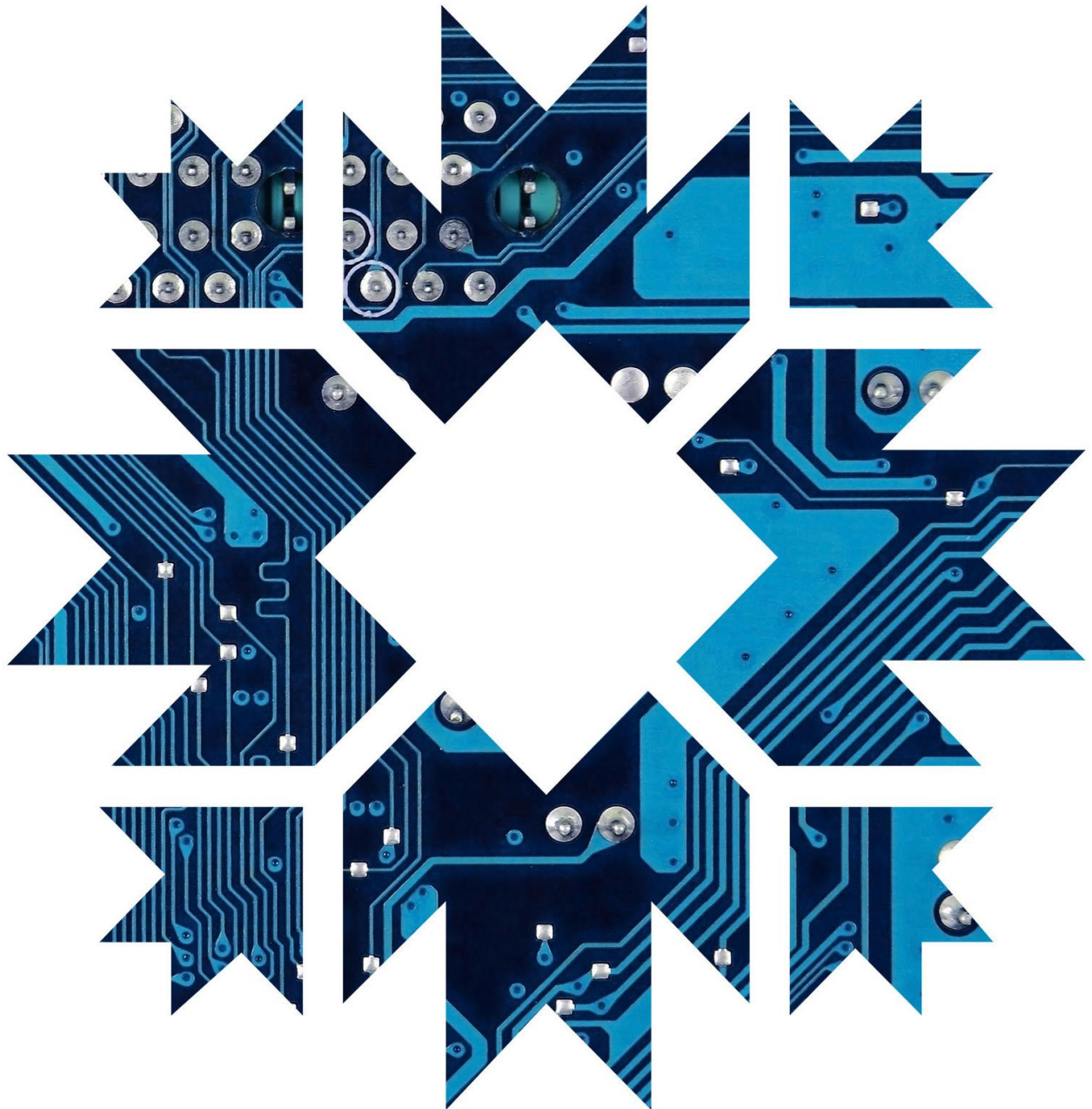
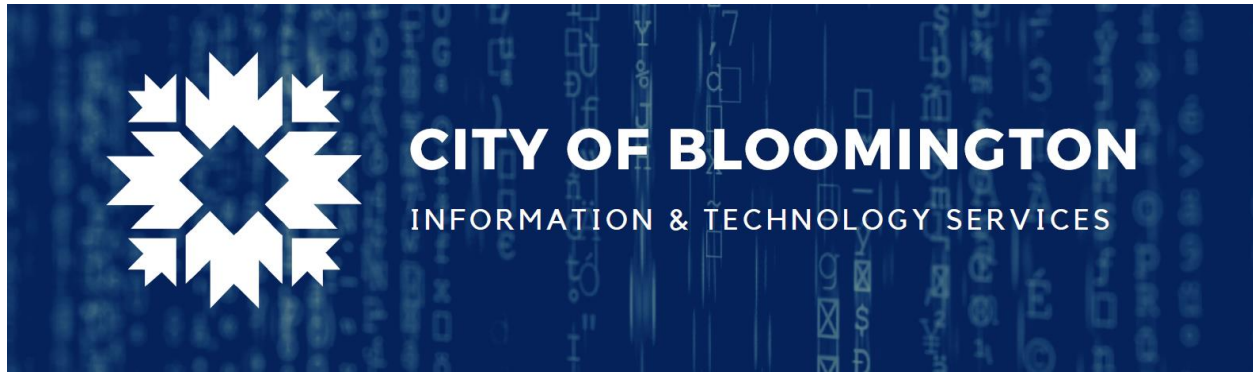


