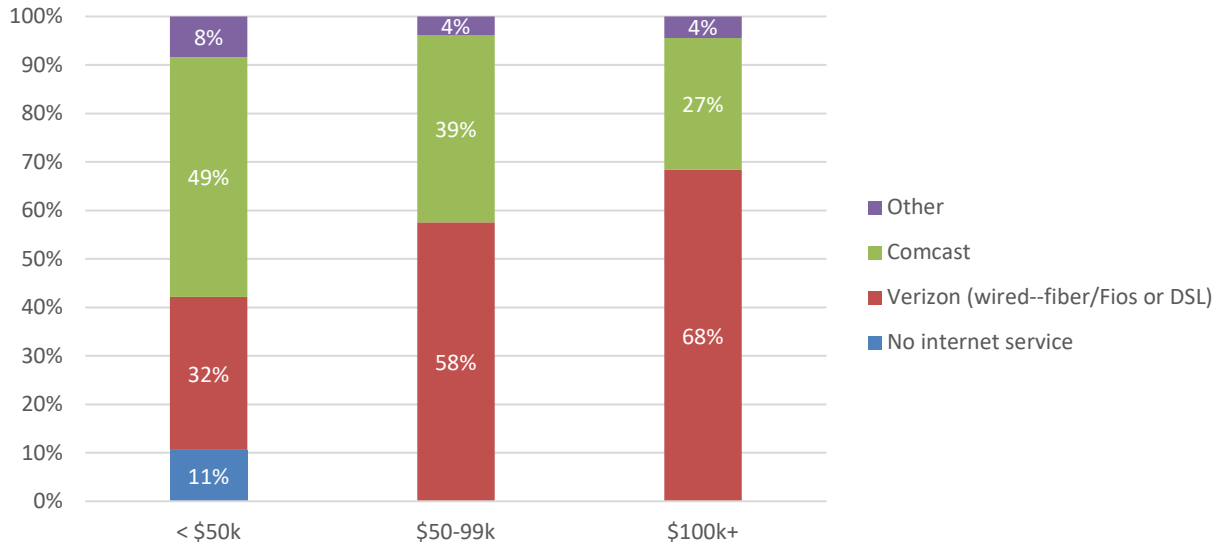
As illustrated in Figure 8, Verizon and Comcast are the leading ISPs overall in the market area. Only three percent of respondents do not have internet service. Most (88 percent) Verizon (wired) subscribers have fiber, while eight percent have a DSL connection, and four percent were unsure. Seven of 17 respondents without internet cited the high cost as the main reason for not purchasing home internet service.

Figure 8: Primary Internet Service Provider



Use of home or mobile internet service varies by household income. Eleven percent of lower-income households do not have any internet service, either a home internet connection or a mobile/cellular connection (see Figure 9).

Figure 9: Primary Internet Service by Household Income



As discussed previously, most respondents have some internet access. Total internet access is high across all demographic groups, as shown in Table 1. Respondents in lower-income households are less likely to have internet service, as previously discussed, as are those with a high school education or less, those ages 75+, and those who live alone (who are more likely to be older).

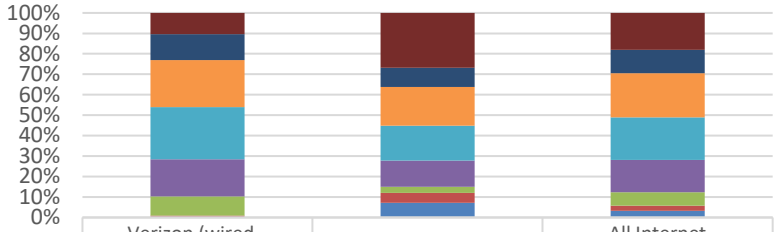
Table 1: Internet Access by Key Demographics

	No internet service	Verizon (wired)	Comcast	Other ISP	Total Internet Access	*Weighted Count*
TOTAL	**3%**	**54%**	**37%**	**5%**	**97%**	***518***
Respondent Age						
< 45 years	0%	61%	39%	0%	100%	*222*
45 to 54 years	0%	48%	39%	13%	100%	*82*
55 to 64 years	4%	53%	36%	7%	96%	*92*
65 to 74 years	8%	50%	36%	7%	92%	*64*
75 years and older	14%	46%	32%	8%	86%	*49*
Education						
HS education or less	9%	38%	48%	5%	91%	*125*
Two-year/technical degree	2%	56%	37%	5%	98%	*72*
Four-year college degree	1%	63%	30%	5%	99%	*149*
Grad, prof, doctorate	0%	59%	36%	5%	100%	*163*
Income						
Less than $50,000	11%	32%	49%	8%	89%	*128*
$50,000 to $99,999	0%	58%	39%	4%	100%	*115*
$100,000 or more	0%	68%	27%	4%	100%	*172*
Race/Ethnicity						
Black/African American, non-Hispanic	2%	45%	47%	5%	98%	*78*
White/European-American, non-Hispanic	4%	62%	29%	5%	96%	*227*
Other/more than one	3%	47%	44%	6%	97%	*56*
Household Size						
One HH member	10%	51%	32%	8%	90%	*110*
Two HH members	2%	52%	39%	8%	98%	*165*
Three HH members	2%	64%	31%	3%	98%	*93*
Four + HH members	0%	56%	42%	2%	100%	*139*
Children in Household						
No children in HH	4%	53%	35%	8%	96%	*320*
Children in HH	0%	58%	41%	1%	100%	*188*
Own or Rent Residence						
Own	2%	61%	33%	4%	98%	*395*
Rent/live with family/other	7%	34%	51%	9%	93%	*110*
Years at Residence						
Less than 5 years	2%	48%	45%	5%	98%	*161*
5 or more years	4%	58%	33%	6%	96%	*351*

Internet service cost and programs for low-income subscribers

Respondents were asked to give the cost of their home internet service, as shown in Figure 10. The estimated monthly average cost for internet service is $80 overall, $78 for Verizon (wired) service, and $82 for Comcast. Six in 10 respondents pay between $41 and $100 per month for their internet service. Another 29 percent pay more than $100 per month, and 12 percent pay less than $40 per month.

Figure 10: Monthly Price for Internet Service

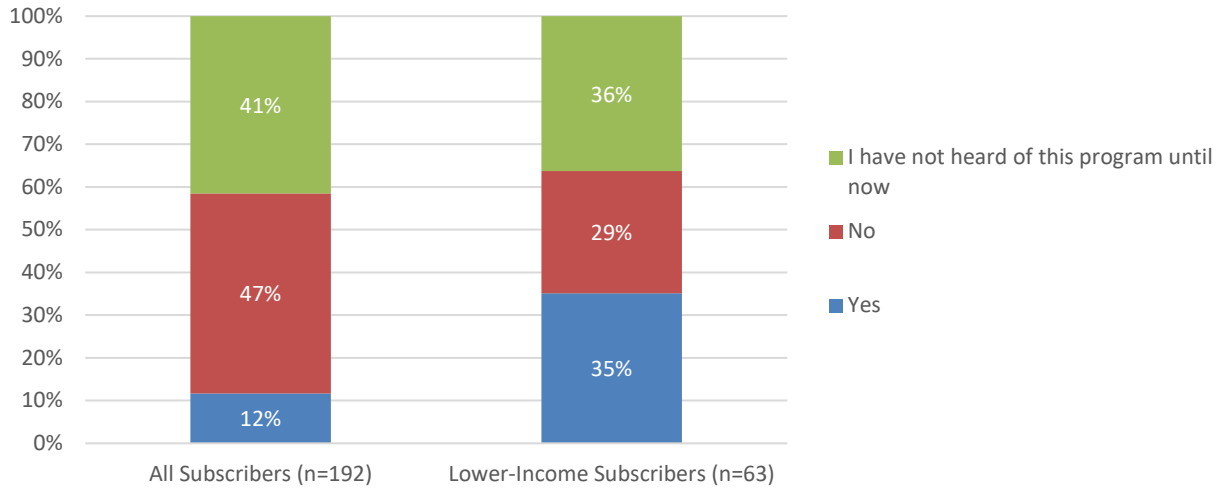


	Verizon (wired--fiber/ Fios or DSL)	Comcast	All Internet Providers
More than $120	10%	27%	18%
$101 to $120	13%	9%	11%
$81 to $100	23%	19%	22%
$61 to $80	26%	17%	21%
$41 to $60	18%	13%	16%
$21 to $40	9%	3%	7%
$11 to $20	1%	5%	2%
$0 to 10	0%	7%	3%

Estimated Monthly Avg:
Total: $80
Verizon: $78
Comcast: $82

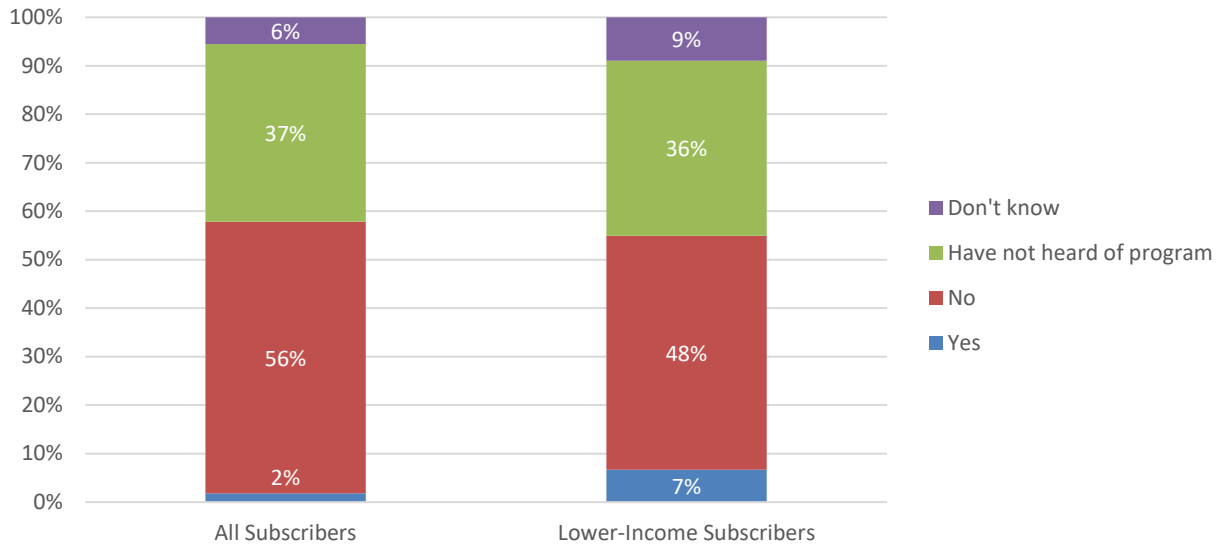
As illustrated in Figure 11, just 12 percent of all Comcast customers are enrolled in the ISP's Access program for low-income households. Thirty-five percent of customers earning under $50,000 per year said they are enrolled in the program.

Figure 11: Enrolled in Comcast Internet Essentials Program



About seven percent of lower-income subscribers (earning under $50,000 per year) receive the $9.25 subsidy under the FCC's Lifeline program. Nine percent are unsure if they receive the subsidy, and 36 percent said they had not heard of the program. Most households are not receiving the subsidy (see Figure 12).

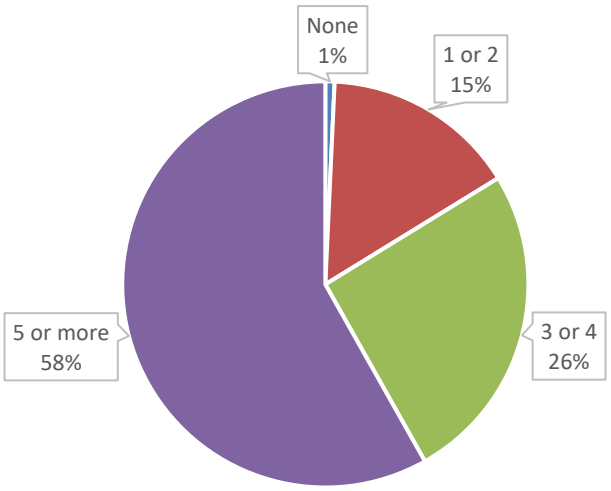
Figure 12: Receive $9.25 Subsidy Under FCC's Lifeline Program



Personal computing devices

Respondents were asked to indicate the number of personal computing devices they have in the home. As shown in Figure 13, 58 percent of households with internet service have five or more devices.

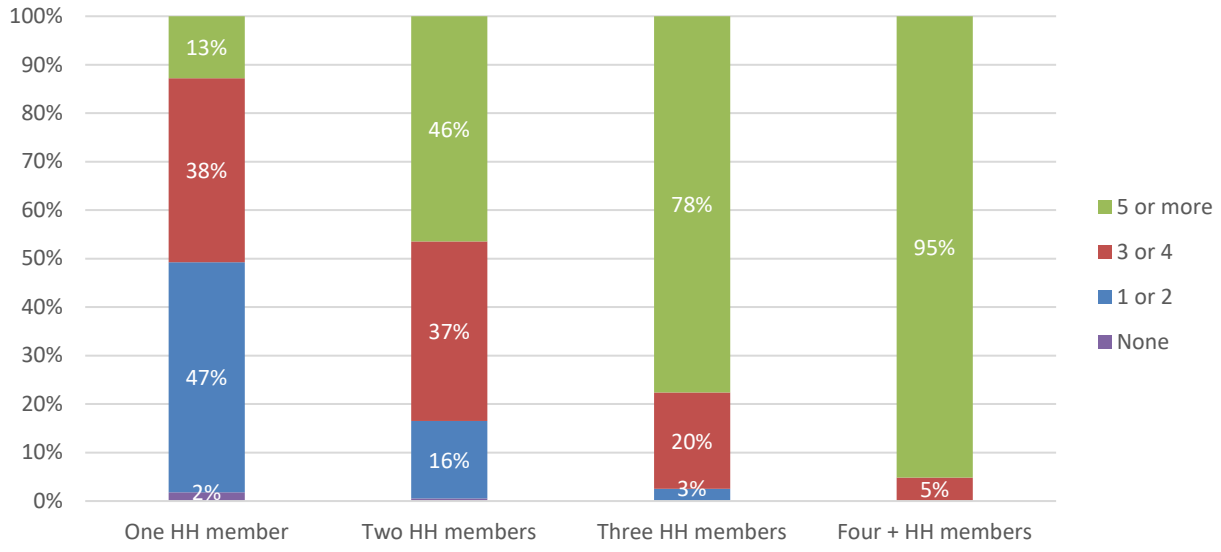
Figure 13: Number of Personal Computing Devices in Home



The number of personal computer devices in the home is correlated with the number of

household members, as may be expected. Almost all households with four or more members have at least five personal computing devices in the home, compared with 13 percent of those who live alone. Nearly one-half of those who live alone have one or two devices (see Figure 14).

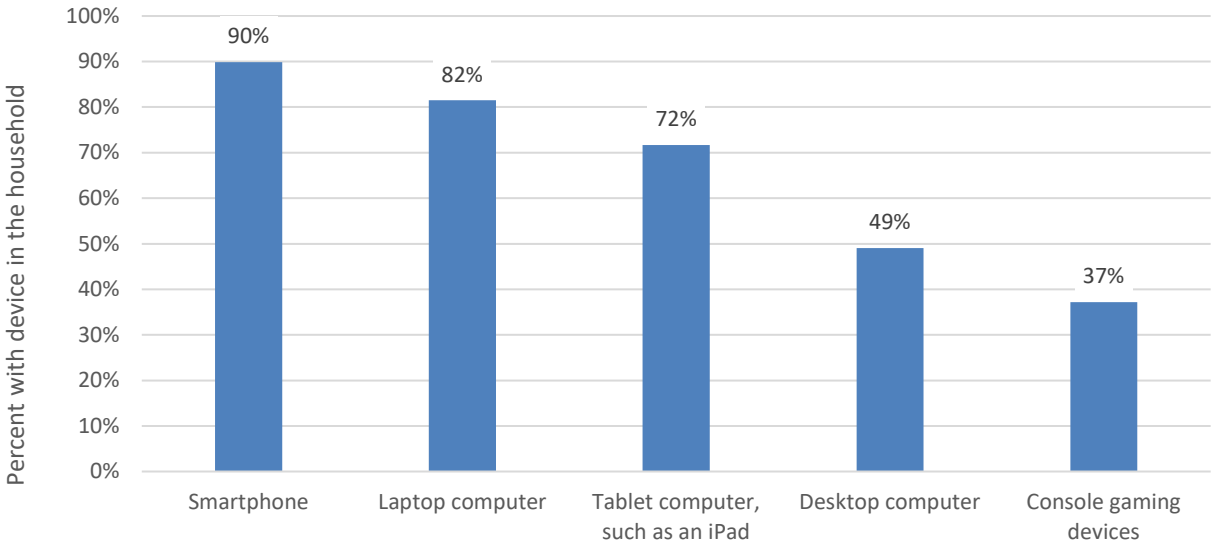
Figure 14: Number of Personal Computing Devices in Home by Household Size



Devices in the home

Availability of devices is relatively high in households with internet access, with respondents selecting an average of 3.3 types of devices in the home and only four percent not selecting any device.

Figure 15: Devices Available in the Home

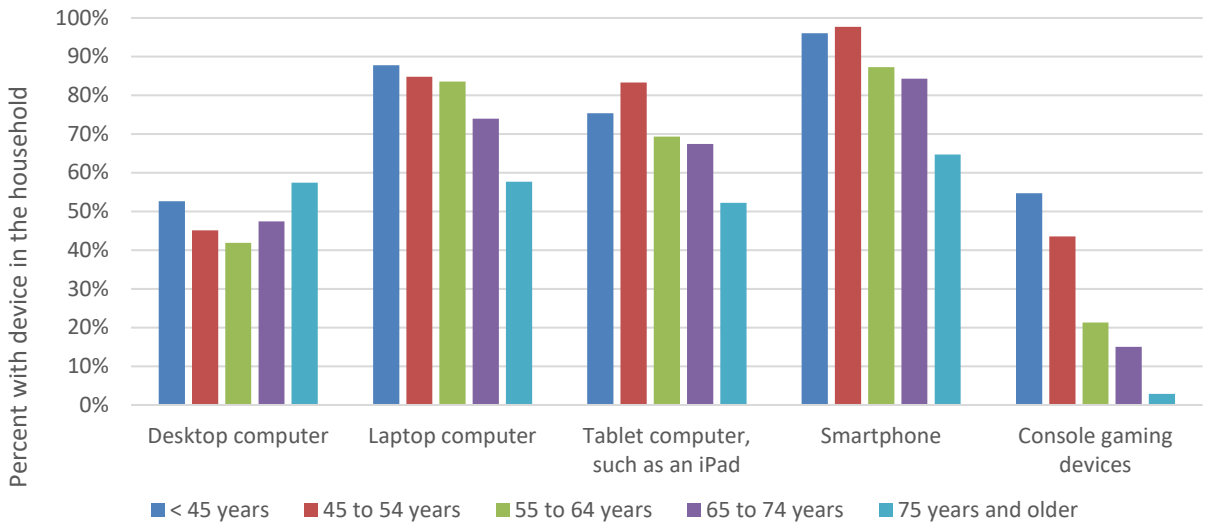


Use of smartphone is highest, with 90 percent of internet users having one, followed by laptops (82 percent) and tablets (72 percent). Forty-nine percent of respondents with home internet

have a desktop computer, and 37 percent have console gaming devices (see Figure 15). Nine in 10 of all households have both an internet connection and a personal computing device, compared with eight in 10 of lower-income households.

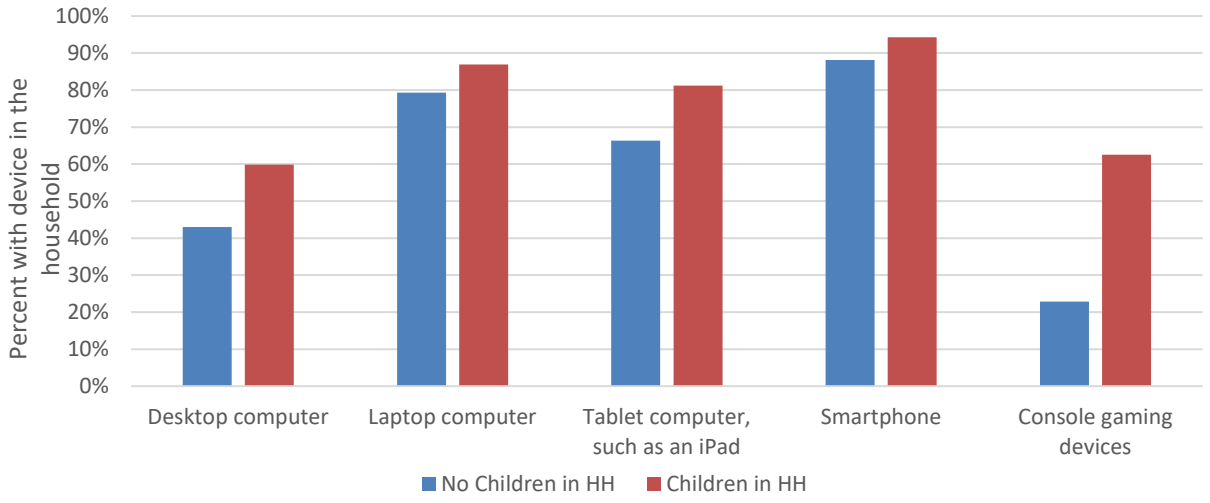
Respondents ages 75 and older are less likely than younger respondents to have various devices except desktop computers, as illustrated in Figure 16.

Figure 16: Devices Available in the Home by Respondent Age



Households with children in them make strong use of key devices, as shown in Figure 17. Households with children are more likely than those without to children to have various devices, particularly a console gaming device.

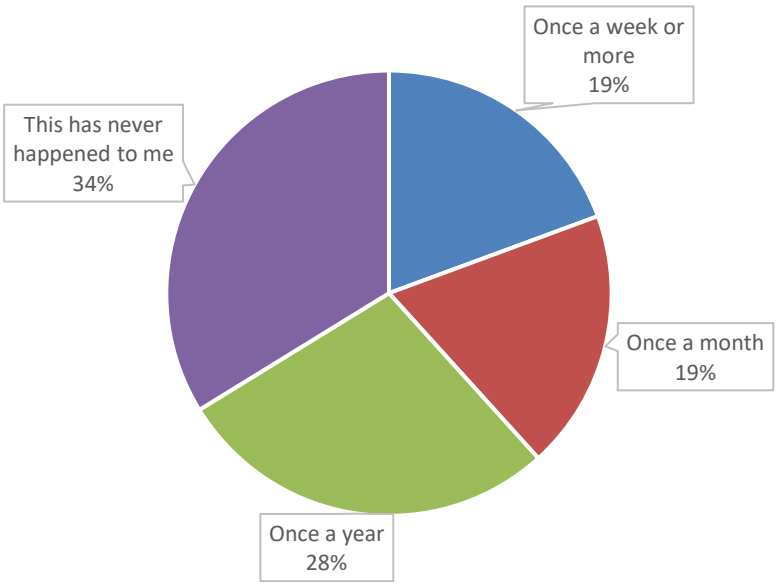
Figure 17: Devices Available in the Home by Children in Household



Respondents with home internet service were asked how often their primary computer becomes inaccessible or unusable, and how long it would take to replace the computer if it became lost or

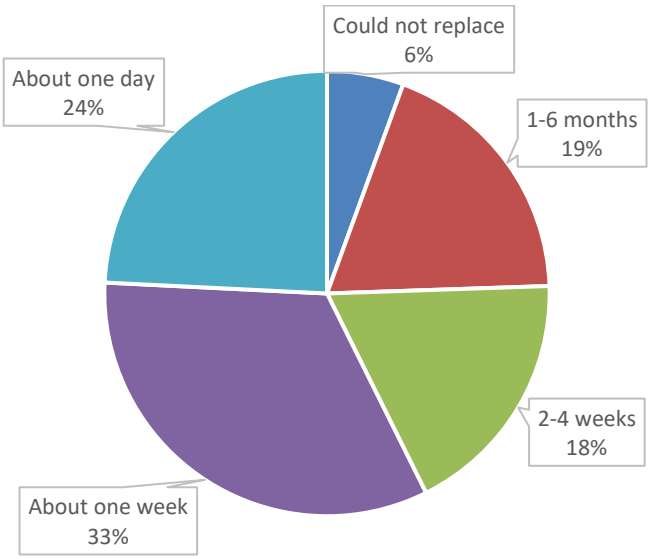
damaged beyond repair. Two-thirds of respondents have had some issues with their computer, including 19 percent who experience problems at least once per week (see Figure 18).

Figure 18: Computer Becomes Unusable



Six percent of respondents said they could not replace their computer if it became unusable, and another 19 percent said it would take one to six months to replace it (see Figure 19). Nearly six in 10 internet subscribers could replace their computer within one week if it were lost or damaged beyond repair.

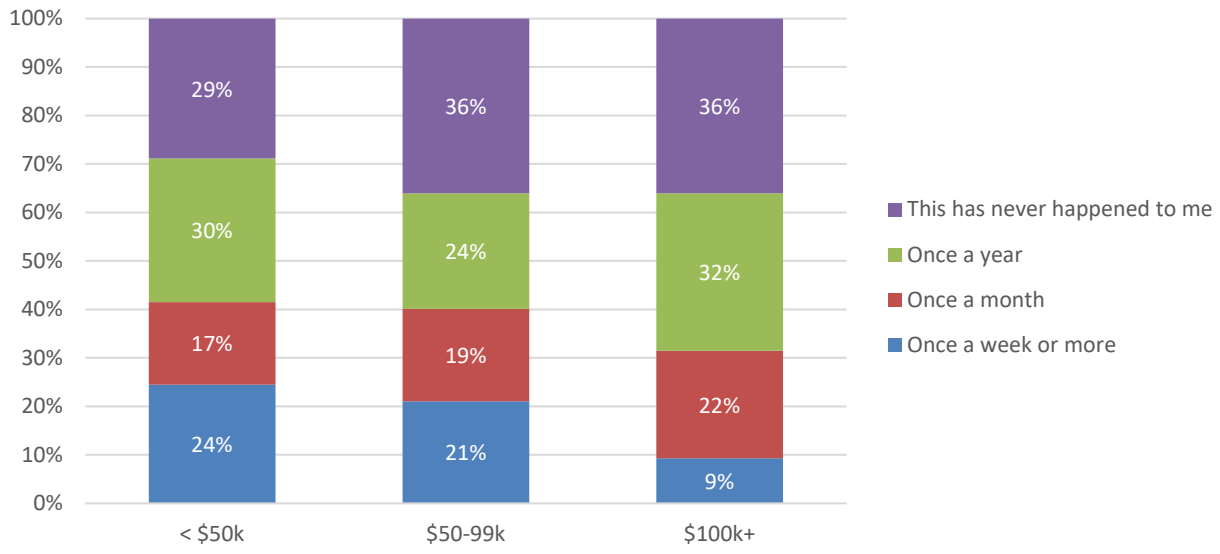
Figure 19: When Could Replace Computer



High-income households (earning $100,000 or more per year) are less likely than others to have experienced weekly issues with their computer. One-fourth of internet subscribers earning under

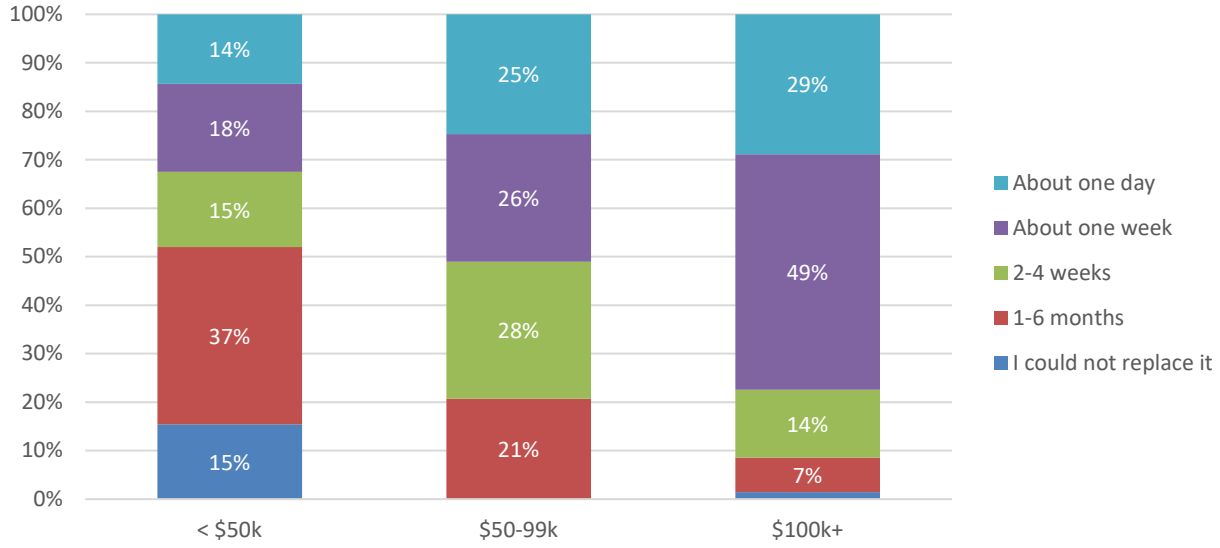
$50,000 experience issues at least weekly with their primary computer becoming inaccessible or unusable, as do 21 percent of those earning $50,000 but less than $100,000 per year (see Figure 20).

Figure 20: How Often Computer Becomes Unusable by Household Income



More than one-third (37 percent) of lower-income respondents said it would take one to six months to replace a lost or damaged computer, and another 15 percent said they would not be able to replace it (see Figure 21).

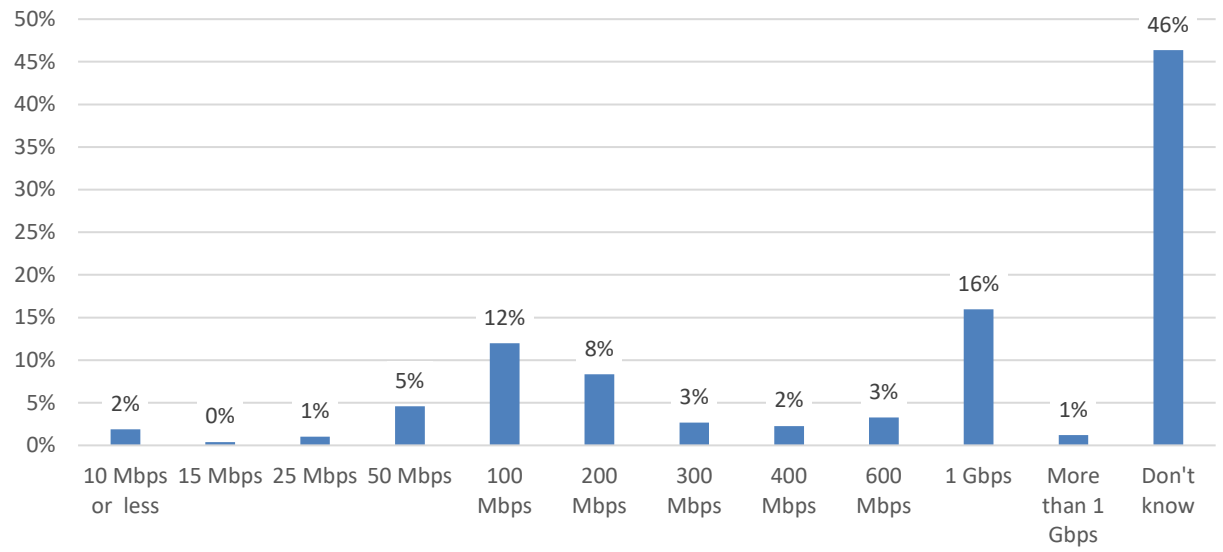
Figure 21: When Could Replace Computer by Household Income



Download speed

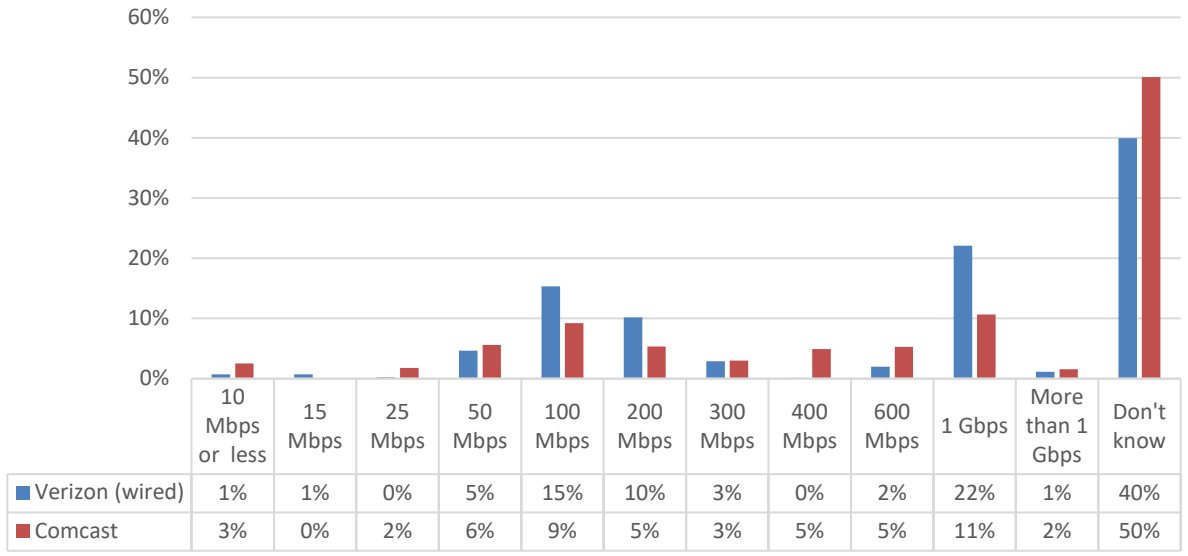
Respondents were asked to indicate the download speed of their home internet service as advertised by their provider. Many (46 percent) respondents did not know the speed. Another 17 percent said the speed is 1 Gbps or faster, and one-fifth have 100 Mbps or slower service (see Figure 22).

Figure 22: Download Speed of Home Internet Service



Nearly one-fourth (23 percent) of Verizon (wired) customers have at least 1 Gbps service as advertised by their provider, compared with 13 percent for Comcast (see Figure 23). However, Comcast subscribes were more likely than Verizon subscribers to be unsure.

Figure 23: Download Speed of Home Internet Service by Connection



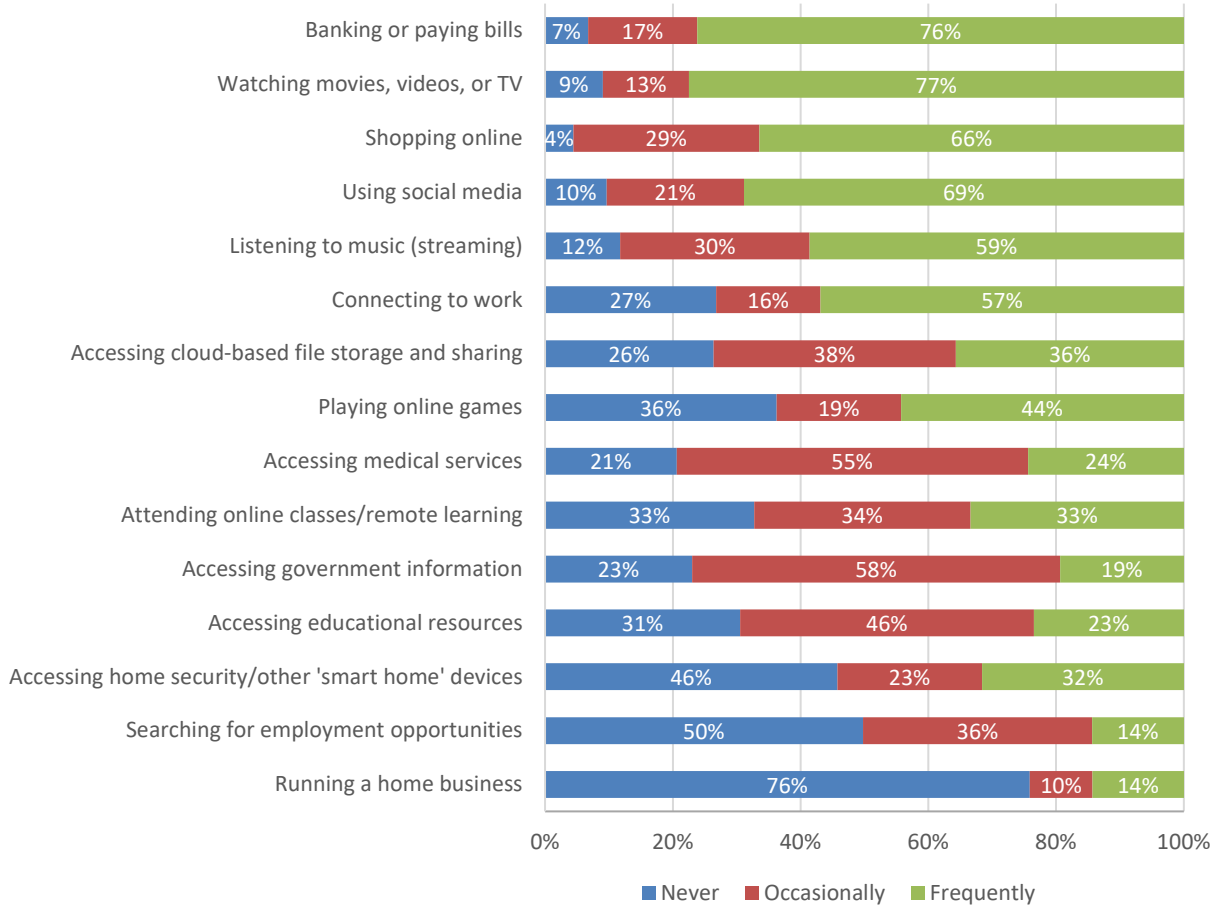
	10 Mbps or less	15 Mbps	25 Mbps	50 Mbps	100 Mbps	200 Mbps	300 Mbps	400 Mbps	600 Mbps	1 Gbps	More than 1 Gbps	Don't know
Verizon (wired)	1%	1%	0%	5%	15%	10%	3%	0%	2%	22%	1%	40%
Comcast	3%	0%	2%	6%	9%	5%	3%	5%	5%	11%	2%	50%

Internet uses

Respondents were asked about their use of their home internet connection for various activities. Among those items listed, a home internet connection is most frequently used for banking or paying bills, watching videos, shopping online, using social media, streaming music, and connecting to work as shown in Figure 24. A majority of respondents engage in these activities frequently.

Some respondents use a home internet connection to access key information and services. Nearly eight in 10 subscribers at least occasionally access medical services or government information. Approximately two-thirds of subscribers at least occasionally use a home internet connection to for attending online classes or for accessing educational resources. One-fourth of respondents at least occasionally use a home internet connection for running a home-based business.

Figure 24: Home Internet Connection Use for Various Activities



Internet Uses by respondent age

Older subscribers, particularly those ages 75+, are less likely than younger subscribers to ever use their home internet connection for key activities, as illustrated in Table 2. At the same time, many seniors use a home internet connection at least occasionally for various activities, like banking or paying bills, watching videos, shopping online, and social media (see Table 3).

Table 2: Home Internet Connection Ever Used for Various Activities by Respondent Age

	< 45 years	45-54 years	55-64 years	65-74 years	75+ years
Listening to music (streaming)	98%	100%	82%	64%	50%
Watching movies, videos, or TV	97%	95%	87%	83%	67%
Playing online games	74%	70%	47%	49%	44%
Connecting to work	89%	82%	68%	37%	21%
Using social media	98%	95%	83%	79%	69%
Shopping online	98%	95%	94%	94%	90%
Running a home business	33%	18%	19%	15%	7%
Attending online classes/remote learning	75%	75%	51%	48%	43%
Accessing educational resources (not related to remote learning)	77%	71%	62%	55%	53%
Accessing government information	73%	75%	86%	85%	67%
Accessing medical services	78%	83%	76%	86%	74%
Banking or paying bills	96%	94%	94%	92%	77%
Accessing home security/other 'smart home' devices	62%	66%	45%	36%	27%
Accessing cloud-based file storage and sharing	87%	75%	64%	54%	44%
Searching for employment opportunities	62%	60%	43%	19%	12%

Table 3: Home Internet Connection Frequently Used for Various Activities by Respondent Age

	< 45 years	45-54 years	55-64 years	65-74 years	75+ years
Listening to music (streaming)	77%	70%	36%	28%	11%
Watching movies, videos, or TV	93%	80%	61%	59%	46%
Playing online games	54%	45%	33%	30%	30%
Connecting to work	67%	72%	52%	27%	14%
Using social media	83%	75%	54%	52%	33%
Shopping online	71%	77%	67%	58%	38%
Running a home business	19%	10%	13%	8%	3%
Attending online classes/remote learning	36%	48%	23%	12%	19%
Accessing educational resources (not related to remote learning)	29%	23%	17%	16%	16%
Accessing government information	21%	25%	16%	17%	11%
Accessing medical services	24%	28%	23%	27%	21%
Banking or paying bills	81%	79%	74%	71%	57%
Accessing home security/other 'smart home' devices	41%	38%	22%	15%	10%
Accessing cloud-based file storage and sharing	46%	34%	31%	20%	13%
Searching for employment opportunities	18%	19%	11%	5%	3%

Internet uses by children in household

As shown in Table 4, most households with children in them ever use a home internet connection for key activities. Most households with children (and that have internet service) ever use a home internet connection to attend online classes/remote learning (89 percent) or to access educational resources (78 percent). Fifty-five percent of households with children frequently use the internet for remote learning, and 33 percent frequently use it to access educational resources (see Table 5).

Table 4: Home Internet Connection Ever Used for Various Activities by Children in Household

	No Children in HH	Children in HH
Listening to music (streaming)	83%	97%
Watching movies, videos, or TV	88%	98%
Playing online games	53%	81%
Connecting to work	63%	91%
Using social media	86%	97%
Shopping online	96%	97%
Running a home business	21%	30%
Attending online classes/remote learning	52%	89%
Accessing educational resources (not related to remote learning)	65%	78%
Accessing government information	85%	65%
Accessing medical services	81%	77%
Banking or paying bills	93%	96%
Accessing home security/other 'smart home' devices	48%	64%
Accessing cloud-based file storage and sharing	68%	83%
Searching for employment opportunities	43%	61%

Table 5: Home Internet Connection Frequently Used for Various Activities by Children in Household

	No Children in HH	Children in HH
Listening to music (streaming)	48%	76%
Watching movies, videos, or TV	68%	94%
Playing online games	31%	65%
Connecting to work	48%	72%
Using social media	60%	83%
Shopping online	61%	77%
Running a home business	13%	17%
Attending online classes/remote learning	18%	55%
Accessing educational resources (not related to remote learning)	18%	33%
Accessing government information	15%	26%
Accessing medical services	24%	25%
Banking or paying bills	73%	83%
Accessing home security/other 'smart home' devices	25%	43%
Accessing cloud-based file storage and sharing	30%	46%
Searching for employment opportunities	13%	17%

Covid-19 impacts on home broadband

Respondents were asked a series of questions on how their broadband use has changed during the Covid-19 pandemic, including impacts on time and location of internet use, engagement in various internet activities, and usage during peak times. This information provides valuable insight into demand for broadband service during the pandemic.

Internet use at various times

Respondents were asked to indicate how often they use the internet at various times before and during the Covid-19 pandemic. As shown in Figure 25, daily use of internet services at various times has increased during the pandemic. Most respondents are making use of the internet throughout the day, whereas prior to the pandemic usage was lower during daytime hours and peaked in the evening.

Figure 25: Daily Use of the Internet at Various Times Before and During Covid-19 Pandemic

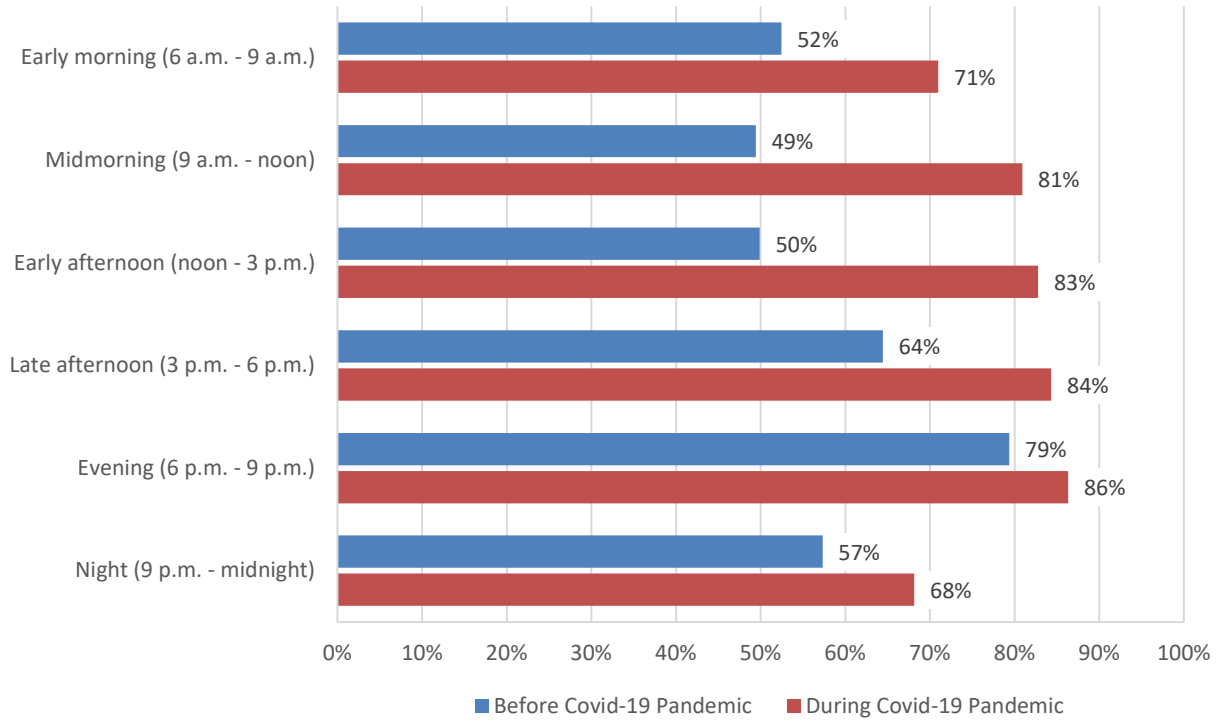


Figure 26 and Figure 27 show detailed usage of the internet at various times, before and during the pandemic. Most respondents made/make daily use of the internet in the evening, before and during the pandemic. Prior to the Covid-19 pandemic, approximately one-half of respondents made daily use of the internet in the morning or early afternoon, compared with approximately eight in 10 respondents during the pandemic.

Figure 26: How Often Use the Internet at Various Times Before Covid-19 Pandemic

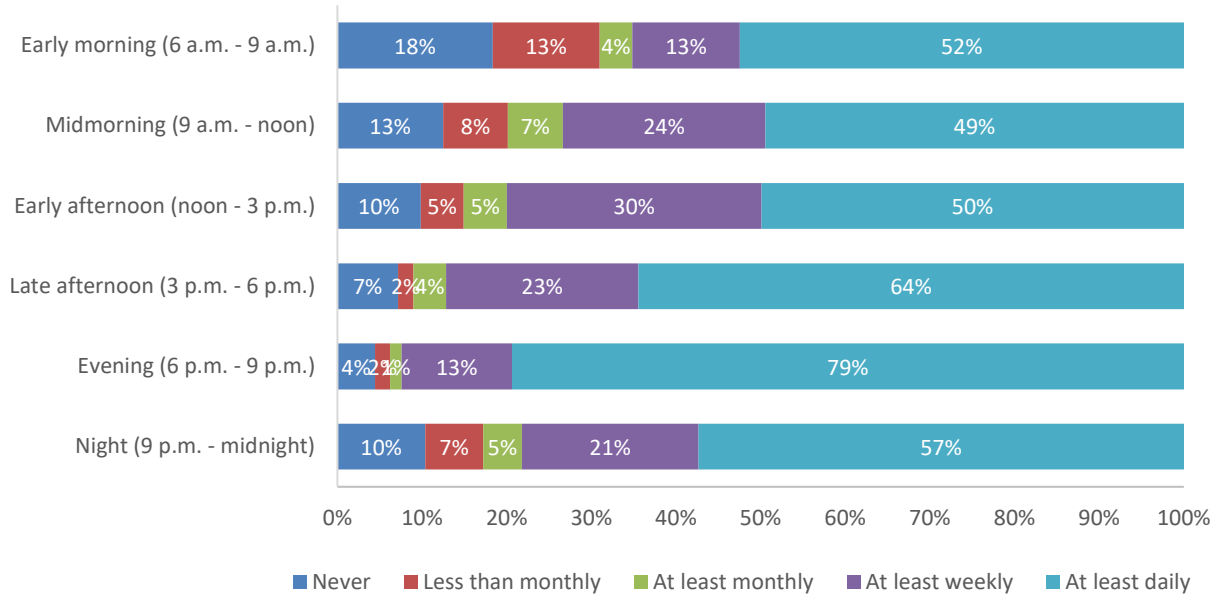
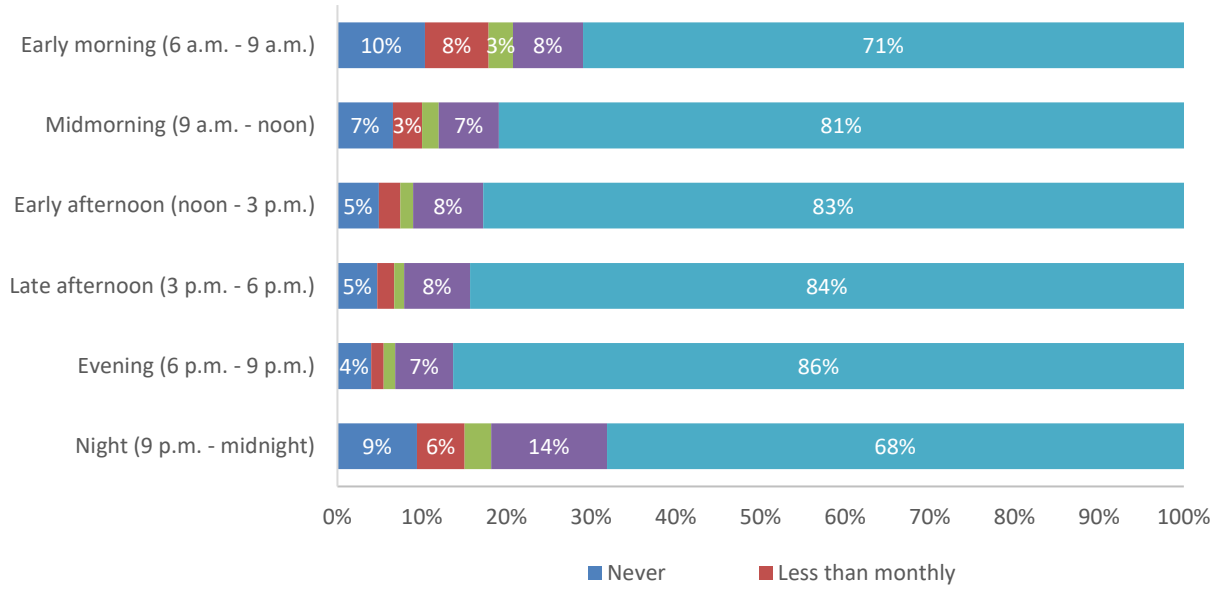
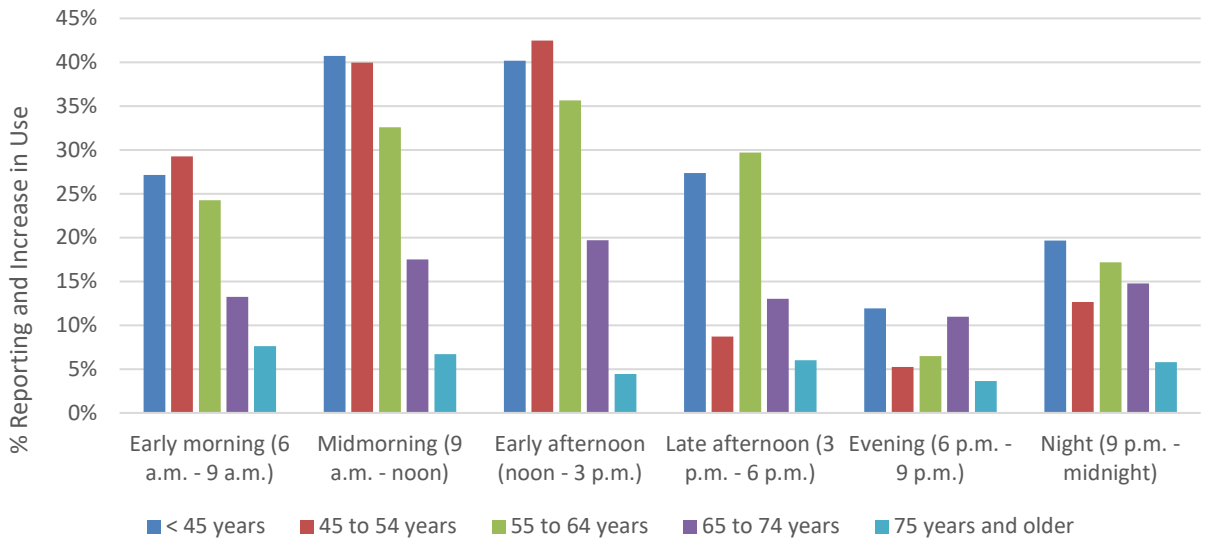


Figure 27: How Often Use the Internet at Various Times During Covid-19 Pandemic



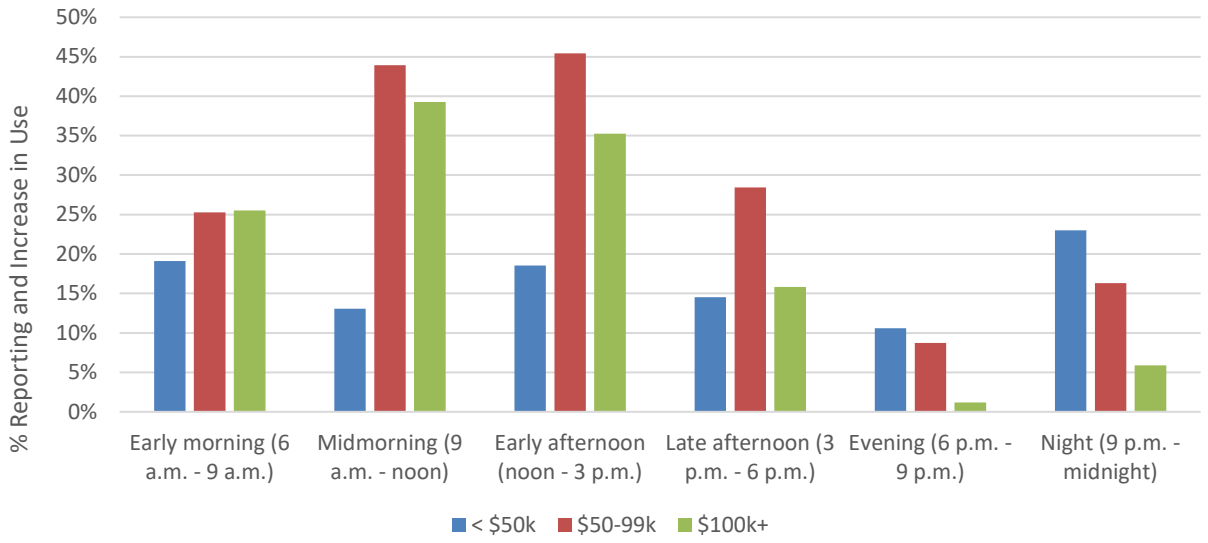
Overall, most respondents' use remained the same (most of whom were already making daily use of the internet) across the time groups, but a sizeable share of respondents increased their frequency of use as discussed. This shift has occurred across most demographic groups, except those ages 65+ saw less of an increase in frequency of use at various times of the day. As illustrated in Figure 28, respondents under age 55 years saw the biggest increase in use in the mid-morning and early afternoon, with approximately four in 10 respondents in this age cohort increasing their use of the internet at those times of day.