City of Bloomington

Digital Equity Strategic Plan

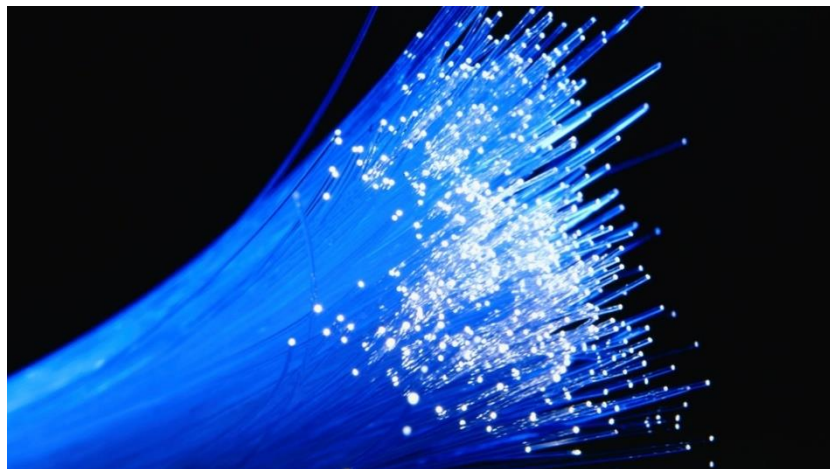
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1 Executive Summary

With the goal of reducing digital inequities in Bloomington—and extending the work the City of Bloomington has undertaken in recent years to explore infrastructure solutions—the City commissioned a focused research effort culminating in this preliminary Digital Equity Strategic Plan. The goal of this effort was to determine what problems residents face in making the most effective, meaningful use of broadband—in terms of broadband connectivity, computers, or digital skills—and to develop a preliminary strategy to address those problems that can be undertaken by both the public and private sectors.

The term “digital equity” refers to a condition where all individuals can fully participate in work, school, society, and economic opportunity by having sufficient access and ability to use broadband and computing devices. Achieving digital equity requires broadband infrastructure that reaches all residents, but the residents must also be able to afford service, have access to well-functioning devices, and possess relevant skills. In Bloomington, as in other areas of the United States, digital inequities are not only present, but often severe. Moreover, they mirror other societal inequities, such as those related to income, race, age, and geography.

This study was conducted by CTC Technology & Energy under the guidance and supervision of Rick Dietz, the City’s director of information technology and services. CTC was tasked with generating a set of directional-level strategies the City and other stakeholders could pursue. To that end, CTC conducted a needs assessment and analysis consisting of a residential mail survey, a series of meeting with City stakeholders, and a review of digital inclusion efforts in other cities. The goal of this Digital Equity Strategic Plan is to recommend a strategy for improving digital equity and help the City identify projects that might be advanced and funded by the City, private entities, philanthropies, or from future federal grants or other forms of broadband stimulus programs.