Figure 28: Increase in Internet Use at Various Times of Day by Respondent Age



In general, lower-income households were less likely to see an increase in home internet use during the mid-morning and afternoon, compared with higher-income households, but were somewhat more likely to increase their usage at night (see Figure 29).

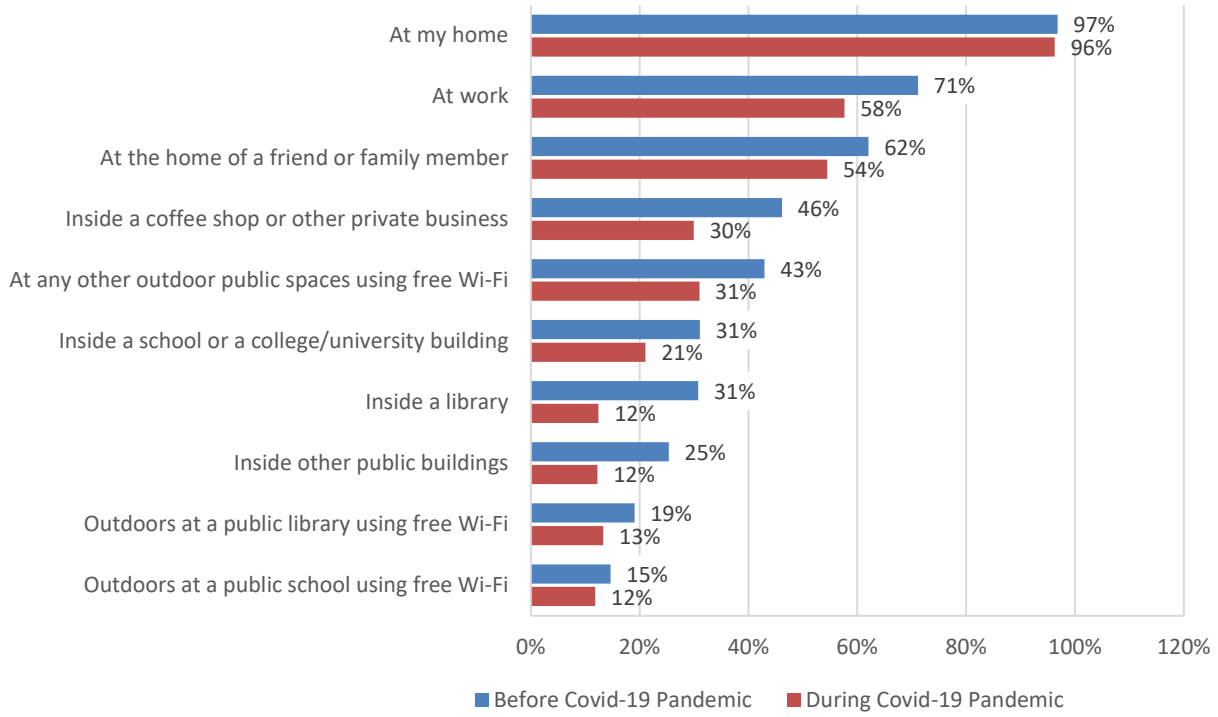
Figure 29: Increase in Internet Use at Various Times of Day by Household Income



Internet use by location

Respondents were asked to indicate how often they use the internet in various locations before and during the Covid-19 pandemic. As shown in Figure 30, use of internet services outside of the home has declined significantly during the pandemic, which makes sense as many public areas and work settings have been less accessible.

Figure 30: Ever Use the Internet in Various Locations Before and During Covid-19 Pandemic



Significantly, use of the internet declined in work settings (71 percent vs. 58 percent) and private businesses (46 percent vs. 30 percent) when comparing pre-Covid and during-Covid figures. Use of the internet at schools or colleges declined from 31 percent of respondents pre-Covid to 21 percent currently. Use in libraries (31 percent vs. 12 percent), public buildings (25 percent vs. 12 percent), and outdoor public spaces (43 percent vs. 31 percent) also declined. Use of the internet at the home of a friend or family member declined slightly from 62 percent of respondents pre-pandemic to 54 percent of respondents during the pandemic. Usage inside the home remained flat, with almost all respondents accessing the internet in the home pre-Covid (97 percent) and during-Covid (96 percent).

Figure 31 and Figure 32 show detailed usage of the internet at various locations, before and during the pandemic.

Figure 31: How Often Use the Internet in Various Locations Before Covid-19 Pandemic

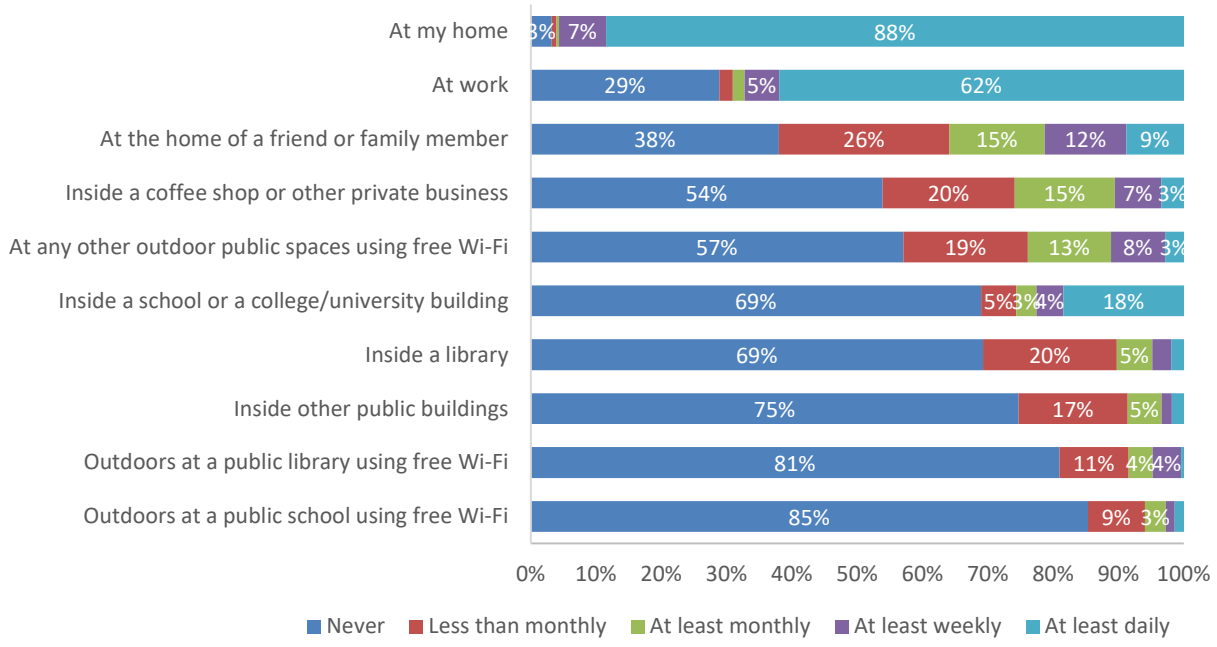
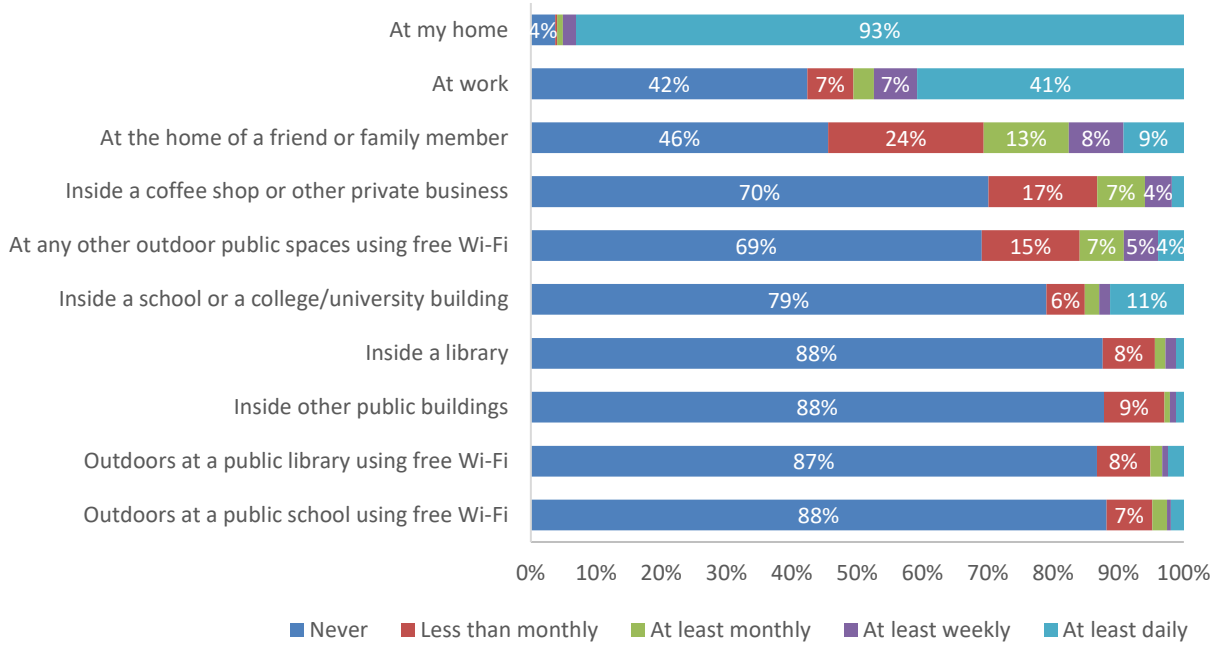
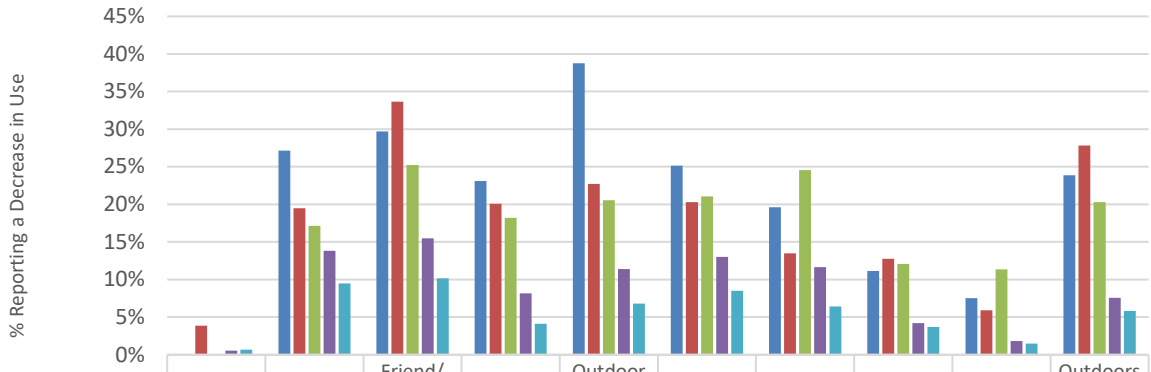


Figure 32: How Often Use the Internet in Various Locations During Covid-19 Pandemic



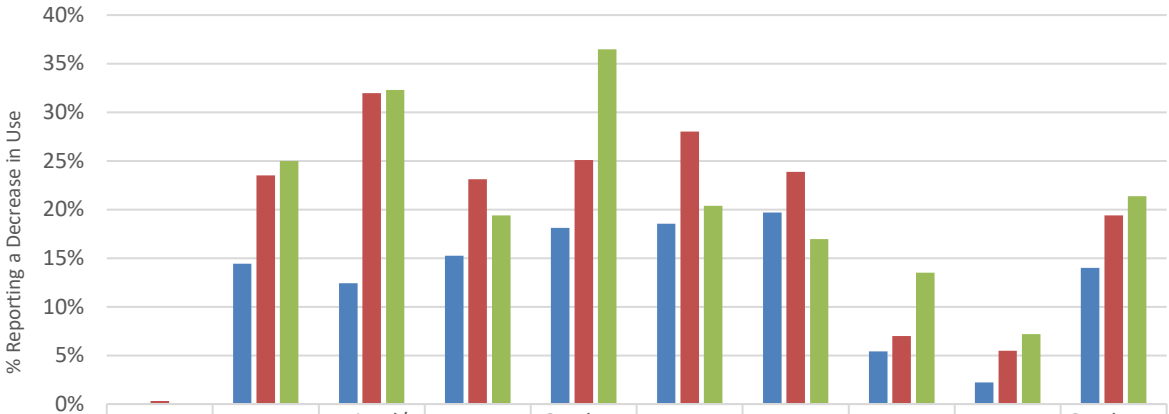
Prior to the pandemic, respondents ages 75 and older and those in lower-income households were less likely than their counterparts to ever use the internet at various locations outside the home. Older respondents were also less likely to decrease their use during the pandemic at most locations, and lower-income respondents were less likely to decrease their usage compared with higher-income respondents (see Figure 33 and Figure 34).

Figure 33: Decrease in Internet Use at Various Locations by Respondent Age



	Home	Work	Friend/ family home	Private business	Outdoor public space	School/ college	Library	Public buildings	Outdoors library	Outdoors public school
< 45 years	0%	27%	30%	23%	39%	25%	20%	11%	8%	24%
45 to 54 years	4%	19%	34%	20%	23%	20%	13%	13%	6%	28%
55 to 64 years	0%	17%	25%	18%	21%	21%	25%	12%	11%	20%
65 to 74 years	1%	14%	15%	8%	11%	13%	12%	4%	2%	8%
75 years and older	1%	9%	10%	4%	7%	9%	6%	4%	1%	6%

Figure 34: Decrease in Internet Use at Various Locations by Household Income



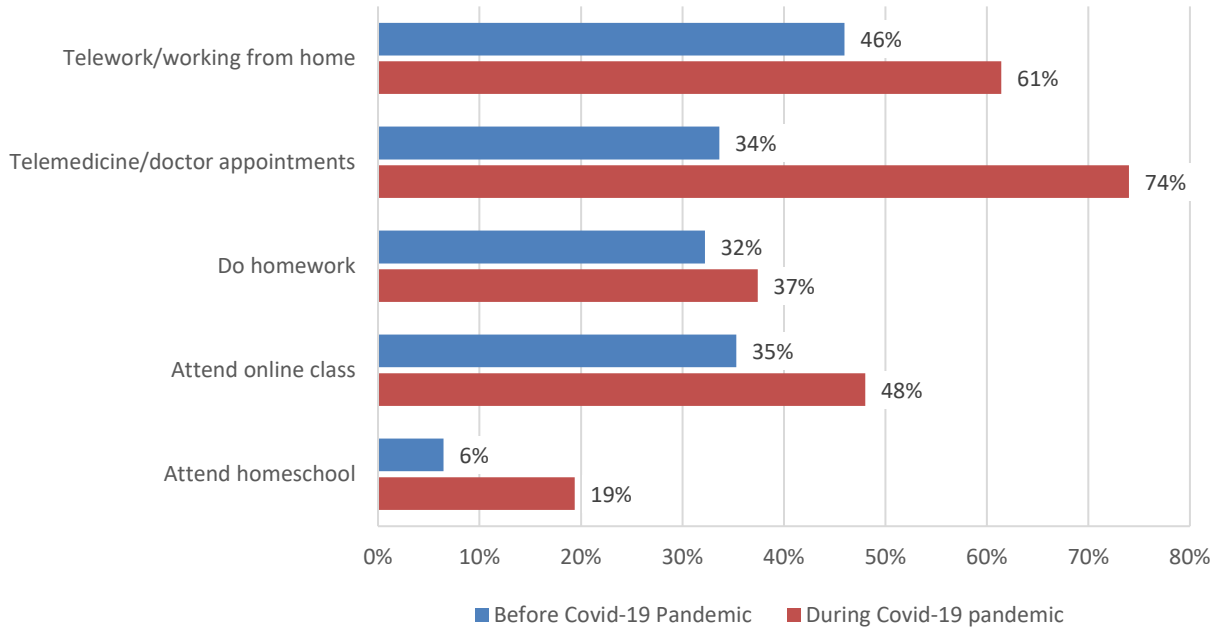
	Home	Work	Friend/ family home	Private business	Outdoor public space	School/ college	Library	Public buildings	Outdoors library	Outdoors public school
< $50k	0%	14%	12%	15%	18%	19%	20%	5%	2%	14%
$50-99k	0%	24%	32%	23%	25%	28%	24%	7%	5%	19%
$100k+	0%	25%	32%	19%	36%	20%	17%	14%	7%	21%

Additionally, many households with children reported a decrease in internet usage at schools or colleges. Prior to the pandemic, one-half of households with children used the internet within a school or college building (26 percent daily), compared with 33 percent during the pandemic (19 percent daily).

Engaged in internet activities

Respondents were asked about how they engaged in various internet activities before and during the Covid-19 pandemic. As shown in Figure 35, engagement in online activities has increased significantly during the Covid-19 pandemic, with more respondents making daily use of the internet for key activities.

Figure 35: Ever Used the Internet for Various Activities Before and During Covid-19 Pandemic



Six in 10 respondents have ever teleworked during the pandemic, compared with 46 percent before the pandemic. Teleworkers are making more regular use of working from home during the pandemic, with 49 percent of respondents engaging daily, compared with only 15 percent prior to the pandemic.

About three-fourths (74 percent) of respondents have used the internet for telemedicine or medical appointments during the Covid-19 pandemic (most on a monthly or less than monthly basis), compared with just 34 percent before the pandemic.

Use of the internet has also increased substantially for educational purposes. Use of the internet for online classes has increased from 35 percent of respondents pre-pandemic to 48 percent during the pandemic. Similarly, use of the internet for homeschooling increased from six percent before the pandemic to 19 percent during the pandemic. Use of the internet for homework

remained relatively flat. The percentage of respondents making daily use of the internet for homework increased from 15 percent pre-pandemic to 24 percent during the pandemic.

Figure 36 and Figure 37 show detailed usage of the internet for various activities, before and during the pandemic.

Figure 36: How Often Used the Internet for Various Activities Before Covid-19 Pandemic

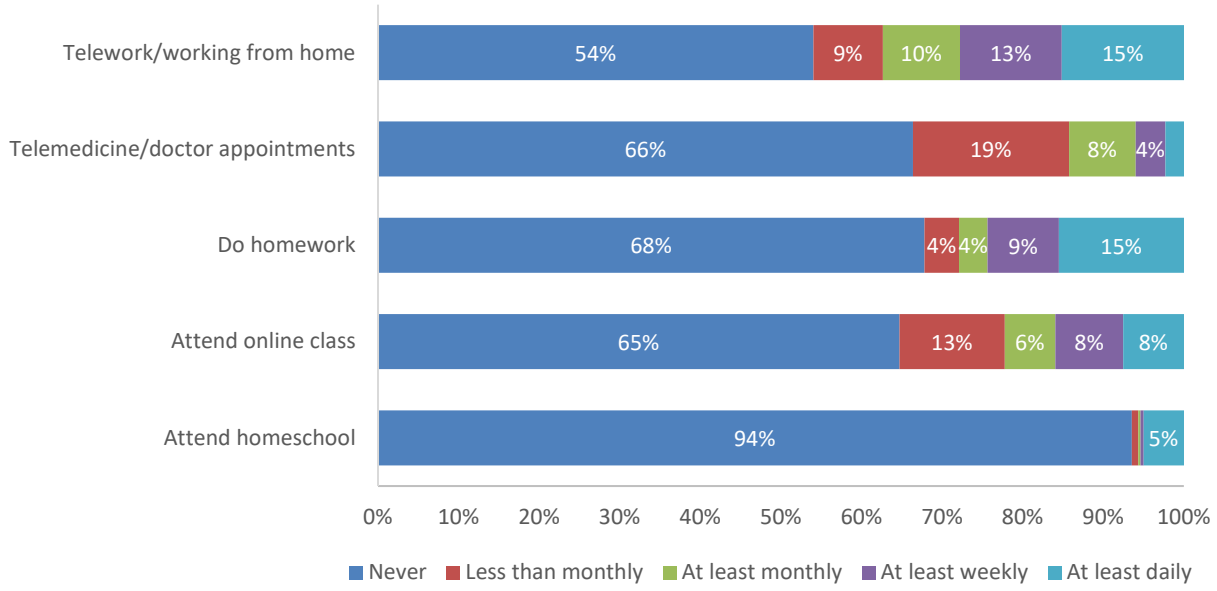
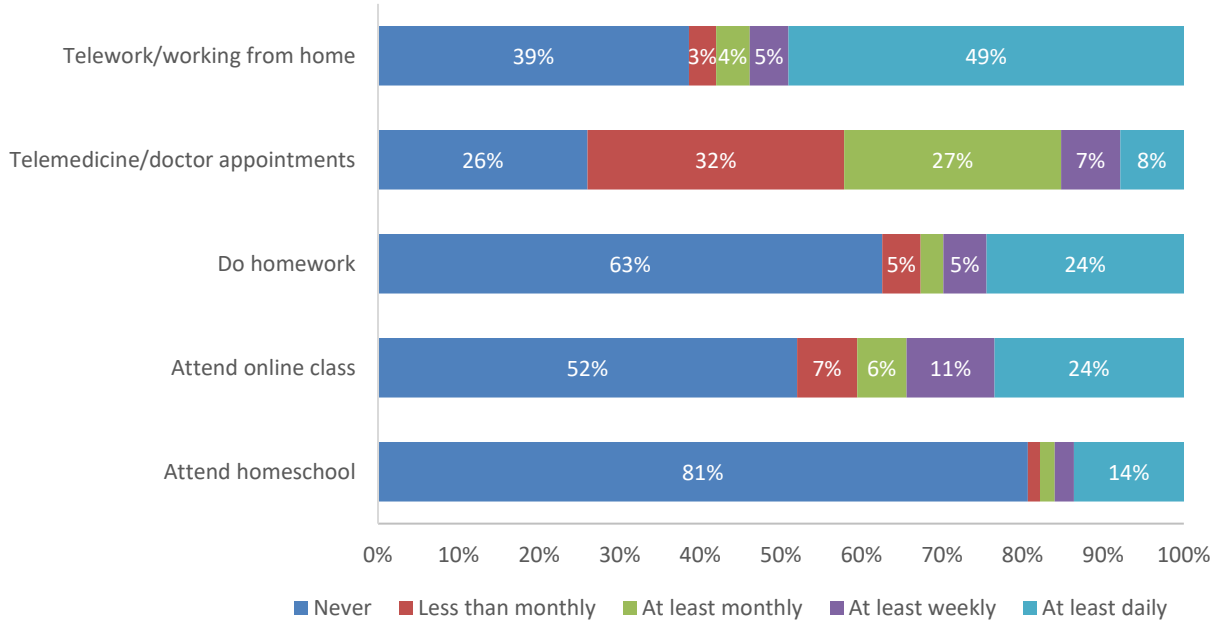
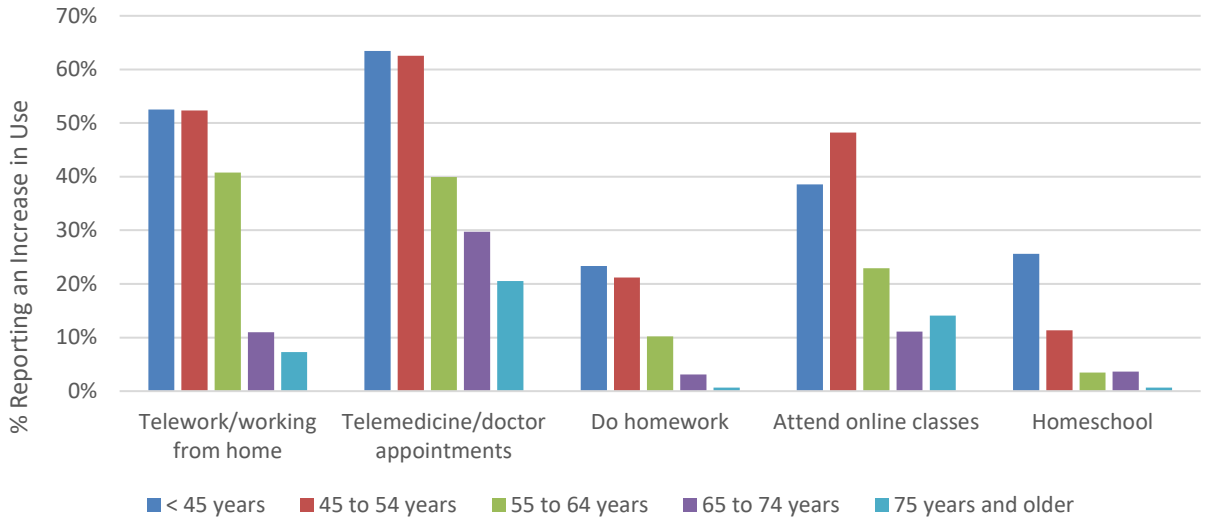


Figure 37: How Often Used the Internet for Various Activities During Covid-19 Pandemic



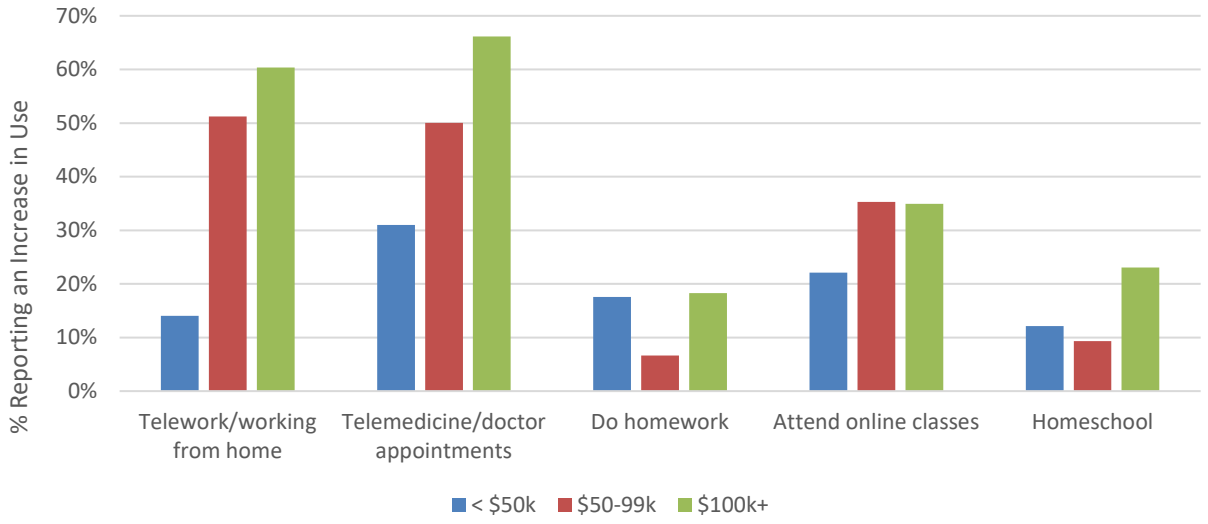
Respondents ages 65 and older were less likely than younger respondents to ever use the internet for work or education, both before and during the covid-19 pandemic. More than one-half of respondents under age 55 increased their frequency of use of the internet for teleworking during the pandemic (see Figure 38). Specifically, 14 percent of 18-44 year-olds and 26 percent of 45-54 year-olds used the internet daily for telework prior to the pandemic; during the pandemic, 58 percent of 18-44 year-olds and 69 percent of 45-54 year-olds used the internet daily.

Figure 38: Increase in Internet Use for Various Activities by Respondent Age



Additionally, those in higher-income households were more likely to increase their use of the internet for telework and telemedicine during the pandemic (see Figure 39).

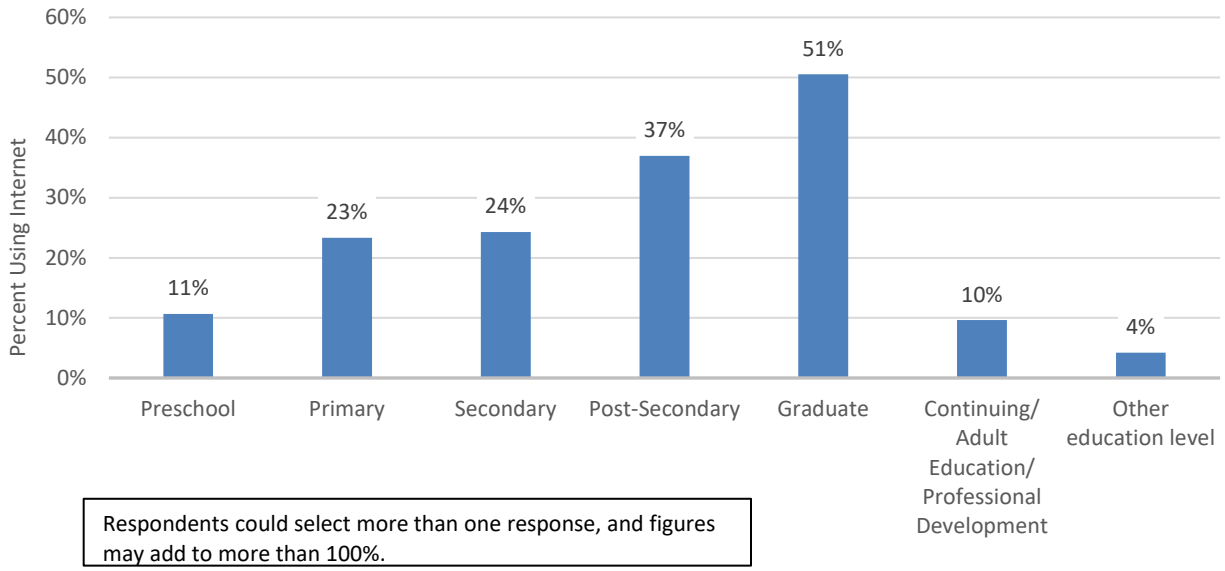
Figure 39: Increase in Internet Use for Various Activities by Household Income



Education level of household internet-users

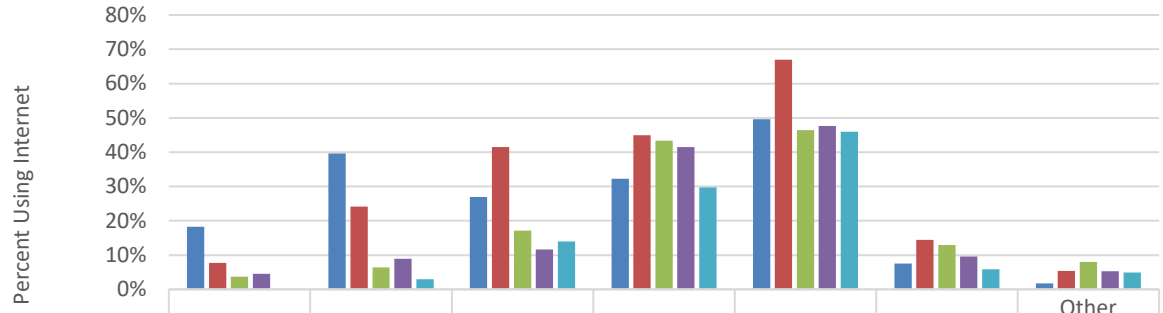
As shown in Figure 40, most household members who use the home internet connection have a post-secondary (37 percent) or graduate (51 percent) level of education. A smaller segment of users has a primary (23 percent) or secondary (24 percent) level of education; this may include both adult household members and children who live in the household.

Figure 40: Education Level of Household Internet Users



Respondents less than age 55 are more likely than older respondents to have a household member with a primary or secondary level of education who uses the internet (see Figure 41).

Figure 41: Education Level of Household Internet Users by Respondent Age

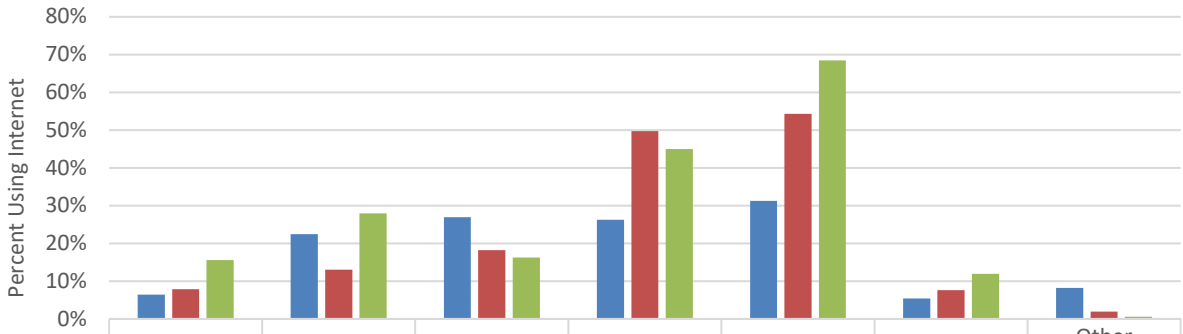


	Preschool	Primary	Secondary	Post-Secondary	Graduate	Continuing	Other education level
< 45 years	18%	40%	27%	32%	50%	8%	2%
45 to 54 years	8%	24%	41%	45%	67%	14%	5%
55 to 64 years	4%	6%	17%	43%	46%	13%	8%
65 to 74 years	5%	9%	12%	41%	48%	10%	5%
75 years and older	0%	3%	14%	30%	46%	6%	5%

The education level of household members who use the internet is also correlated with

household income and presence of children in the household, as shown in Figure 42 and Figure 43. Two-thirds of households earning $100,000 or more per year have a household internet-user with a graduate level of education.

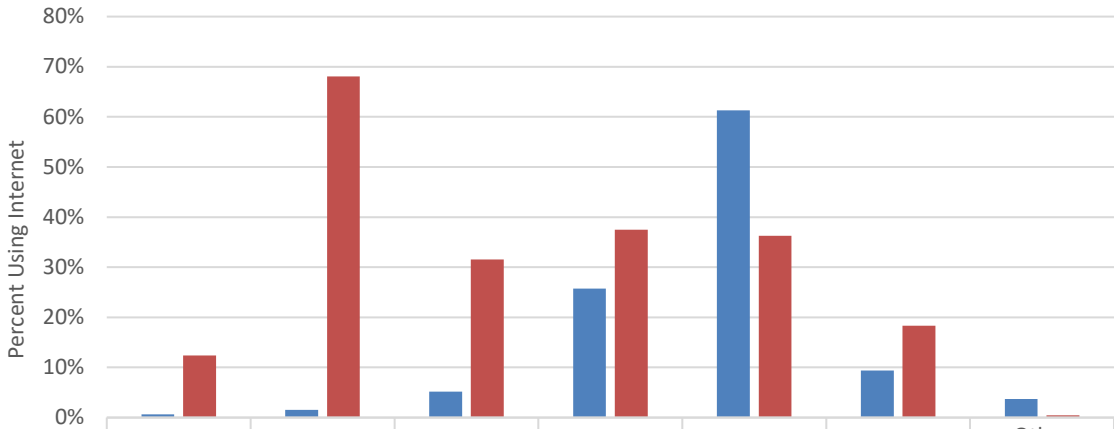
Figure 42: Education Level of Household Internet Users by Household Income



	Preschool	Primary	Secondary	Post-Secondary	Graduate	Continuing	Other education level
< $50k	6%	22%	27%	26%	31%	5%	8%
$50-99k	8%	13%	18%	50%	54%	8%	2%
$100k+	16%	28%	16%	45%	68%	12%	1%

Two-thirds of households with children have a household internet-user with a primary level of education, and 32 percent have a householder with a secondary level of education.

Figure 43: Education Level of Household Internet Users by Children in Household

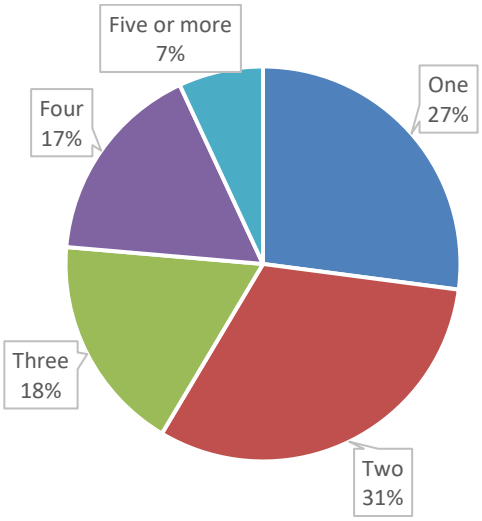


	Preschool	Primary	Secondary	Post-Secondary	Graduate	Continuing	Other education level
No Children in HH	1%	2%	5%	26%	61%	9%	4%
Children in HH	12%	68%	32%	38%	36%	18%	0%

Number of household members online during peak usage times

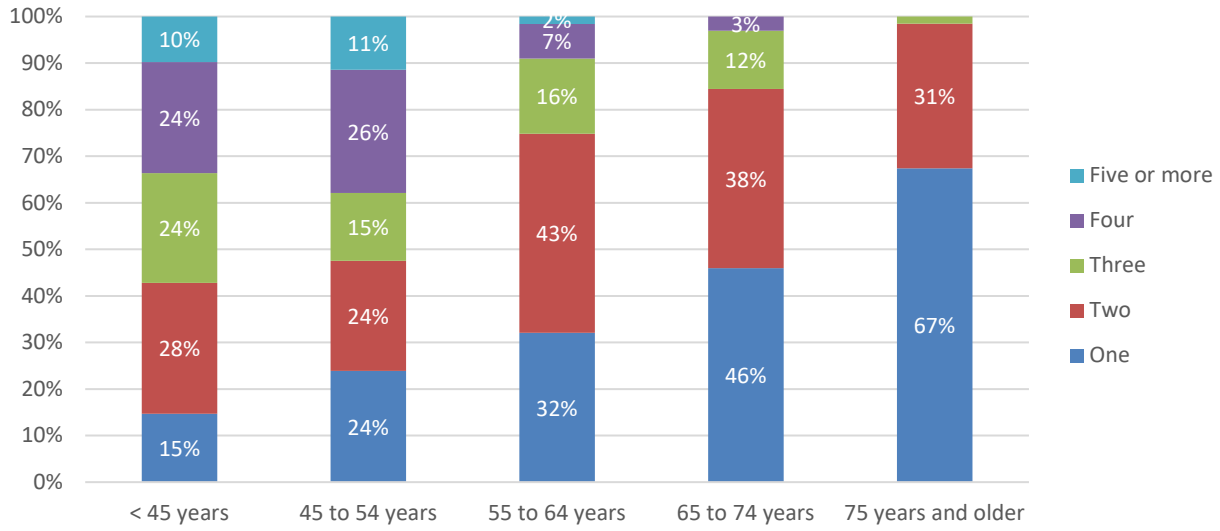
Almost three-fourths of households have multiple members online during peak usage times during the Covid-19 pandemic, including 41 percent of households with at least three members online (see Figure 44).

Figure 44: Number of Households Members Online During Peak Usage Times



Respondents under age 55 years have the most members online during peak usage, with more than one-half reporting they have three or more members online at the same time. This age cohort is also more likely than older respondents to have children in the household. Respondents ages 65 and older have fewer members online during peak usage; however, more than one-half of 65-74 year-olds and one-third of those ages 75+ have at least two members using the internet (see Figure 45).

Figure 45: Number of Households Members Online During Peak Usage Times by Age



Computer and internet skills

Respondents were asked a series of questions on how skilled they are using computers and the internet, as well as their interest in training to learn more about these topics. This information provides valuable insight into where there may be gaps in abilities and opportunities to educate residents.

Internet skills

Respondents were asked to indicate their level of agreement with various statements about their computer and internet skills. Average rating scores are highlighted in Figure 46, while Figure 47 shows detailed responses.

Figure 46: Agreement with Statements About Internet Skills (Mean Ratings)

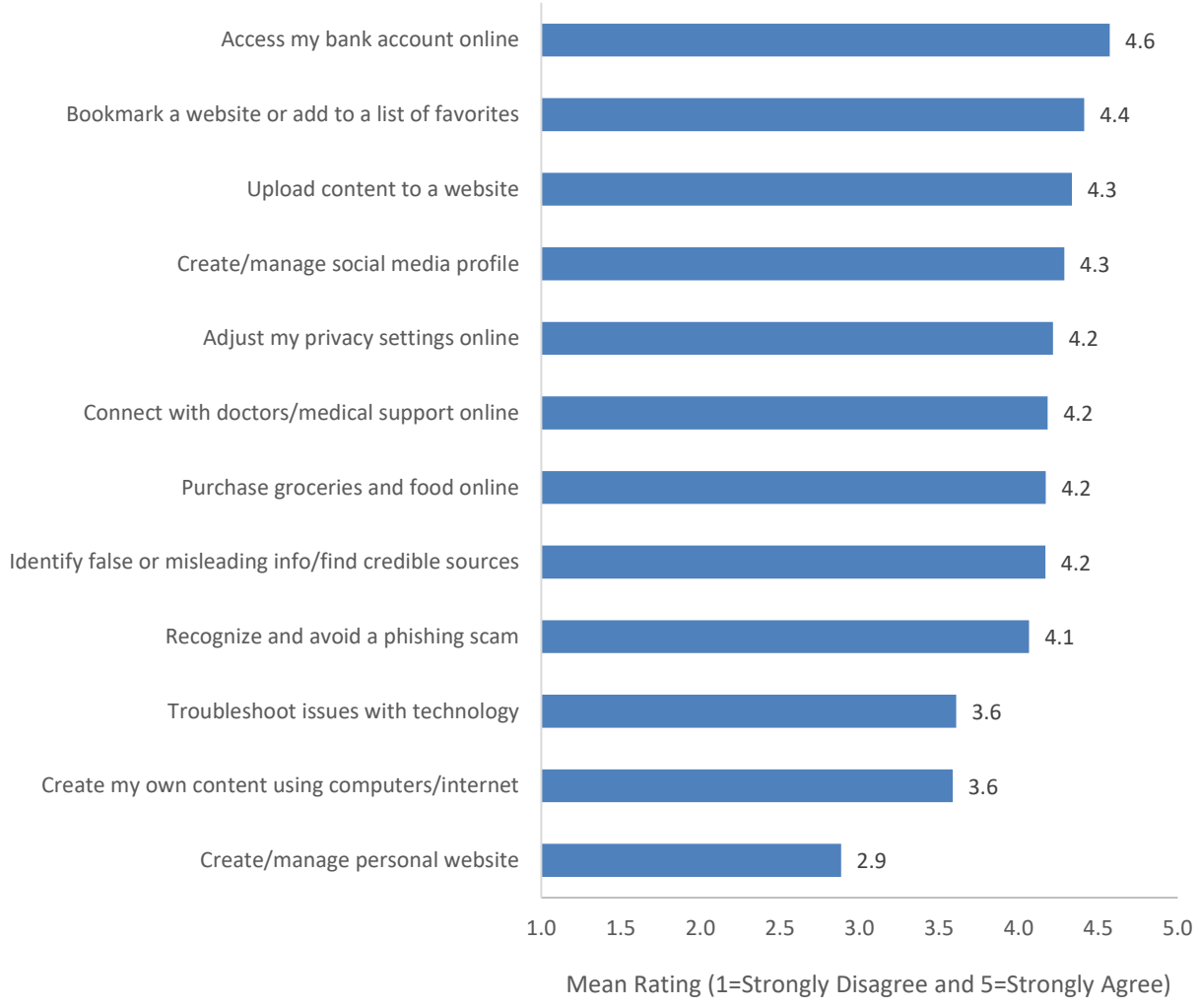
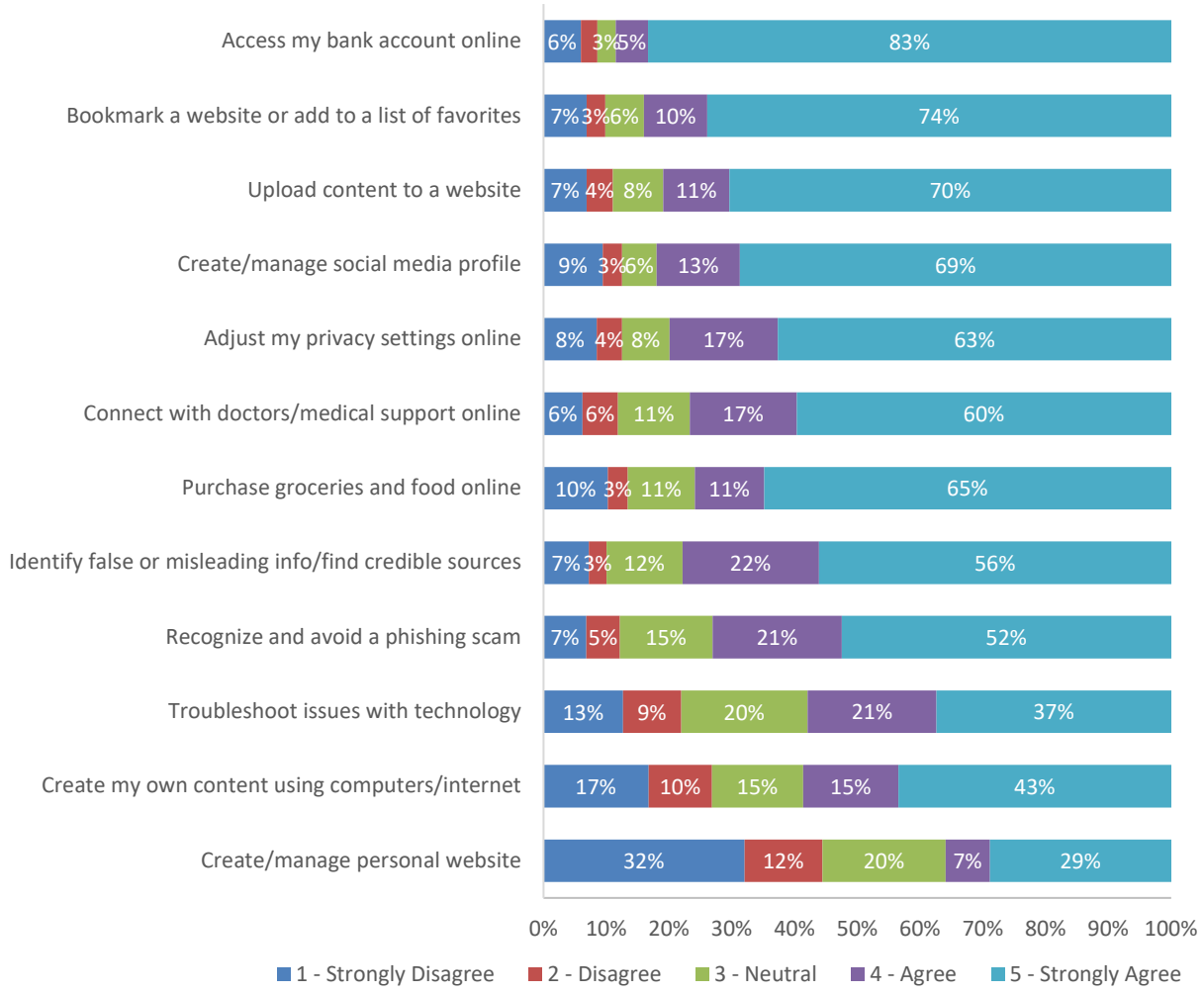


Figure 47: Agreement with Statements About Internet Skills



Overall, most internet subscribers agreed that they know how to use the internet for various functions. More than eight in 10 respondents strongly agreed they can use the internet for accessing a bank account online. Three fourths strongly agreed they can use it for bookmarking a website, and seven in 10 strongly agreed they can use it for uploading content to a website or creating and managing their own social media profile.

At least six 10 respondents strongly agreed they can use the internet for purchasing groceries and food online, adjusting privacy settings online, and connecting with doctors or other medical support online. More than one-half of respondents strongly agreed they can use the internet to identify false or misleading information or to recognize and avoid phishing scams.

Respondents were less likely to agree that they are skilled in creating content or their own personal website or in troubleshooting issues with technology.

Specifically, respondents ages 75 and older were less likely than younger respondents to agree they are skilled in various uses of the internet (see Table 6 and Table 7). Respondents under age 45 are particularly skilled in internet uses compared with older respondents. More than one-half (56 percent) of respondents under age 45 agreed or strongly agreed they are confident in their ability to troubleshoot issues with technology.

Table 6: Agreement with Statements About Internet Skills (Mean Ratings) by Age

	< 45 years	45-54 years	55-64 years	65-74 years	75 + years
I know how to upload content to a website	4.7	4.6	4.1	3.8	3.2
I know how to adjust my privacy settings online	4.7	4.5	3.9	3.6	3.0
I know how to bookmark a website or add to favorites	4.8	4.7	4.2	3.9	3.0
I know how to identify false or misleading information online and find credible sources of information	4.5	4.4	4.0	3.8	3.2
I know how to create and manage my own personal profile on Facebook or other social network site	4.8	4.6	3.9	3.6	2.8
I know how to create and manage my own personal website	3.6	2.7	2.5	2.2	1.6
I know how to recognize and avoid a phishing scam	4.5	4.2	3.7	3.7	3.0
I know how to create my own content using computers and the internet	4.2	3.6	3.0	2.9	2.3
I know how to access my bank account online to perform tasks such as paying bills or depositing checks with my phone	4.9	4.6	4.5	4.1	3.6
I feel confident in my ability to troubleshoot issues with technology when they arise	4.2	3.7	3.1	3.0	2.3
I know how to purchase groceries and food online	4.5	4.4	4.1	3.7	3.1
I know how connect with my doctor or other medical support online	4.4	4.3	4.1	4.0	3.3

Table 7: Agreement with Statements About Internet Skills (% Strongly Agree) by Age

	< 45 years	45-54 years	55-64 years	65-74 years	75 + years
I know how to upload content to a website	85%	80%	59%	51%	34%
I know how to adjust my privacy settings online	80%	66%	50%	41%	24%
I know how to bookmark a website or add to favorites	88%	85%	64%	55%	28%
I know how to identify false or misleading information online and find credible sources of information	69%	59%	41%	45%	30%
I know how to create and manage my own personal profile on Facebook or other social network site	89%	72%	53%	45%	24%
I know how to create and manage my own personal website	42%	22%	22%	15%	5%
I know how to recognize and avoid a phishing scam	71%	52%	37%	36%	19%
I know how to create my own content using computers and the internet	62%	46%	24%	25%	12%
I know how to access my bank account online to perform tasks such as paying bills or depositing checks with my phone	97%	82%	78%	67%	50%
I feel confident in my ability to troubleshoot issues with technology when they arise	56%	37%	17%	19%	10%
I know how to purchase groceries and food online	77%	72%	58%	46%	33%
I know how connect with my doctor or other medical support online	62%	67%	57%	57%	43%

Additionally, respondents in households earning under $50,000 were less likely to agree that they are skilled in various uses of the internet (see Table 8 and Table 9). Just 29 percent of respondents in lower-income households strongly agreed they are confident in their ability to troubleshoot issues with technology, compared with 49 percent of respondents in high-income households.

Table 8: Agreement with Statements About Internet Skills (Mean Ratings) by Income

	< $50k	$50-$99k	$100k +
I know how to upload content to a website	3.9	4.3	4.7
I know how to adjust my privacy settings online	3.9	4.2	4.5
I know how to bookmark a website or add to favorites	3.9	4.4	4.8
I know how to identify false or misleading information online and find credible sources of information	3.9	4.3	4.6
I know how to create and manage my own personal profile on Facebook or other social network site	3.9	4.3	4.6
I know how to create and manage my own personal website	2.5	3.0	3.4
I know how to recognize and avoid a phishing scam	3.7	4.1	4.5
I know how to create my own content using computers and the internet	3.2	3.5	3.8
I know how to access my bank account online to perform tasks such as paying bills or depositing checks with my phone	4.2	4.6	4.9
I feel confident in my ability to troubleshoot issues with technology when they arise	3.2	3.6	4.1
I know how to purchase groceries and food online	3.9	4.2	4.6
I know how connect with my doctor or other medical support online	3.8	4.3	4.5

Table 9: Agreement with Statements About Internet Skills (% Strongly Agree) by Income

	< $50k	$50-$99k	$100k +
I know how to upload content to a website	59%	70%	81%
I know how to adjust my privacy settings online	54%	63%	71%
I know how to bookmark a website or add to favorites	57%	75%	86%
I know how to identify false or misleading information online and find credible sources of information	49%	60%	70%
I know how to create and manage my own personal profile on Facebook or other social network site	59%	66%	79%
I know how to create and manage my own personal website	27%	29%	39%
I know how to recognize and avoid a phishing scam	44%	52%	65%
I know how to create my own content using computers and the internet	41%	34%	50%
I know how to access my bank account online to perform tasks such as paying bills or depositing checks with my phone	71%	83%	94%
I feel confident in my ability to troubleshoot issues with technology when they arise	29%	37%	49%
I know how to purchase groceries and food online	56%	62%	79%
I know how connect with my doctor or other medical support online	48%	65%	68%

Additionally, respondents in households with children were more likely than those without children at home (who are more likely to be ages 65+) to agree that they are skilled in various uses of the internet (see Table 10 and Table 11).

Table 10: Agreement with Statements About Internet Skills (Mean Ratings) by Children in Household

	No Children in HH	Children in HH
I know how to upload content to a website	4.2	4.6
I know how to adjust my privacy settings online	4.1	4.5
I know how to bookmark a website or add to favorites	4.3	4.7
I know how to identify false or misleading information online and find credible sources of information	4.1	4.3
I know how to create and manage my own personal profile on Facebook or other social network site	4.1	4.7
I know how to create and manage my own personal website	2.6	3.4
I know how to recognize and avoid a phishing scam	4.0	4.3
I know how to create my own content using computers and the internet	3.3	4.1
I know how to access my bank account online to perform tasks such as paying bills or depositing checks with my phone	4.5	4.8
I feel confident in my ability to troubleshoot issues with technology when they arise	3.4	4.1
I know how to purchase groceries and food online	4.0	4.5
I know how connect with my doctor or other medical support online	4.0	4.5

Table 11: Agreement with Statements About Internet Skills (% Strongly Agree) by Children in Household

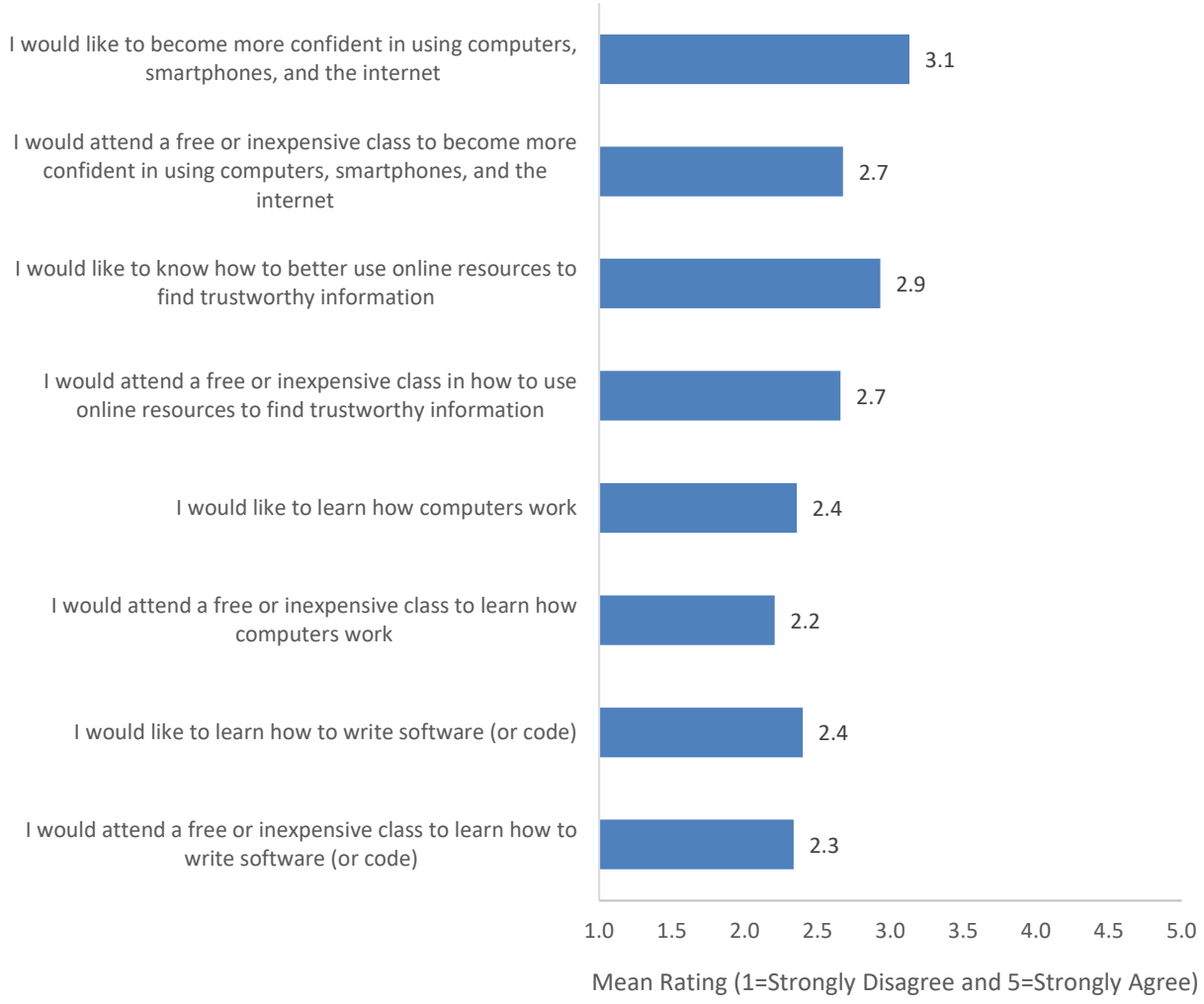
	No Children in HH	Children in HH
I know how to upload content to a website	67%	79%
I know how to adjust my privacy settings online	58%	72%
I know how to bookmark a website or add to favorites	71%	81%
I know how to identify false or misleading information online and find credible sources of information	52%	65%
I know how to create and manage my own personal profile on Facebook or other social network site	60%	85%
I know how to create and manage my own personal website	22%	42%
I know how to recognize and avoid a phishing scam	46%	66%
I know how to create my own content using computers and the internet	35%	59%
I know how to access my bank account online to perform tasks such as paying bills or depositing checks with my phone	80%	91%
I feel confident in my ability to troubleshoot issues with technology when they arise	29%	54%
I know how to purchase groceries and food online	58%	78%
I know how connect with my doctor or other medical support online	55%	69%

Computer and internet training

Respondents were also asked their level of agreement with various statements about receiving training related to computers and the internet. Average rating scores are highlighted in Figure 48, while Figure 49 shows detailed responses.

Overall, there is only slight to moderate interest in learning about or in attending a class about writing software/code or in learning how computers work. On average, there is moderate interest in becoming more confident in using computers, smartphones, and the internet, or in using online resources to find trustworthy information. However, there is somewhat less interest in attending a free or inexpensive class about these topics.

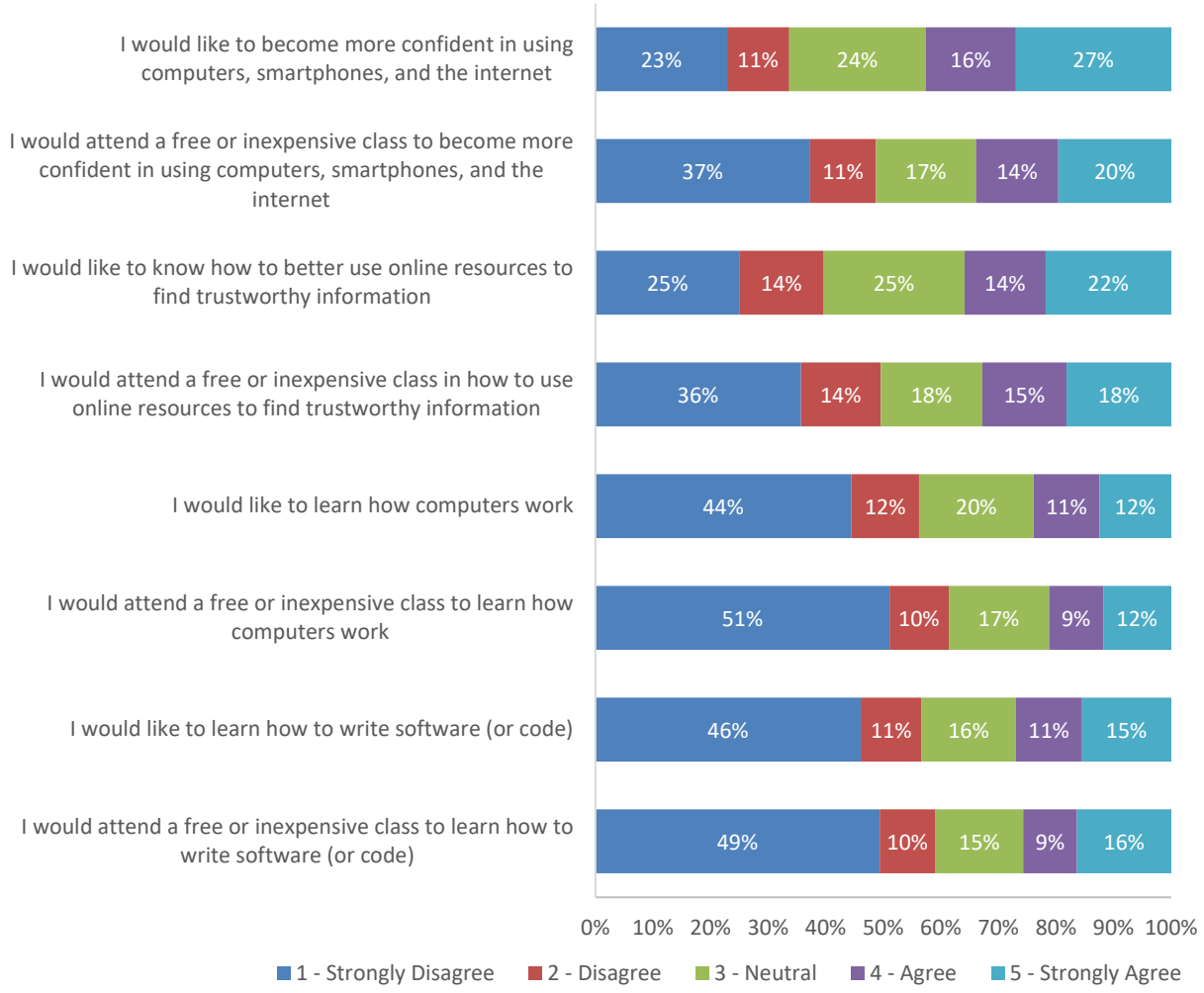
Figure 48: Agreement with Statements About Training Related to Computers and the Internet (Mean Ratings)



Specifically, 43 percent of respondents agreed or strongly agreed that they would like to become more confident in using computers and related technology, but just 34 percent agreed or strongly agreed they would like to attend training.

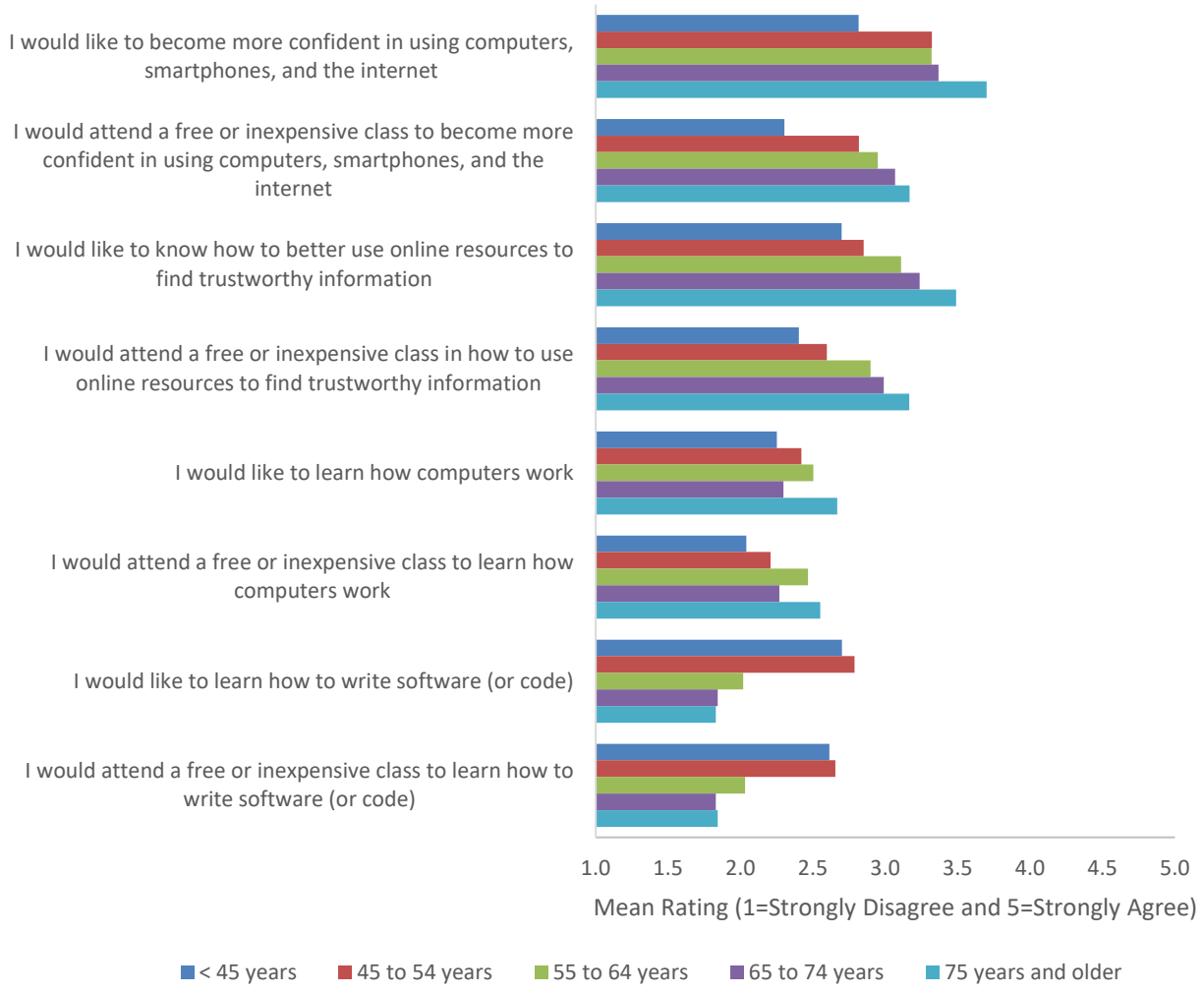
Similarly, 36 percent of respondents agreed or strongly agreed about wanting to know how to better use online resources to find trustworthy information, and 33 percent agreed or strongly agreed they are interested in training while 50 percent disagreed or strongly disagreed.

Figure 49: Agreement with Statements About Training Related to Computers and the Internet



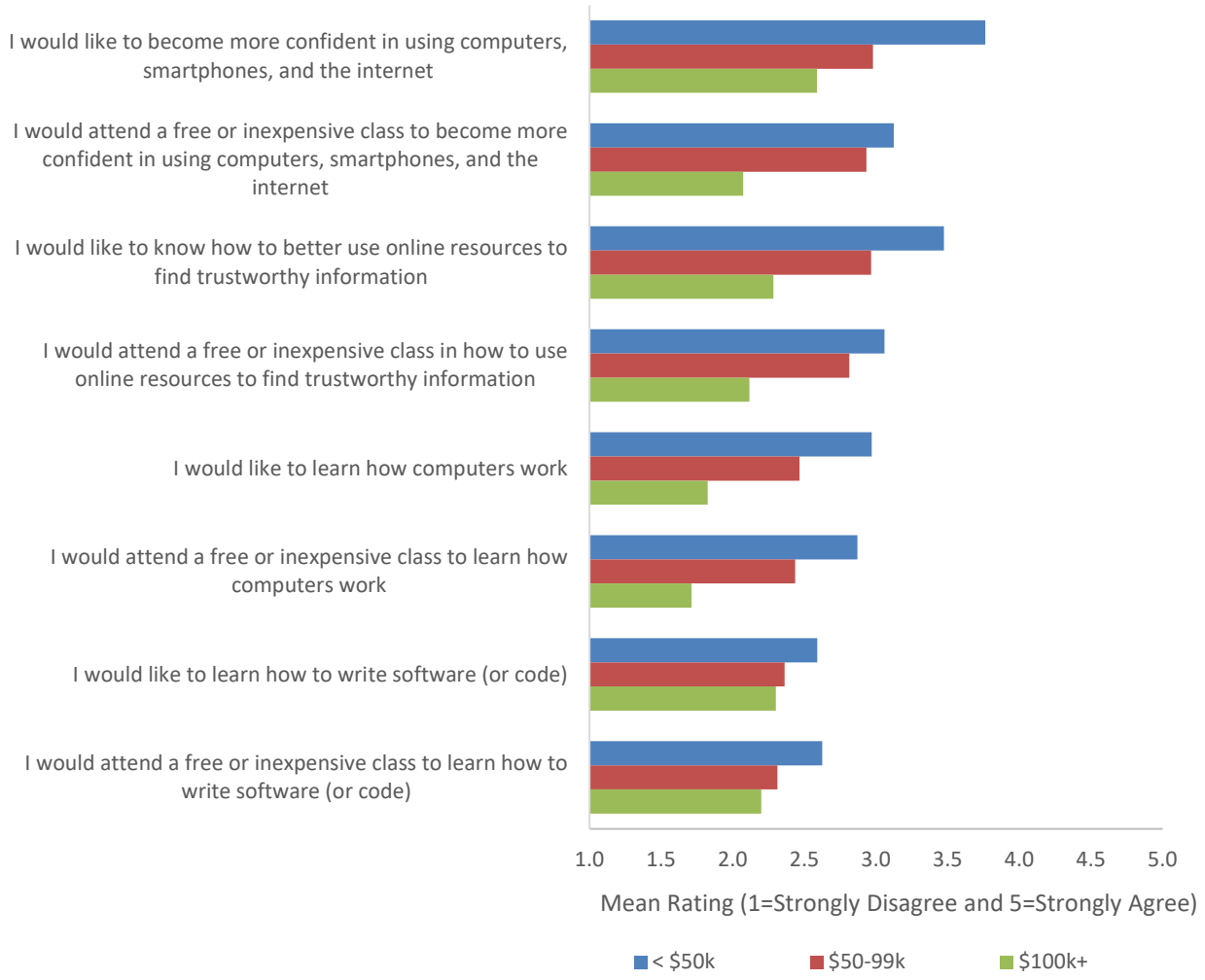
Interest in training varies significantly by age of respondent. As illustrated in Figure 50, older respondents expressed greater interest in becoming more confident in using computers and related technology and in learning how to better use online resources, as well as attending a class about these topics, compared with younger respondents. Those under age 55 are more likely than older respondents to agree they would like to learn how to write code or to take a class about this topic.

Figure 50: Agreement with Statements About Training by Respondent Age



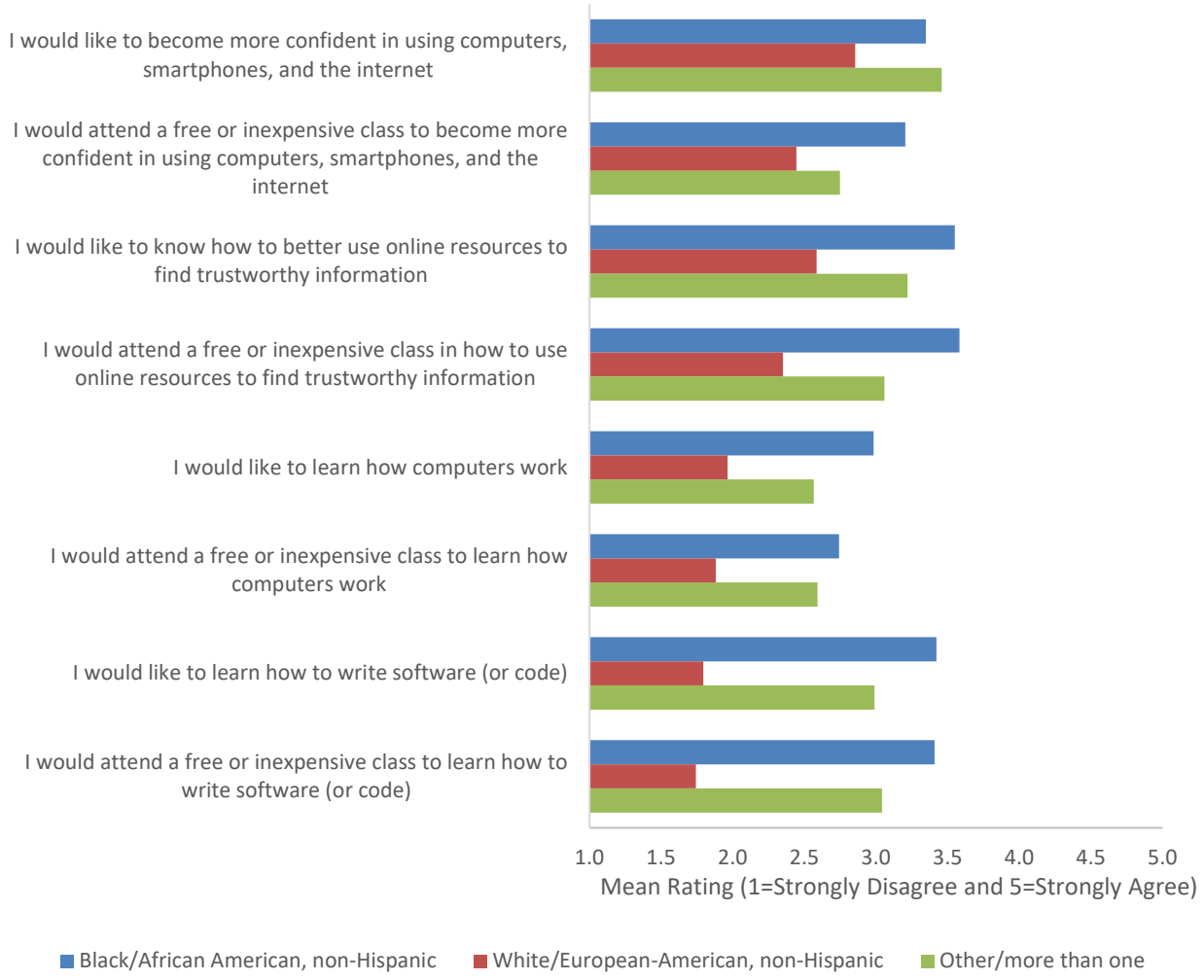
As illustrated in Figure 51, agreement with the various statements about computer and internet training are correlated with household income. Those earning less than $100,000 per year were more likely than those earning $100,000 or more per year to agree that they would like to learn more or would attend training.

Figure 51: Agreement with Statements About Training by Household Income



Compared with White/European American respondents, those who identify as Black/African American expressed greater interest in learning more about computers and the internet, well as attending a class about these topics (see Figure 52).

Figure 52: Agreement with Statements About Training by Race/Ethnicity



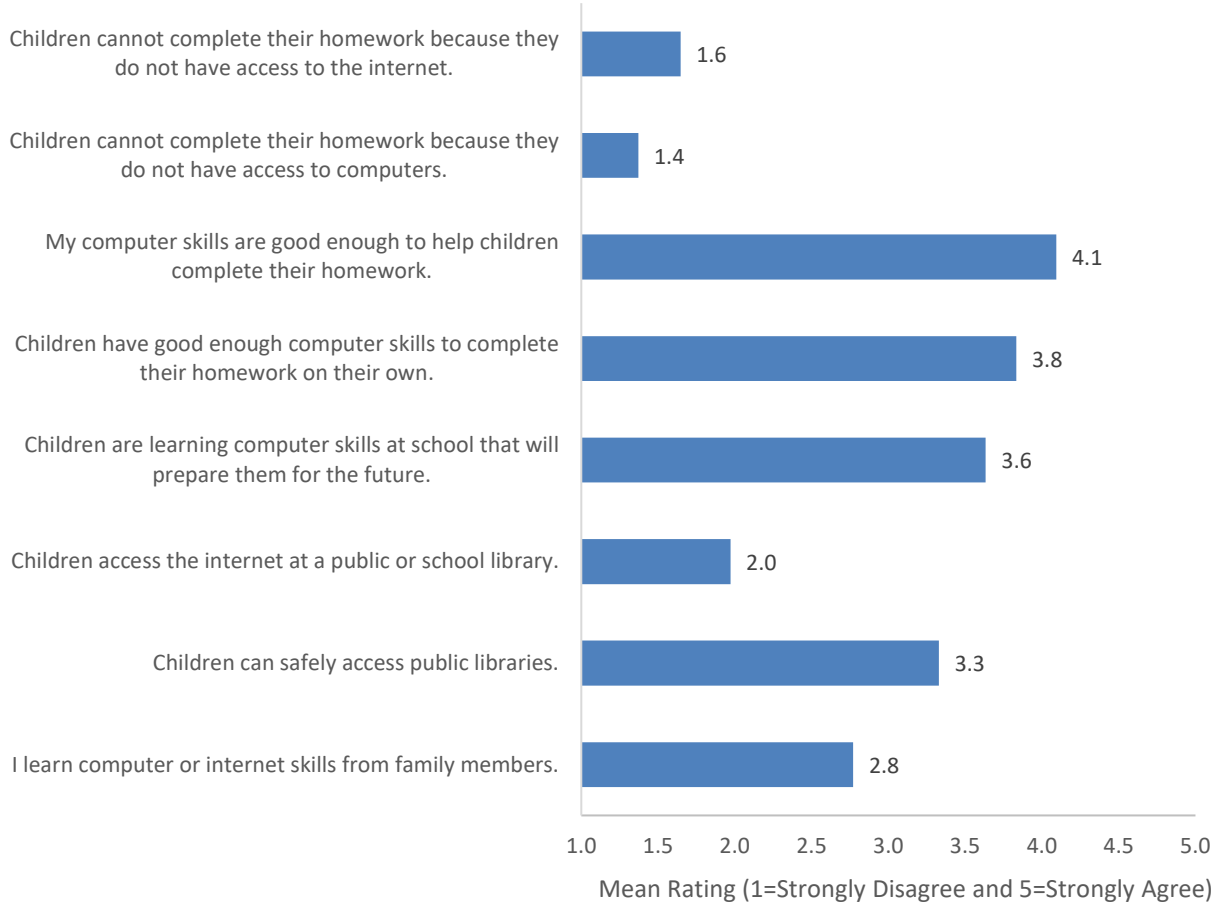
Technology for minor children

Just 34 percent of the weighted total of respondents said they are the parent, guardian, or primary caretaker of children or grandchildren under the age of 18. More than one-half (57 percent) of respondents less than age 45 and 40 percent of respondents ages 45-54 are a parent, guardian, or caretaker.

Use of technology

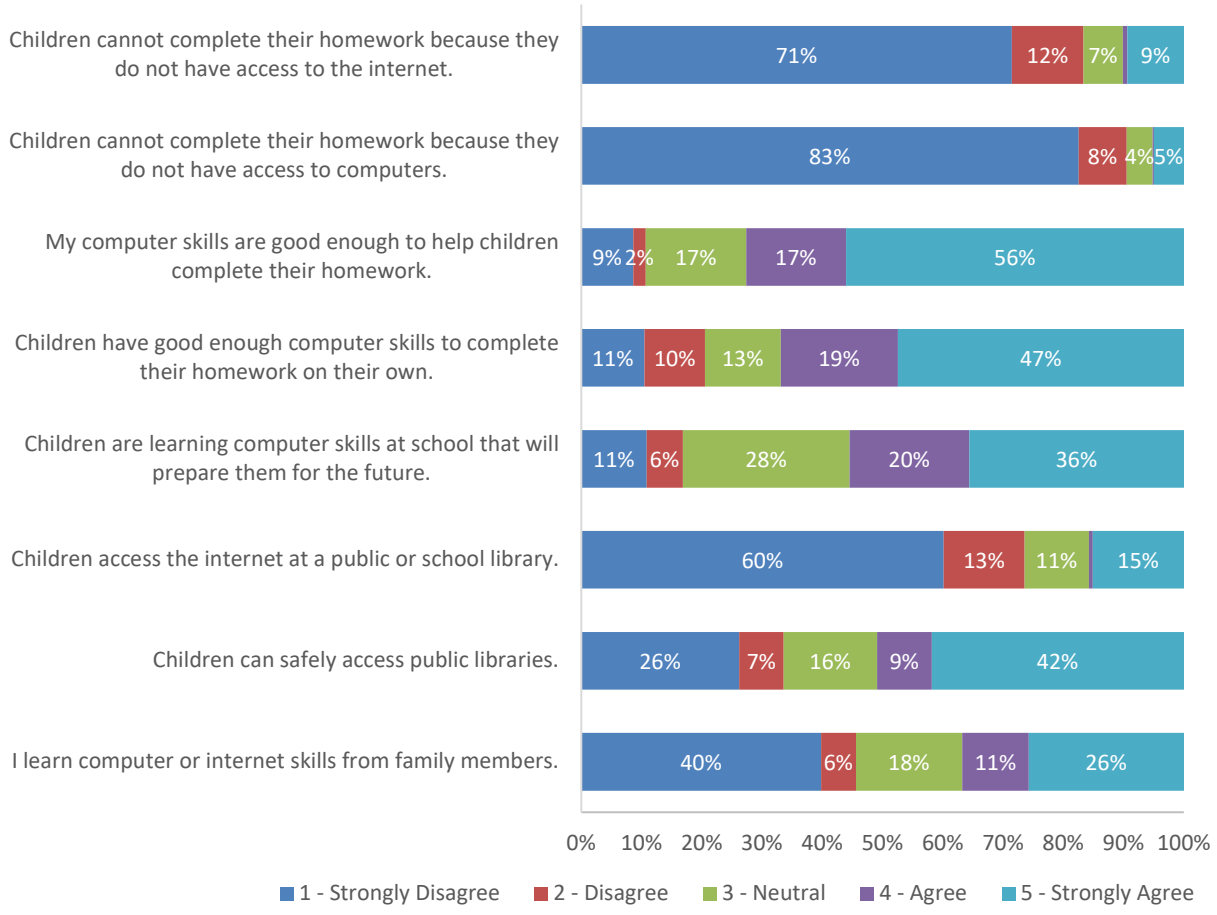
Respondents who are the parent, legal guardian, or primary caretaker for any child or grandchild under the age of 18 were asked their level of agreement with statements about how their minor child is able to make beneficial use of technology. Average rating scores are highlighted in Figure 53, while Figure 54 shows detailed responses.

Figure 53: Agreement with Statements About Children's Use of Technology (Mean Ratings)



A majority of respondents indicated that the children in their care have sufficient internet access. Most respondents strongly disagreed that the children in their care cannot complete their homework because they do not have access to the internet (71 percent) or computers (83 percent).

Figure 54: Agreement with Statements About Children's Use of Technology During the Covid-19 Pandemic



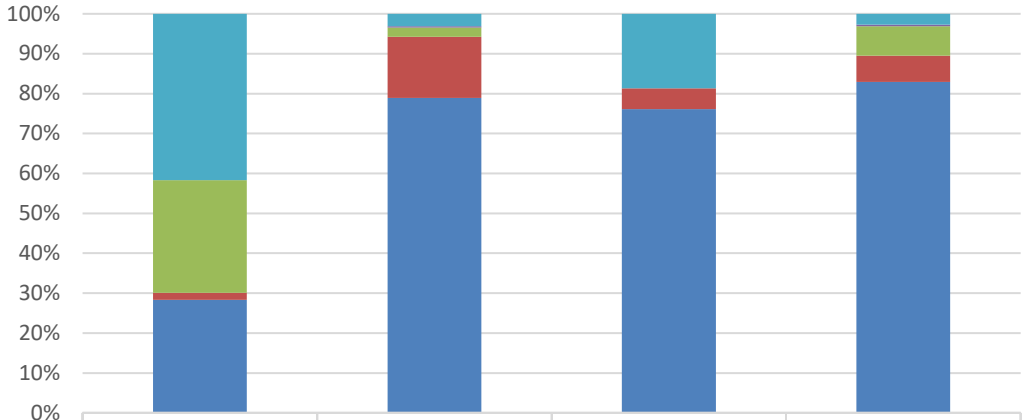
Still, accessibility may be an issue for a small segment of households without access to internet or computers. Ten percent of respondents agreed or strongly agreed that the children in their care cannot complete their homework because they do not have access to the internet. Also, just 16 percent of respondents agreed or strongly agreed that their children access the internet at a public or school library, while 60 percent strongly disagreed.

Most respondents agreed that they and their children have sufficient computer skills. More than one-half of respondents (56 percent) strongly agreed that their computer skills are good enough to help their children complete their homework, and 17 percent agreed. Just 11 percent of respondents disagreed or strongly disagreed that they have sufficient computers skills.

Two-thirds of respondents agreed or strongly agreed that their children have good enough computer skills to complete their homework on their own, while 22 percent of respondents disagreed or strongly disagreed. More than one-half of respondents (56 percent) agreed or strongly agreed that their children are learning computer skills at school that will prepare them for the future, and 17 percent disagreed or strongly disagreed.

Internet accessibility is a greater issue for lower-income households earning under $50,000 per year, compared with households earning more. Forty-two percent of lower-income households strongly agreed that the children in their care cannot complete their homework because they do not have access to the internet. One-fifth of lower-income households strongly agreed that the children in their care cannot complete their homework because they do not have access to computers (see Figure 55). Keep in mind that these figures are based on a relatively small number of respondents (weighted count of 31).

Figure 55: Reasons Children Cannot Compete Homework by Household Income

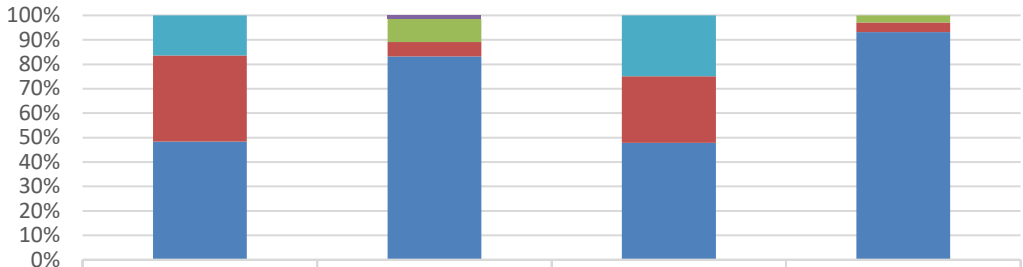


	<$50k	$50k+	<$50k	$50k+
	Do not have access to the internet.		Do not have access to computers.	
5 - Strongly Agree	42%	3%	19%	3%
4 - Agree	0%	0%	0%	0%
3 - Neutral	28%	2%	0%	7%
2 - Disagree	2%	15%	5%	7%
1 - Strongly Disagree	28%	79%	76%	83%

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

Additionally, Black/African American respondents with children were more likely than White/ European American respondents with children to agree the children in their care cannot complete their homework because they do not have access to the internet (see Figure 56). Again, these figures are based on a relatively small number of respondents (weighted count of 31).

Figure 56: Reasons Children Cannot Compete Homework by Race/Ethnicity



	Black/African American, non-Hispanic	White/European-American, non-Hispanic	Black/African American, non-Hispanic	White/European-American, non-Hispanic
	Do not have access to the internet.		Do not have access to computers.	
5 - Strongly Agree	16%	0%	25%	0%
4 - Agree	0%	1%	0%	0%
3 - Neutral	0%	10%	0%	3%
2 - Disagree	35%	6%	27%	4%
1 - Strongly Disagree	48%	83%	48%	93%

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

Minimize online risks

Respondents with minor children were also asked their level of agreement with statements about the skills they or their children possess to avoid or minimize online risks. Average rating scores are highlighted in Figure 57, while Figure 58 shows detailed responses.

Although most households with minor children do have access to the internet and computers, respondents agree that there are some risks associated with internet use. Overall, 62 percent of respondents agreed or strongly agreed that they are aware of the extent their children are exposed to various risks or content, and 63 percent agreed or strongly agreed that they have the time and skills to protect their children or grandchildren from risks.

At the same time, a sizeable segment of respondents disagreed that their children can minimize or avoid specific online risks. Specifically, many respondents disagreed or strongly disagreed that their children can detect and avoid false or misleading information (49 percent), avoid online bullying (35 percent), get help for online bullying (27 percent), detect and avoid financial scams and predators (51 percent), avoid exposure to graphic violence or pornography online (50 percent), and get help if exposed to graphic violence or pornography online (27 percent).

Figure 57: Agreement with Statements About Minimizing Online Risks (Mean Ratings)

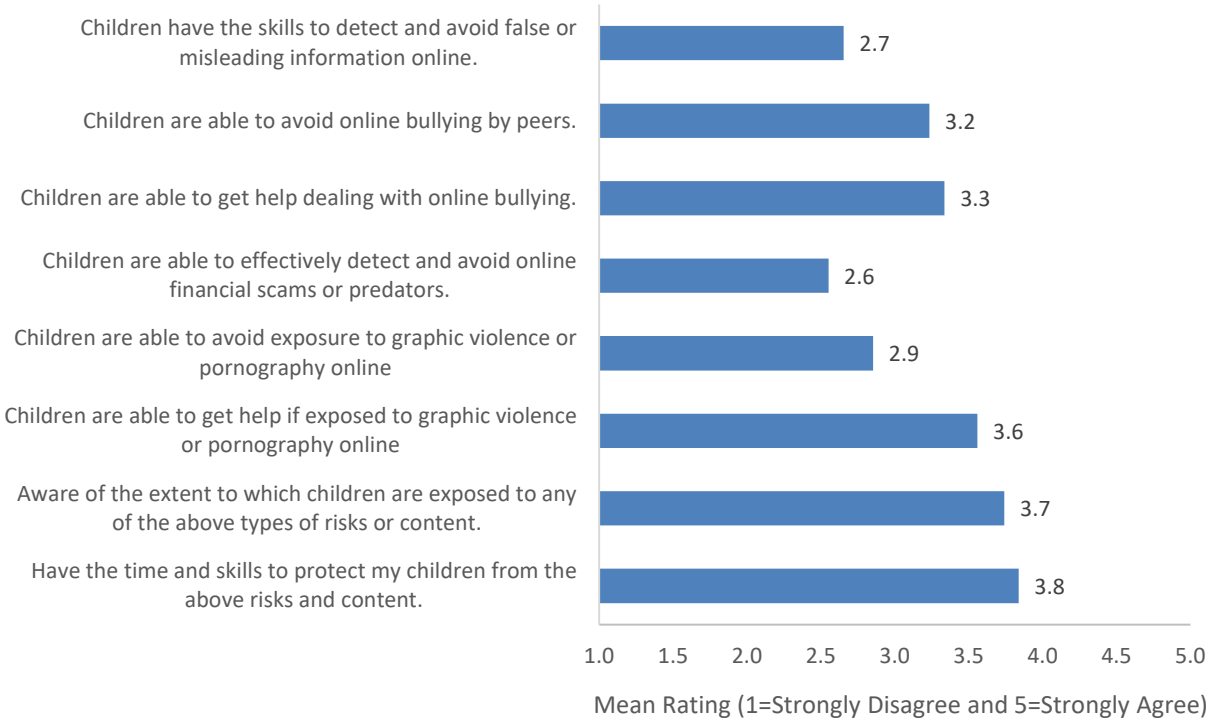
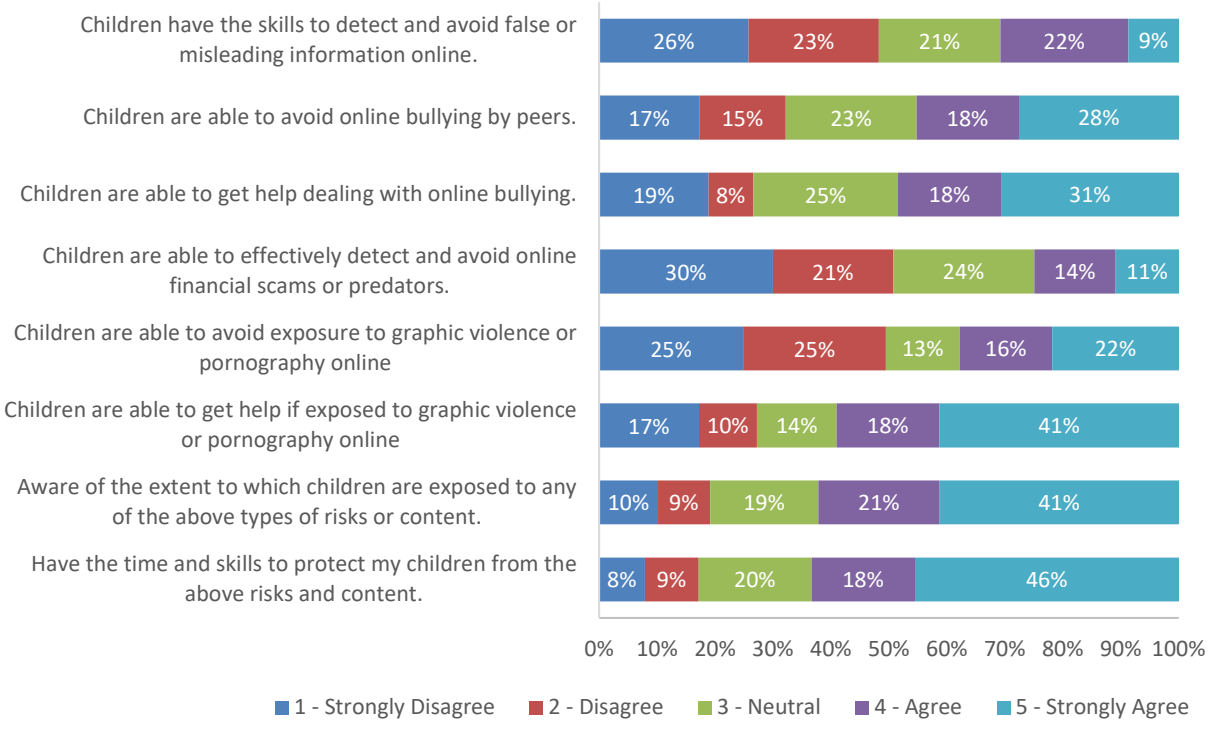


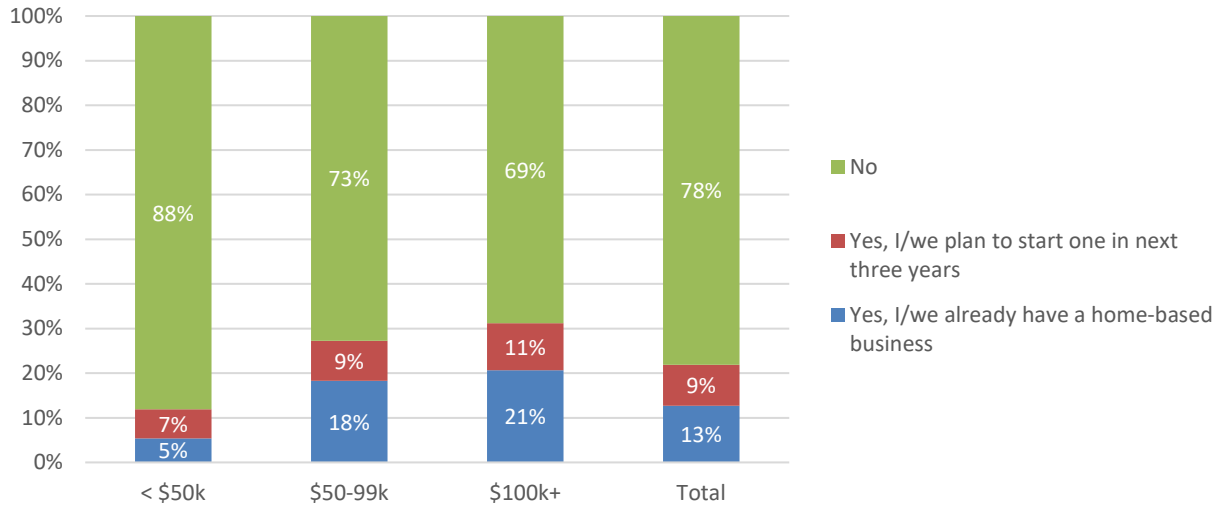
Figure 58: Agreement with Statements About Minimizing Online Risks



Internet use for jobs/careers

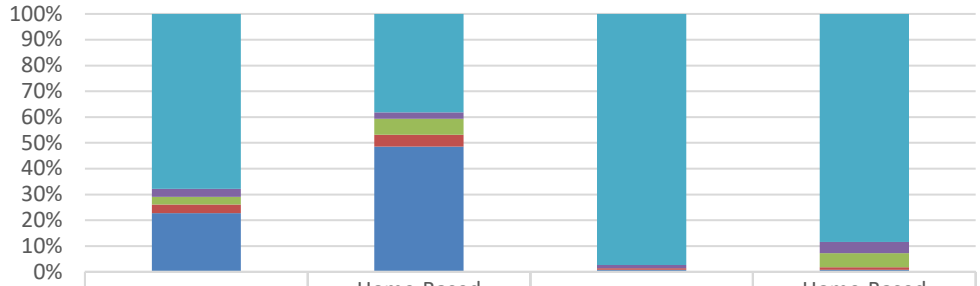
Nearly one-fourth of households either have a home-based business or are planning to start one within the next three years, as illustrated in Figure 59. One-third of households earning $100,000 or more per year have a home-based business or plan to start one.

Figure 59: Own or Plan to Start a Home-Based Business



Two-thirds of respondents said a high-speed internet connection is extremely important for teleworking, and 38 percent said it is extremely important for running a home-based business (see Figure 60). Nearly nine in 10 of those who have a planned/existing home-based business said high-speed internet access is extremely important.

Figure 60: Importance of High-Speed Internet



	Total		Those with home-based business	
	Teleworking	Home-Based Business	Teleworking	Home-Based Business
5 - Extremely important	68%	38%	97%	88%
4 - Very important	3%	3%	1%	4%
3 - Moderately important	3%	6%	0%	5%
2 - Slightly important	3%	5%	1%	1%
1 - Not at all important	23%	49%	1%	1%

Respondent opinions about County role

Respondents were asked their opinions about the role of Baltimore County in providing or promoting broadband communications services within the area. Figure 61 illustrates the mean ratings, while Figure 62 provides detailed responses to each portion of the question.

Figure 61: Opinions About the Role(s) for Baltimore County (Mean Ratings)

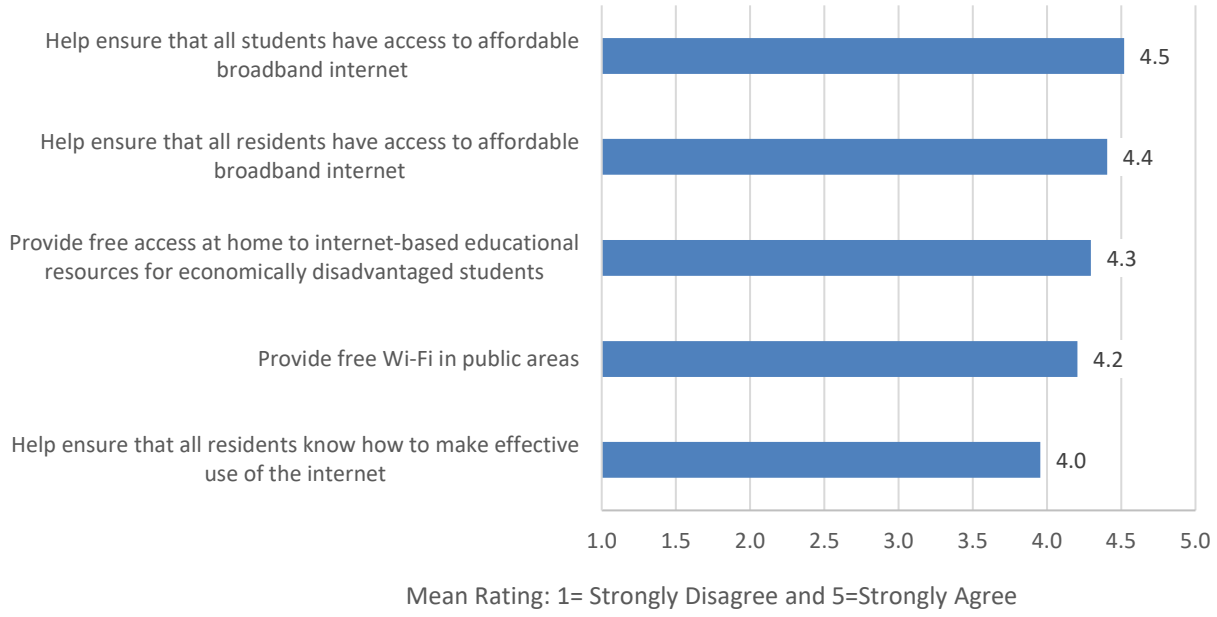
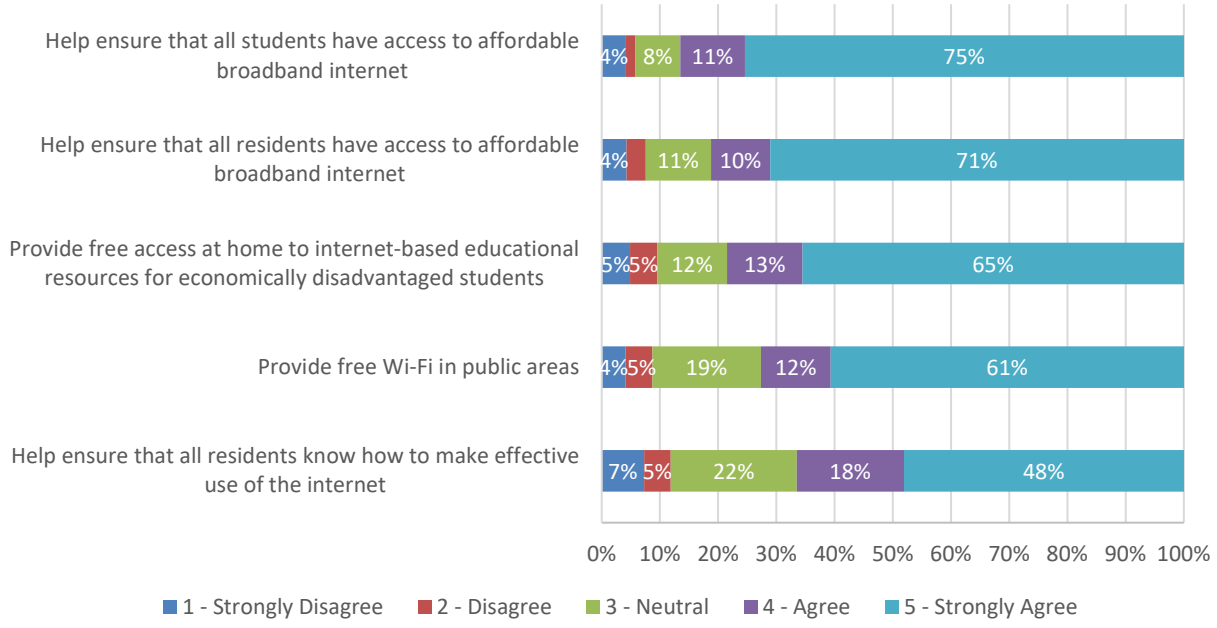


Figure 62: Opinions About the Role(s) for Baltimore County



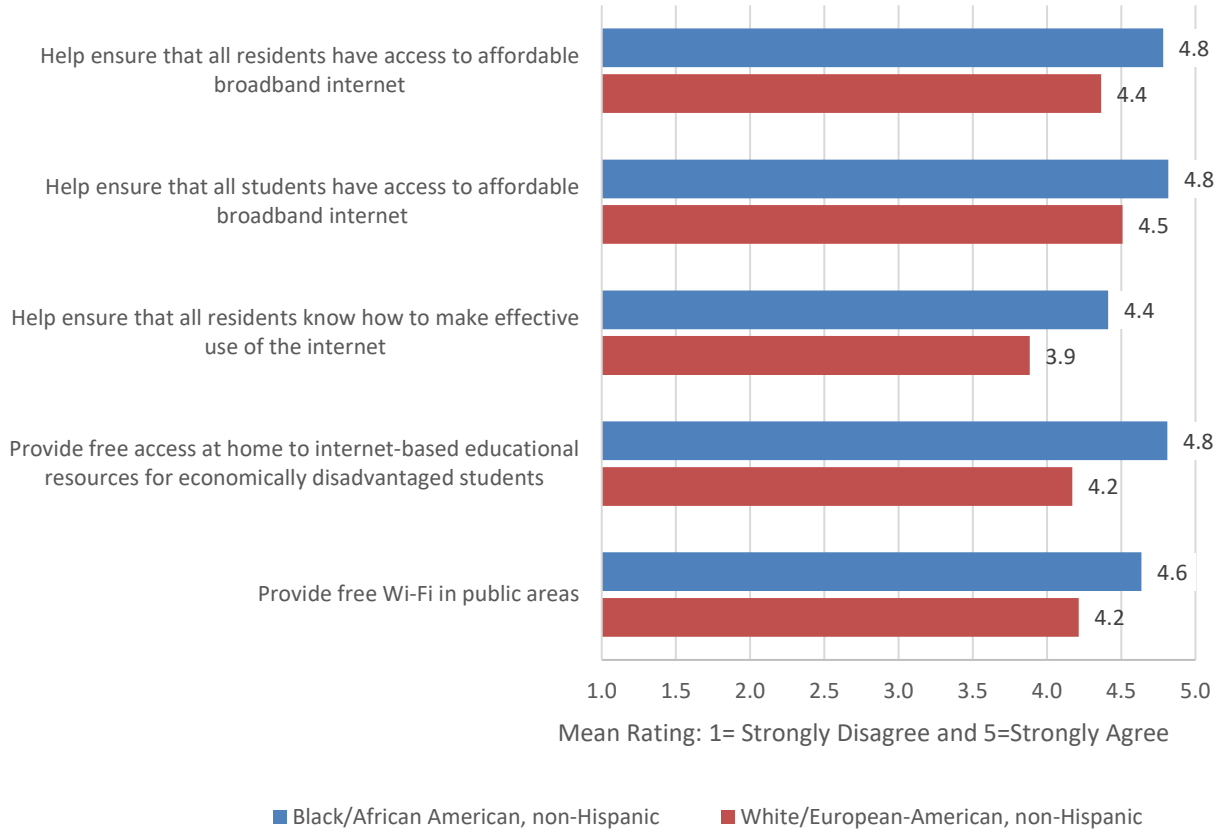
Overall, there is strong support for ensuring all students have access to affordable broadband services, with 75 percent strongly agreeing. Sixty-five of respondents strongly agreed that the County should provide free access at home to internet-based educational resources for economically-disadvantaged students, and 71 percent strongly agreed the County should ensure all residents have access to affordable broadband service.

Additionally, 61 percent of respondents strongly agreed that the County should provide free Wi-Fi in public spaces, and 48 percent of respondents strongly agreed that the County should help ensure that all residents know how to make effective use of the internet.

Black/African American respondents were somewhat more likely than White/European American respondents to agree with the various statements about the County's role in offering broadband internet service or support, as illustrated in Figure 63.

Specifically, nearly nine in 10 Black/African American respondents strongly agreed the County should ensure all students and residents have access to affordable broadband services and the County should provide free access at home to internet-based educational resources for economically-disadvantaged students.

Figure 63: Opinions About the Role(s) for the County by Race/Ethnicity



Willingness to purchase high-speed internet service

Respondents were asked if they would be willing to purchase extremely fast internet service (defined as 1 Gbps) for various price levels. The mean willingness to purchase across this array of questions is illustrated in Figure 64, while detailed responses are illustrated in Figure 65.

Figure 64: Willingness to Purchase 1 Gbps Internet at Price Levels (Mean Ratings)

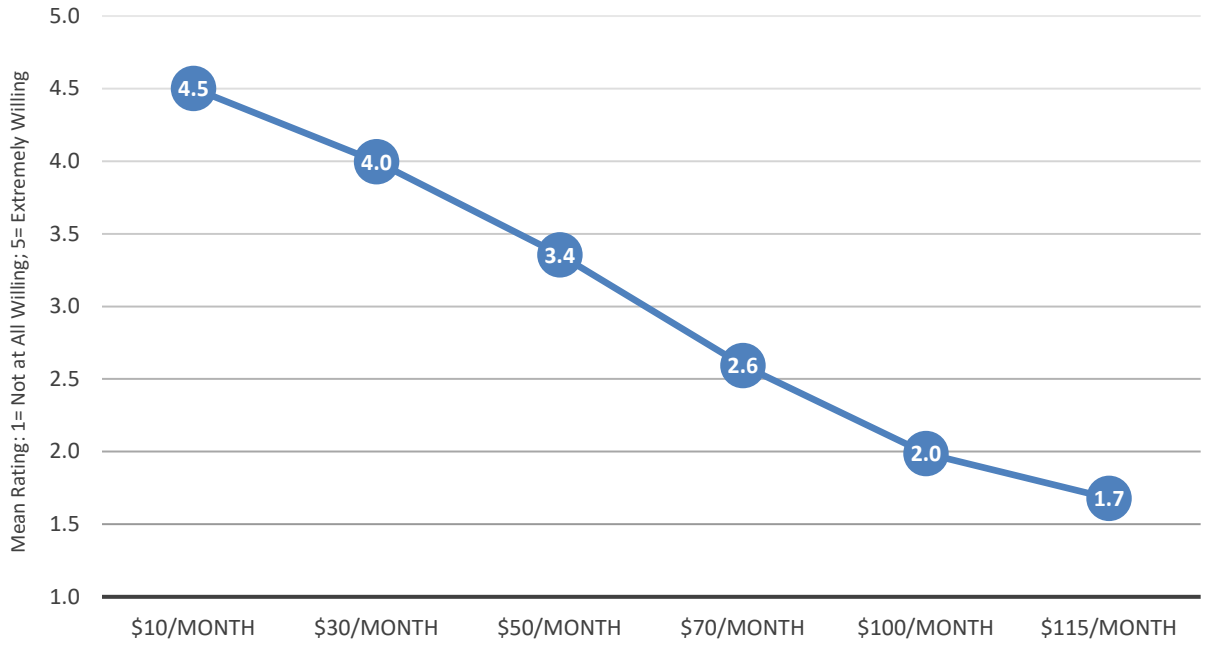
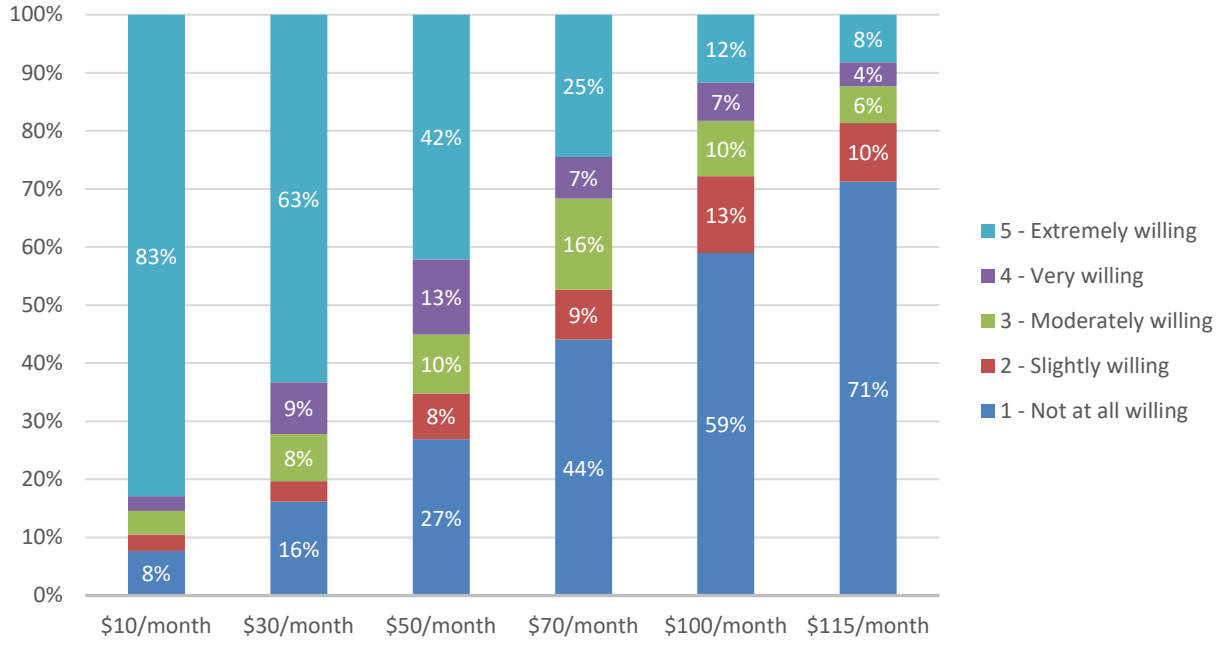


Figure 65: Willingness to Purchase 1 Gbps Internet at Various Price Levels

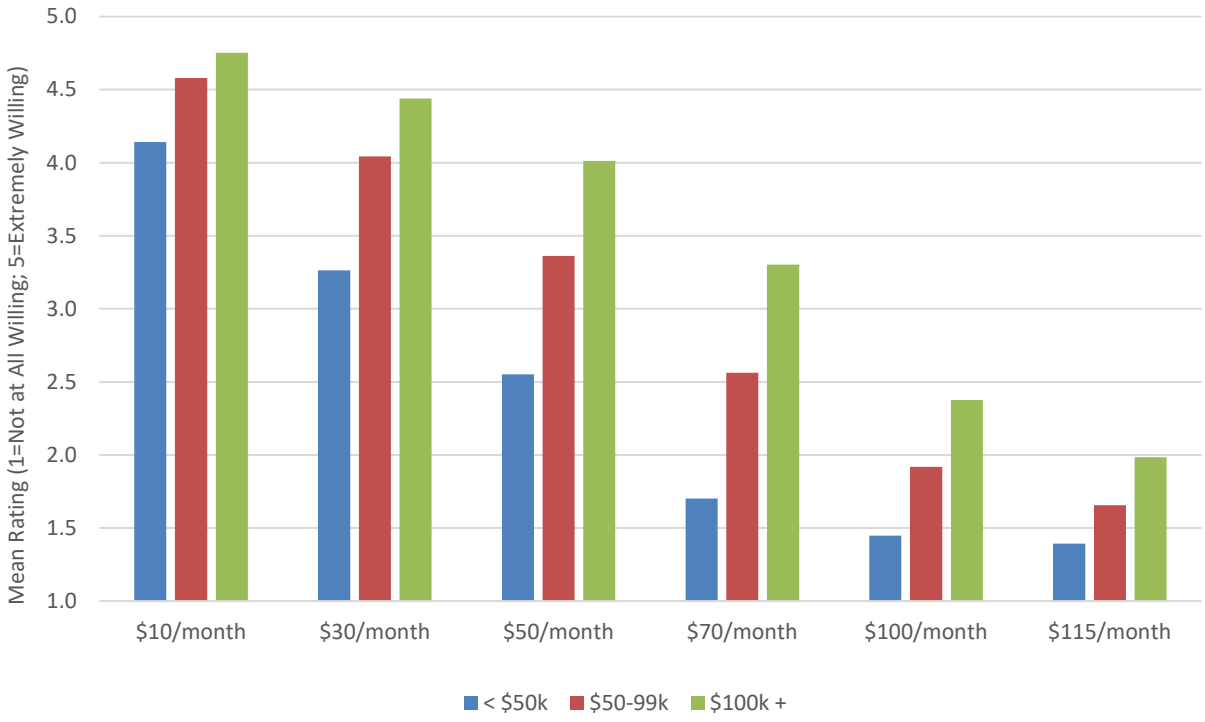


Respondents' willingness to purchase 1 Gbps internet service is high at $10 per month (4.5 mean), but it drops considerably as the price increases. The mean rating falls to 4.0 at a price point of $30 per month, 3.4 at a price point of $50 per month, and 2.6 at a price point of $70 per month (slightly to moderately willing). Respondents would only be slightly willing to switch for price points of $100 per month or $115 per month.

From another perspective, 83 percent of respondents are extremely willing to purchase 1 Gbps internet for $10 per month, dropping to 63 percent at $30 per month, 42 percent at $50 per month and 25 percent at $70 per month. Just 12 percent strongly agreed at a price point of $100 per month, and eight percent strongly agreed at a price point of $115 per month.

The willingness to purchase high-speed internet service is also correlated with some demographic characteristics of the respondents, including household income (see Figure 66). The likelihood of purchasing high-speed internet tends to increase as household income increases.

Figure 66: Willingness to Purchase 1 Gbps Internet Service by Household Income

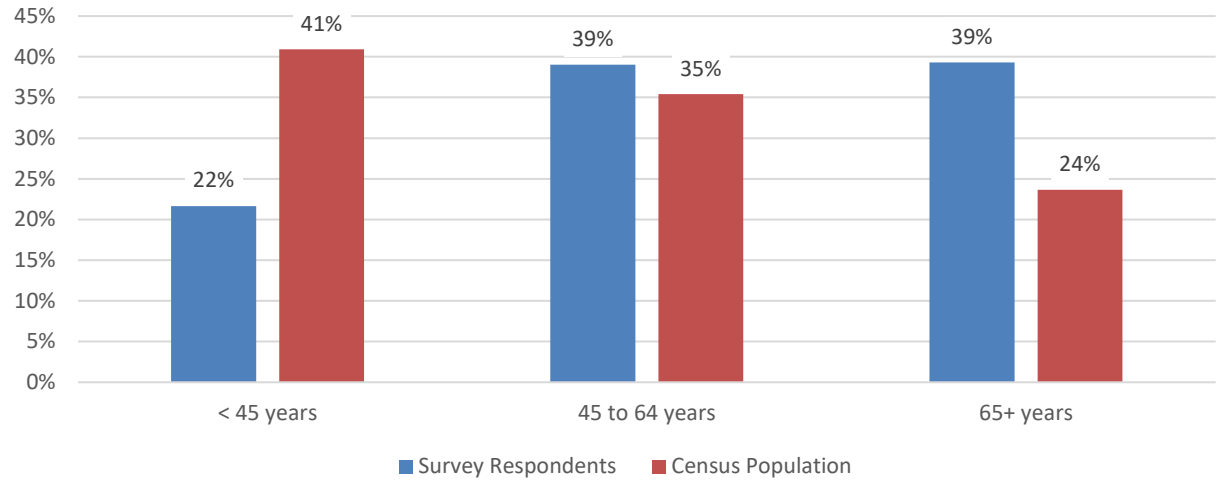


Respondent information

Basic demographic information was gathered from survey respondents and is summarized in this section. Several comparisons of respondent demographic information and other survey questions were provided previously in this report.

Figure 67 summarizes the sample and population distributions by age.

Figure 67: Age of Respondents and Adult Population



Disproportionate shares of survey respondents were in the older age cohorts relative to the area's adult population as a whole (see Figure 68). Similarly, the data were weighted to account for differences in response by household income. The weighted survey results presented in this report are adjusted to account for these differences and to provide results that are more representative of the area's population, as discussed previously.

Figure 68: Age of Respondents and Baltimore County Adult Population

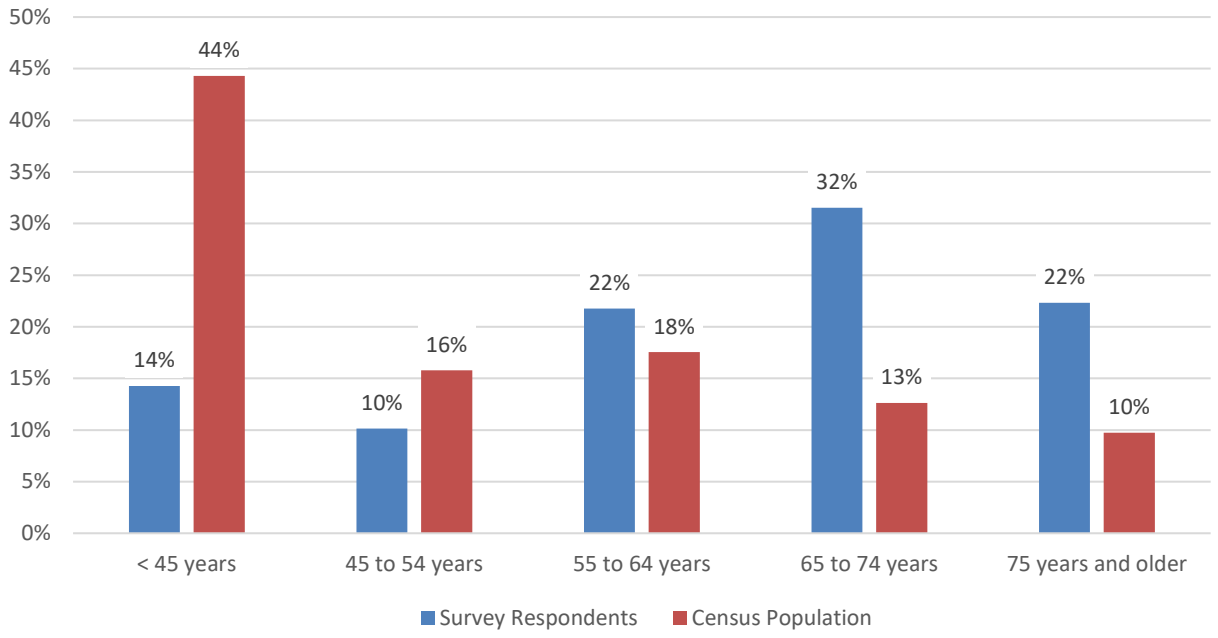


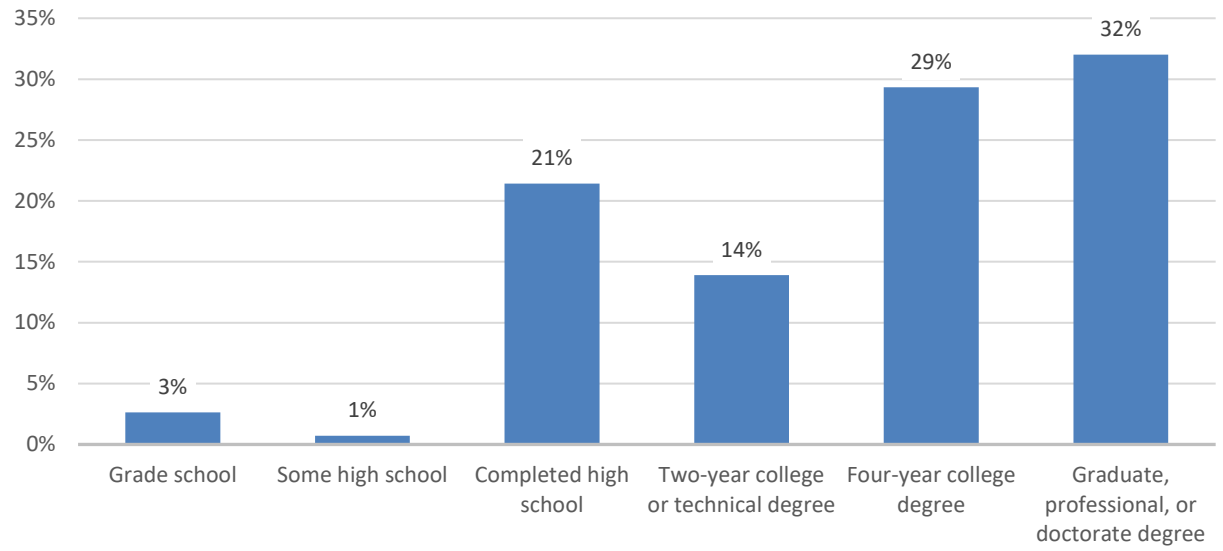
Table 12 highlights the demographic characteristics of survey respondents, broken out by respondent age. Respondents under age 55 are more likely than older respondents to have children under age 18 living in the home/have multiple household members. They are also somewhat more educated, have a higher household income, and are less likely to be White, non-Hispanic. Conversely, older respondents are more likely than younger respondents to live alone. Forty-five percent of seniors ages 75+ have just one household member (i.e., live alone).

Table 12: Demographic Profile by Respondent Age

	Age Cohort	< 45	45-54	55-64	65-74	75+	Total
Education	HS education or less	17%	27%	33%	27%	39%	25%
	Two-year college or technical degree	9%	14%	18%	27%	14%	14%
	Four-year college degree	34%	30%	26%	25%	19%	29%
	Graduate, professional, or doctorate degree	41%	30%	23%	22%	27%	32%
	Total	*236*	*84*	*93*	*67*	*52*	*534*
Household Income	Less than $50,000	24%	28%	38%	42%	53%	32%
	$50,000 to $99,999	24%	29%	31%	32%	31%	27%
	$100,000 +	53%	42%	32%	26%	16%	41%
	Total	*191*	*68*	*75*	*54*	*42*	*432*
Race	Black/African American, non-Hispanic	19%	27%	19%	25%	15%	21%
	White/European-American, non-Hispanic	55%	54%	71%	70%	76%	62%
	Other/more than one	26%	19%	10%	6%	9%	17%
	Total	*151*	*70*	*68*	*49*	*40*	*380*
Household Size	One HH member	12%	23%	21%	36%	45%	22%
	Two HH members	22%	19%	52%	49%	50%	33%
	Three HH members	20%	21%	18%	12%	4%	18%
	Four + HH members	45%	38%	9%	3%	1%	28%
	Total	*236*	*81*	*93*	*67*	*49*	*533*
Children in Household	No Children in HH	39%	56%	90%	95%	98%	63%
	Children in HH	61%	44%	10%	5%	2%	37%
	Total	*236*	*81*	*93*	*67*	*49*	*533*
Own/Rent Residence	Own	73%	77%	78%	83%	84%	76%
	Rent/live with family/other	27%	23%	22%	17%	16%	24%
	Total	*236*	*81*	*93*	*66*	*49*	*530*
Years Lived at Residence	Less than 5 years	49%	26%	17%	12%	8%	31%
	5 or more years	51%	74%	83%	88%	92%	69%
	Total	*236*	*84*	*93*	*67*	*51*	*537*

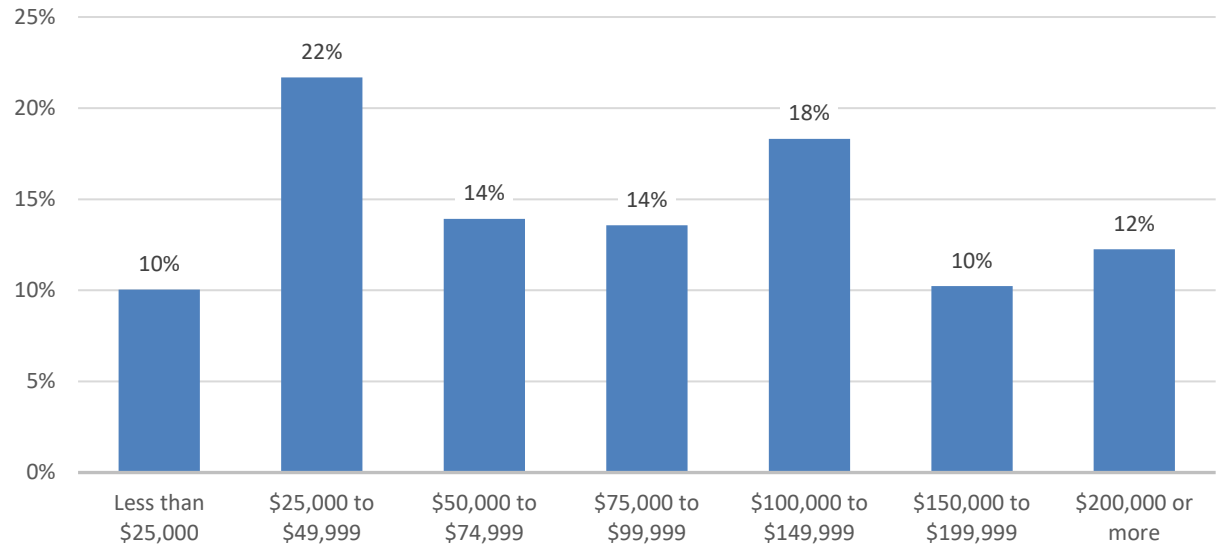
The respondents' highest level of education attained is summarized in Figure 69. Most respondents have a four-year college degree (29 percent) or a graduate, professional, or doctorate degree (32 percent). One-fourth of respondents have a high school education or less.

Figure 69: Education of Respondent



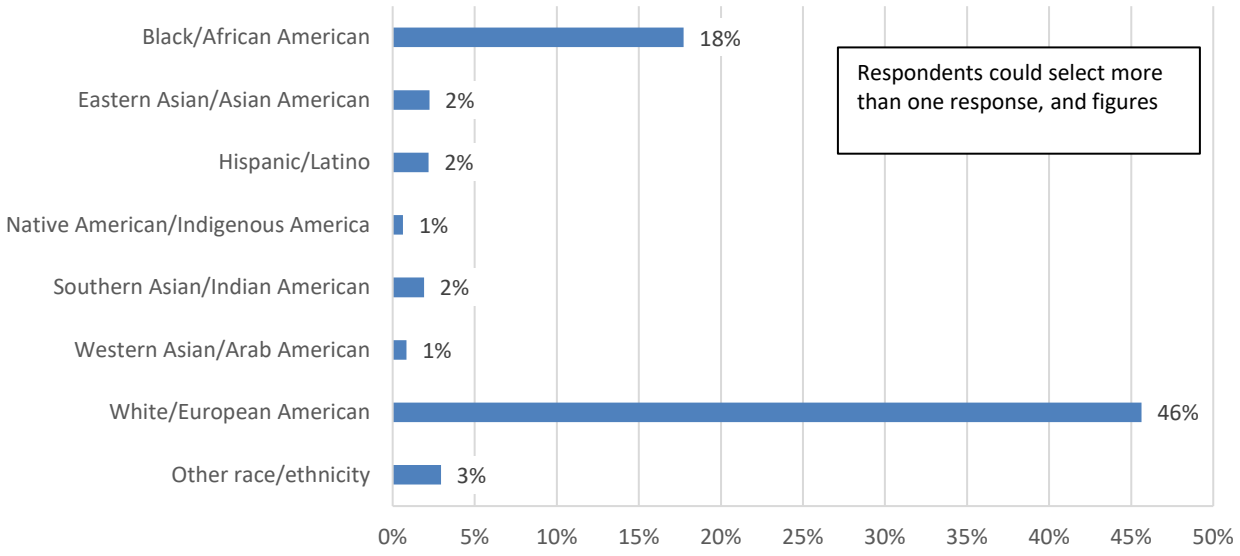
Survey data were weighted to correspond to the income distribution in the population. Thirty-two percent of respondents earn under $50,000 per year, and 68 percent earn over $50,000 per year (see Figure 70).

Figure 70: Annual Household Income



As illustrated in Figure 71, 46 percent of respondents are White/European American, and 18 percent are Black/African American.

Figure 71: Race/Ethnicity



Respondents were asked to indicate the number of adults and children in their household. More than one-half of households have two members, and 17 percent have three or more members. Just 25 percent of respondents live alone (see Figure 72). Thirty-seven percent respondents have children living in the household (see Figure 73).

Figure 72: Total Household Size

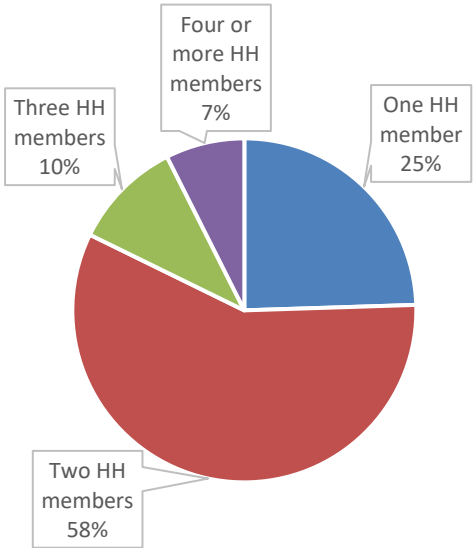
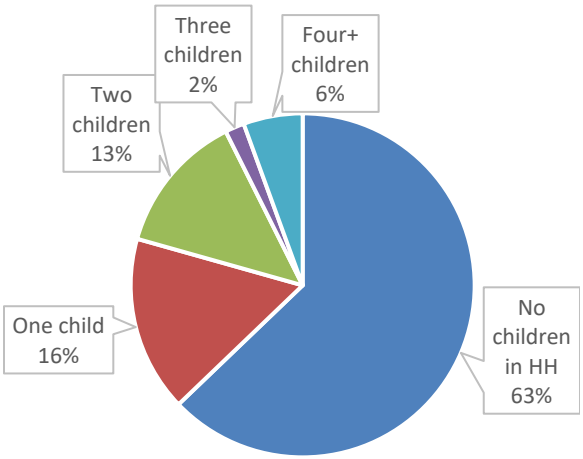
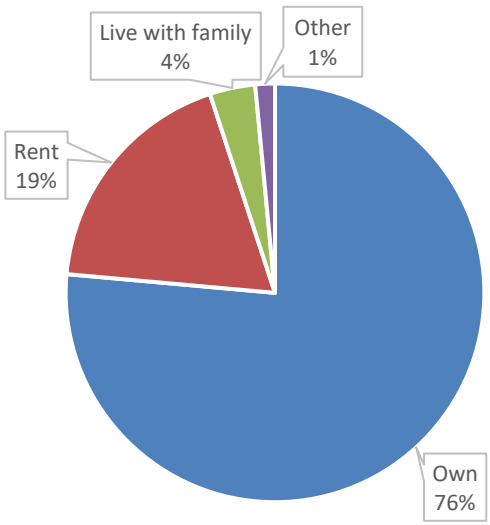


Figure 73: Number of Children in HH



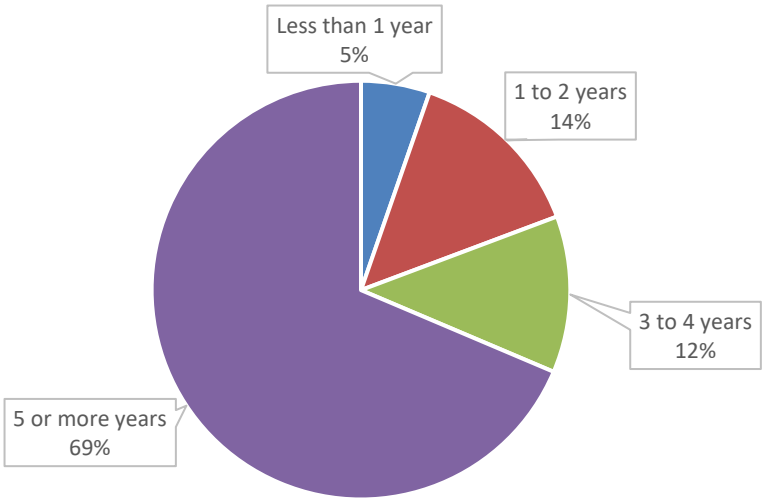
Most respondents (76 percent) own their residence, while 19 percent rent and four percent live with family (see Figure 74).

Figure 74: Own or Rent Residence



About seven in 10 respondents have lived at their current residence for five or more years. Another 26 percent have resided at the home for one to four years, while five percent have lived at the residence for less than one year (see Figure 75).

Figure 75: Number of Years Lived at Current Residence



Appendix A: Survey instrument

Baltimore County, Maryland

Internet Usage Survey

May 2021

Even if you do not have home internet service, please complete this survey form and return to us. Your opinions, experiences, and information are important to us. If you need help completing this survey in your language, please email broadband@baltimorecountymd.gov or call 410-887-2095.

The Baltimore County Office of Information Technology is sending you this survey to help develop strategies to improve internet accessibility and affordability—and to help ensure that residents have the skills needed to make the most effective use of broadband. *The information gathered will not be used to sell you anything.* Your responses will be kept strictly confidential.

How long will the survey take?
This survey should take less than 15 minutes to complete.

What is the due date to complete the survey?
Please return your completed form in the enclosed postage-paid envelope by **June 30, 2021.**

What if I have questions about the survey?
If you have questions, please contact:

Email: broadband@baltimorecountymd.gov
Phone: 410-887-2095

Please also conduct a speed test of your home or mobile broadband service.

To do so, please visit https://maryland.speedsurvey.org, answer the brief questions, and conduct the speed test.

Thank you in advance for your participation!

INTERNET USE AND DEVICES

1. **Do you use the internet (also known as "going online") at all on any computer, tablet, or phone from any location (e.g. home, work, coffee shop, library, friend's house, etc)?**

   ☐ Yes **(Please skip to Question 3)**
   ☐ No

2. **Thinking about the reasons why you NEVER use the internet, please indicate how much you agree or disagree with the following statements** *(please circle your response for each statement, where 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree)*

Aspect	*Strongly Disagree*				*Strongly Agree*
(a) An internet connection is too expensive	1	2	3	4	5
(b) I am concerned about my safety and privacy	1	2	3	4	5
(c) I am not interested or have no need	1	2	3	4	5
(d) I don't need to go online because I have someone who will do it for me	1	2	3	4	5
(e) I have no one to teach me how to go online	1	2	3	4	5
(f) I do not have a computer or other device for using the internet	1	2	3	4	5
(g) Using the internet is too difficult	1	2	3	4	5

3. **How important are the following services to your household?** *(please circle your response for each aspect, where 1=Not at all important, 2=Slightly important, 3=Moderately important, 4=Very important, 5=Extremely important)*

Aspect	*Not at all important*				*Extremely important*
(a) Internet connection (any speed)	1	2	3	4	5
(b) **High-speed** internet connection (any type – wireline, mobile, satellite, etc.)	1	2	3	4	5
(c) Cable television service	1	2	3	4	5
(d) Free broadcast TV from an antenna	1	2	3	4	5
(e) Satellite television service	1	2	3	4	5
(f) Fixed (landline) telephone service	1	2	3	4	5
(g) Cellular/mobile telephone service	1	2	3	4	5
(h) Free public Wi-Fi service	1	2	3	4	5

4. **If you use the internet in your home, who is your primary internet service provider?** *(✓only one)*

   - ☐ Do not have internet service (home internet or cellular/mobile) **(Please answer Question 5 and then skip to Question 16)**
   - ☐ Verizon (wired service—fiber/Fios or DSL) **(Please answer Question 6)**
   - ☐ Comcast **(Please answer Question 7)**
   - ☐ Dish Network
   - ☐ HughesNet
   - ☐ ViaSat
   - ☐ StarLink
   - ☐ AT&T wireless (mobile service)
   - ☐ Verizon wireless (mobile service)
   - ☐ T-Mobile/Sprint, also called "New T-Mobile" (mobile service)
   - ☐ Mobile Wi-Fi hotspot provided to me by a school, library or other entity
   - ☐ Other (Please specify:_____)

5. **(If you do not have internet service) What is your main reason for not purchasing home internet service?** *(✓only one)*

   - ☐ No reliable or high-speed internet service is available at our location
   - ☐ No internet-enabled devices in our home
   - ☐ No interest or need for the internet
   - ☐ Can get internet access at another location, such as a library, work, relative's house, etc.
   - ☐ Privacy and security concerns
   - ☐ Cost of internet service is too high
   - ☐ Don't know how/not skilled enough to use the internet
   - ☐ Cellular/mobile data service meets our needs
   - ☐ Other _____

6. **If your home internet service provider is Verizon, is the service DSL or fiber (Fios)? (If you are not sure, you can check your phone bill or check if your Wi-Fi router is connected to a phone jack. If it is, you have DSL service.)** *(✓only one)*

   - ☐ DSL (my router is connected to a phone jack)
   - ☐ Fiber
   - ☐ Unsure

7. **If you are a Comcast customer, are you enrolled in Internet Essentials, which provides $10 home internet service and other benefits to eligible low-income subscribers?**

   - ☐ Yes
   - ☐ No
   - ☐ I have not heard of this program until now
   - ☐ I attempted to enroll in this program but was denied
   - ☐ I am not a Comcast customer

8. **Do you receive a $9.25 subsidy on either a wireline or wireless broadband service under the FCC's "Lifeline" program, which is available to eligible low-income subscribers?**

   - ☐ Yes
   - ☐ No
   - ☐ I have not heard of this program until now
   - ☐ I attempted to enroll in this program but was denied
   - ☐ Don't know

9. **How many personal computing devices (desktop/laptop computers, tablets, smartphones, console gaming devices) are used in your household?**

   - ☐ 1 or 2
   - ☐ 3 or 4
   - ☐ 5 or more
   - ☐ I do not have any personal computing devices in my home

10. **What devices are available for use in your home? Check all that apply, but only for device or devices that are in good working order.**

    - ☐ Desktop computer
    - ☐ Laptop computer
    - ☐ Tablet computer, such as an iPad
    - ☐ Smartphone
    - ☐ Console gaming devices

11. Thinking about the computer you primarily use (desktop, laptop or tablet computer), about how often does it become inaccessible or unusable for any reason?

- ☐ Once a week or more
- ☐ Once a month
- ☐ Once a year
- ☐ This has never happened to me

12. Thinking about the computer you primarily use (desktop, laptop or tablet computer), if it were lost or damaged beyond repair, how long do you think it would take you to replace it?

- ☐ I could not do so in the foreseeable future
- ☐ 1-6 months
- ☐ 2-4 weeks
- ☐ About one week
- ☐ About one day

13. Please estimate how much your household pays PER MONTH for your *home* internet service (not including television or phone service).

- ☐ $0 to $10
- ☐ $11 to $20
- ☐ $21 to $40
- ☐ $41 to $60
- ☐ $61 to $80
- ☐ $81 to $100
- ☐ $101 to $120
- ☐ More than $120
- ☐ Don't know

14. Please indicate the download speed of your *home* internet service as advertised by your provider (*✓ the highest speed that applies*).

- ☐ 10 Mbps or less
- ☐ 15 Mbps
- ☐ 25 Mbps
- ☐ 50 Mbps
- ☐ 100 Mbps
- ☐ 200 Mbps
- ☐ 300 Mbps
- ☐ 400 Mbps
- ☐ 600 Mbps
- ☐ 1 Gbps
- ☐ More than 1 Gbps
- ☐ Don't know

15. How often do you and anyone in your household use your primary home internet connection for: *(please circle your response for each activity)*

Home Internet Activity	*Never*	*Occasionally*	*Frequently*
(a) Listening to music (streaming)	1	2	3
(b) Watching movies, videos, or TV (including streaming services, like Netflix and Hulu)	1	2	3
(c) Playing online games	1	2	3
(d) Connecting to work	1	2	3
(e) Using social media	1	2	3
(f) Shopping online	1	2	3
(g) Running a home business	1	2	3
(h) Attending online classes/remote learning			
(i) Accessing educational resources (not related to remote learning)	1	2	3
(j) Accessing government information	1	2	3
(k) Accessing medical services	1	2	3
(l) Banking or paying bills	1	2	3
(m) Accessing home security/other "smart home" devices	1	2	3
(n) Accessing cloud-based file storage and sharing	1	2	3
(o) Searching for employment opportunities	1	2	3

COVID-19 PANDEMIC AND INTERNET USE

16. Thinking about your activities BEFORE the COVID-19 pandemic, how frequently did you use the internet at various times in your home? *(please circle your response for each timeframe, where 1=never, 2=less than monthly, 3=at least monthly, 4=at least weekly, and 5=at least daily)*

Time of Day	Never	Less Than Monthly	Monthly	Weekly	Daily
(a) Early morning (6 a.m. – 9 a.m.)	1	2	3	4	5
(b) Midmorning (9 a.m. – noon)	1	2	3	4	5
(c) Early afternoon (noon – 3 p.m.)	1	2	3	4	5
(d) Late afternoon (3 p.m. – 6 p.m.)	1	2	3	4	5
(e) Evening (6 p.m. – 9 p.m.)	1	2	3	4	5
(f) Night (9 p.m. – midnight)	1	2	3	4	5

17. Now, thinking about your activities DURING the COVID-19 pandemic, how frequently have you been using the internet at various times in your home? *(please circle your response for each timeframe, where 1=never, 2=less than monthly, 3=at least monthly, 4=at least weekly, and 5=at least daily)*

Time of Day	Never	Less Than Monthly	Monthly	Weekly	Daily
(a) Early morning (6 a.m. – 9 a.m.)	1	2	3	4	5
(b) Midmorning (9 a.m. – noon)	1	2	3	4	5
(c) Early afternoon (noon – 3 p.m.)	1	2	3	4	5
(d) Late afternoon (3 p.m. – 6 p.m.)	1	2	3	4	5
(e) Evening (6 p.m. – 9 p.m.)	1	2	3	4	5
(f) Night (9 p.m. – midnight)	1	2	3	4	5

18. Thinking about your normal habits BEFORE the COVID-19 pandemic, how often did you use the internet in the following locations on average?
(please circle your response for each timeframe, where 1=never, 2=less than monthly, 3=at least monthly, 4=at least weekly, and 5=at least daily)

Location	Never	Less Than Monthly	Monthly	Weekly	Daily
(a) At my home	1	2	3	4	5
(b) At the home of a friend or family member	1	2	3	4	5
(c) At work	1	2	3	4	5
(d) Inside a school or a college/university building	1	2	3	4	5
(e) Inside a coffee shop or other private business	1	2	3	4	5
(f) Inside a library	1	2	3	4	5
(g) Inside other public buildings such as a municipal office or senior center	1	2	3	4	5
(h) Outdoors at a public library using free Wi-Fi	1	2	3	4	5
(i) Outdoors at a public school using free Wi-Fi	1	2	3	4	5
(j) At any other outdoor public spaces using free Wi-Fi	1	2	3	4	5

19. Now, thinking about how you have been using the internet <u>DURING</u> the COVID-19 pandemic, how often do you use the internet in the following locations on average? *(please circle your response for each timeframe, where 1=never, 2=less than monthly, 3=at least monthly, 4=at least weekly, and 5=at least daily)*

Location	Never	Less Than Monthly	Monthly	Weekly	Daily
(a) At my home	1	2	3	4	5
(b) At the home of a friend or family member	1	2	3	4	5
(c) At work	1	2	3	4	5
(d) Inside a school or a college/university building	1	2	3	4	5
(e) Inside a coffee shop or other private business	1	2	3	4	5
(f) Inside a library	1	2	3	4	5
(g) Inside other public buildings such as a municipal office or senior center	1	2	3	4	5
(h) Outdoors at a public library using free Wi-Fi	1	2	3	4	5
(i) Outdoors at a public school using free Wi-Fi	1	2	3	4	5
(j) At any other outdoor public spaces using free Wi-Fi	1	2	3	4	5

20. Thinking about how often you engaged in various internet activities <u>BEFORE</u> the COVID-19 pandemic, how often did you engage in the following activities? *(please circle your response for each timeframe, where 1=never, 2=less than monthly, 3=at least monthly, 4=at least weekly, and 5=at least daily)*

Internet activity	Never	Less Than Monthly	Monthly	Weekly	Daily
(a) Telework/working from home	1	2	3	4	5
(b) Telemedicine/doctor appointments	1	2	3	4	5
(c) Do homework	1	2	3	4	5
(d) Attend online classes/remote learning	1	2	3	4	5
(e) Homeschool	1	2	3	4	5

21. Now, thinking about how often you have been engaging in various internet activities DURING the COVID-19 pandemic, how often do you engage in the following activities? *(please circle your response for each timeframe, where 1=never, 2=less than monthly, 3=at least monthly, 4=at least weekly, and 5=at least daily)*

Internet activity	Never	Less Than Monthly	Monthly	Weekly	Daily
(a) Telework/working from home	1	2	3	4	5
(b) Telemedicine/doctor appointments	1	2	3	4	5
(c) Do homework	1	2	3	4	5
(d) Attend online classes/remote learning	1	2	3	4	5
(e) Homeschool	1	2	3	4	5

22. What is the current education level of those using your internet connection in your household? *(✓ all that apply)*

- ☐ Preschool (early childhood)
- ☐ Primary (kindergarten – Grade 8)
- ☐ Secondary (Grades 9 – 12)
- ☐ Post-Secondary (Technical/vocational training, college, etc.)
- ☐ Graduate (Graduate, post-graduate, professional degree)
- ☐ Continuing or Adult Education/Professional Development
- ☐ Other _____

23. At peak usage times in your household DURING the COVID-19 pandemic, how many people need to be online for work, school, and other activities at the same time?

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5 or more

COMPUTER AND INTERNET SKILLS

24. Please indicate how much you disagree or agree with the following statements regarding your skills using computers and the internet as it relates to *you or someone in your household* who routinely assists you.
(please circle your response for each statement, where 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree)

Skill	*Strongly Disagree*				*Strongly Agree*
(a) I know how to upload content (such as videos, photos, music) to a website	1	2	3	4	5
(b) I know how to adjust my privacy settings online, such as on Facebook or other sites	1	2	3	4	5
(c) I know how to bookmark a website or add a website to my list of favorites	1	2	3	4	5
(d) I know how to identify false or misleading information online and find credible sources of information	1	2	3	4	5
(e) I know how to manage my own personal profile on Facebook or other social network site	1	2	3	4	5
(f) I know how to create and manage my own personal website	1	2	3	4	5
(g) I know how to recognize and avoid a phishing scam	1	2	3	4	5
(h) I know how to create my own content (such as videos, photos, music) using computers and the internet	1	2	3	4	5
(i) I know how to access my bank account online to perform tasks such as paying bills or depositing checks with my phone	1	2	3	4	5
(j) I feel confident in my ability to troubleshoot issues with technology when they arise	1	2	3	4	5
(k) I know how to purchase groceries and food online	1	2	3	4	5
(l) I know how connect with my doctor or other medical support online	1	2	3	4	5

25. Please indicate how much you disagree or agree with the following statements about your interest in opportunities to obtain training related to computers and the internet. *(please circle your response for each statement, where 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree)*

Statement	*Strongly Disagree*				*Strongly Agree*
(a) I would like to become more confident in using computers, smartphones, and the internet	1	2	3	4	5
(b) I would attend a free or inexpensive class to become more confident in using computers, smartphones, and the internet	1	2	3	4	5
(c) I would like to know how to better use online resources to find trustworthy information	1	2	3	4	5
(d) I would attend a free or inexpensive class in how to use online resources to find trustworthy information	1	2	3	4	5
(e) I would like to learn how computers work	1	2	3	4	5
(f) I would attend a free or inexpensive class to learn how computers work	1	2	3	4	5
(g) I would like to learn how to write software (or "code")	1	2	3	4	5
(h) I would attend a free or inexpensive class to learn how to write software (or "code")	1	2	3	4	5

TECHNOLOGY FOR MINOR CHILDREN

26. Are you the parent, legal guardian or primary caregiver for any child or grandchild under the age of 18 (minor child)?

☐ Yes

☐ No **(Please skip to Question 29)**

27. This next set of questions asks about how minor children under your care are able to make beneficial use of technology. If you are a legal guardian of a minor child still in school, these questions also apply to you. *(please circle your response for each statement, where 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree)*

Skill	*Strongly Disagree*				*Strongly Agree*
(a) I feel that children or grandchildren under my care cannot complete their homework because they do not have adequate access to the internet	1	2	3	4	5
(b) I feel that children or grandchildren under my care cannot complete their homework because they do not have access to computers	1	2	3	4	5
(c) I feel that my computer skills are adequate to help children or grandchildren under my care complete their homework	1	2	3	4	5
(d) The children or grandchildren under my care have adequate computer skills to complete their homework on their own	1	2	3	4	5
(e) The children or grandchildren under my care are learning computer skills at school that will prepare them for the future	1	2	3	4	5
(f) The children or grandchildren under my care access the internet at a public or school library	1	2	3	4	5
(g) The children or grandchildren under my care can safely access public libraries	1	2	3	4	5
(h) I learn computer or internet skills from family members	1	2	3	4	5

28. This next set of questions asks about the skills you or children under your care possess to avoid or minimize online risks. If you are a legal guardian of a minor child still in school, these questions also apply to you. *(please circle your response for each statement, where 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree)*

Risk	*Strongly Disagree*				*Strongly Agree*
(a) I feel that my children or grandchildren have the skills to detect and avoid false or misleading information online	1	2	3	4	5
(b) I feel that my children or grandchildren are able to avoid online bullying by peers	1	2	3	4	5
(c) I feel that my children or grandchildren are able to get help dealing with online bullying by peers if it does occur	1	2	3	4	5
(d) I feel that my children or grandchildren are able to effectively detect and avoid online financial scams or predators	1	2	3	4	5
(e) I feel that my children or grandchildren are able to avoid exposure to graphic violence or pornography online	1	2	3	4	5
(f) I feel that my children or grandchildren are able to get help if they are exposed to graphic violence or pornography online	1	2	3	4	5
(g) I feel that I am aware of the extent to which my children or grandchildren is exposed to any of the above types of risks or content	1	2	3	4	5
(h) I feel that I have the time and skills to protect my children or grandchildren from the above risks and content	1	2	3	4	5

INTERNET FOR JOBS/CAREERS

29. Does someone in your household have a home-based business or plan to start a home-based business in the next three years?

- ☐ Yes, I/we already have a home-based business
- ☐ Yes, I/we plan to start one in next three years
- ☐ No

30. How important is high-speed internet access for: *(please circle your response for each aspect, where 1=Not at all important, 2=Slightly important, 3=Moderately important, 4=Very important, 5=Extremely important)*

Aspect	*Not at All Important*				*Extremely Important*	*N/A*
(a) Working from home (teleworking)	1	2	3	4	5	6
(b) Planned/existing home-based business	1	2	3	4	5	6

OPINIONS ABOUT BROADBAND SERVICE

31. Please indicate to what extent you disagree or agree that the County should do the following: *(please circle your response for each statement, where 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree)*

Aspect	*Strongly Disagree*				*Strongly Agree*
(a) Help ensure that all residents have access to reliable and affordable broadband internet services	1	2	3	4	5
(b) Help ensure that all students have access to reliable and affordable broadband internet services	1	2	3	4	5
(c) Help ensure that all residents know how to make effective use of the internet	1	2	3	4	5
(d) Provide free access at home to internet-based educational resources for economically-disadvantaged students	1	2	3	4	5
(e) Provide free Wi-Fi in public areas	1	2	3	4	5

32. Consider at what price levels you would be willing to purchase extremely fast internet service (1 gigabit per second). This speed can handle multiple high-definition video streams at the same time and transmit large video or other files near-instantaneously. How willing would be to do so for the following monthly price? *(please circle your response at each price level, where 1=Not at all willing, 2=Slightly willing, 3=Moderately willing, 4=Very willing, 5=Extremely willing / already paying this much)*

Monthly Price	*Not at all Willing*				*Extremely Willing*
(a) $10 per month	1	2	3	4	5
(b) $30 per month	1	2	3	4	5
(c) $50 per month	1	2	3	4	5
(d) $70 per month	1	2	3	4	5
(e) $100 per month	1	2	3	4	5
(f) $115 per month	1	2	3	4	5

INFORMATION ABOUT YOU

The following questions will help describe the total group of survey respondents. Your individual information will not be reported separately—it will be reported only as a part of a larger group to help ensure that the respondents are a representative sample of the residents of the County.

33. Which of the following best describes your age?

- ☐ 18 to 34 years
- ☐ 35 to 44 years
- ☐ 45 to 54 years
- ☐ 55 to 64 years
- ☐ 65 to 74 years
- ☐ 75 years and older

34. What is the highest level of education you have completed?

- ☐ Grade school
- ☐ Some high school
- ☐ Completed high school
- ☐ Two-year college or technical degree
- ☐ Four-year college degree
- ☐ Graduate, professional, or doctorate degree

35. What is your approximate annual household income?

- ☐ Less than $25,000
- ☐ $25,000 to $49,999
- ☐ $50,000 to $74,999
- ☐ $75,000 to $99,999
- ☐ $100,000 to $149,999
- ☐ $150,000 to $199,999
- ☐ $200,000 or more
- ☐ Prefer not to answer

36. What is your race/ethnicity? *(✓ all that apply)*

- ☐ Black/African American
- ☐ Eastern Asian/Asian American
- ☐ Hispanic/Latino
- ☐ Native American/Indigenous American
- ☐ Southern Asian/Indian American
- ☐ Western Asian/Arab American
- ☐ White/European American
- ☐ Other (please specify): _____

37. How many people reside in your home (adults and children)?

Adults (including yourself)	Children age 17 and younger
☐ 1	☐ None
☐ 2	☐ 1
☐ 3	☐ 2
☐ 4 or more	☐ 3
	☐ 4 or more

38. Do you own or rent your residence?

- ☐ Own
- ☐ Rent
- ☐ Live with family
- ☐ Other: _____

39. How long have you lived at your current address?

- ☐ Less than 1 year
- ☐ 1 to 2 years
- ☐ 3 to 4 years
- ☐ 5 or more years

Thank you for completing this survey

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