Over the course of this study, we:

- Developed a survey instrument and conducted, a mail survey of a statistically valid sample of the City’s population to explore issues related to broadband access, affordability, digital skills, and device ownership;
- Participated in seven City-convened meetings with 32 Bloomington stakeholders—including individuals from the City of Bloomington, Indiana University, Monroe County Public Library, Monroe County Community School Corporation, the Bloomington Housing Authority, Greater Bloomington Chamber of Commerce, and others to solicit their observations and strategic ideas; and

- Developed strategy recommendations that flowed from survey findings, stakeholder meetings and our research on strategies pursued by other cities; and refined these recommendations in coordination with the City.

We note that while the Covid-19 pandemic highlighted digital inequities in Bloomington and nationwide, the severity of the problem predated the pandemic—and the digital inequities will persist well beyond it without policy interventions.

1.1 Overview of findings from residential mail survey

Our survey effort, described in summary in Section 2.1 and then presented in a full report in Section 4, include these broad findings:

- Most respondents have access to broadband, but some respondents—mostly with lower family incomes—say they do not connect to the internet ever, from any location; and a relatively low number of potentially eligible residents use internet providers’ low-cost programs.
- Inequity is multidimensional and affects low income groups in particular, but also families with school-aged children and older residents.
- For low income residents the issues are often affordability, skills, and relevance; for families of school age children the problems span access, bandwidth, and devices; for older residents the questions are often related to skills and affordability.
- The private market will not address these problems on its own; residents look to the City for leadership in addressing digital equity gaps.

1.2 Overview of findings from stakeholders

The stakeholder meetings, described in summary in Section 2.2 and then detailed in a full report in Section 5, yielded these broad findings:

- School, library and other stakeholders pointed to a need for lower-cost service and faster bandwidth; devices, and skills for large swaths of the population, aligning with survey findings.
- Existing entities, public and private, offer a range of programs and services, but the need outstrips the available supply of such services.
- Solving these problems is outside the capability of individual government agencies and requires input from a broad range of community organizations.
- Bloomington would benefit from a more coordinated program that draws in all stakeholders, as well as funding and partnerships to mount a robust response to community needs.

1.3 Recommendations track with survey findings, stakeholder input, and initiatives in other cities

Our strategy recommendations, provided in Section 3, provide a range of programmatic and policy recommendations as well as examples of other efforts in other cities. The recommendations are contained within the following broad strategic categories that align with findings from the survey and stakeholder meetings.

- Create a coalition of stakeholders to guide strategy and establish a leadership position within the City to implement digital equity programs, enhance coordination and drive action.
- Expand a new City grants fund to launch and expand programs such as device provision and loaner programs, and potentially to launch technical support and training programs that serve target populations.
- Work to expand utilization of Internet Essentials and other subsidized broadband programs, including through sponsored subscriptions, education and outreach efforts, and potential third-party support to assist indebted consumers.
- Engage with local foundations and explore means of financial and technical support and partnerships to scale programmatic responses to meet the full need.
- Facilitate broadband competition to potentially improve service and lower prices; consider the feasibility of expanding Wi-Fi in public housing and in City public spaces.

2 Key Findings from Residential Mail Survey and Stakeholder Meetings

CTC conducted a residential mail survey and participated in City-organized stakeholder meetings. This section summarizes findings and observations made during those efforts. The full survey report is presented in Section 4; the full stakeholder meeting report is presented in Section 5.

2.1 Survey data revealed a broad range of digital inequities affecting residents in Bloomington

CTC conducted a residential mail survey in April and May of 2020. A total of 6,500 survey packets were mailed first-class in April to a random selection of residential households with a goal of receiving at least 800 valid responses. The sampling included a larger proportion of older adults and homeowners (as opposed to university students) than the general population of Bloomington, to capture sufficient responses from permanent residents to draw statistically valid conclusions.¹

The response to the survey was better than expected,² with a total of 1,080 useable surveys received. The data showed that low-income households face significant broadband and device challenges; that residents are not able to make full use of Comcast's Internet Essentials subsidized service (AT&T's Access program is also available, but eligibility is stricter and AT&T broadband has a relatively smaller footprint in Bloomington); and that many residents have skills deficits, suggesting the need for a community-wide effort to address these challenges.

2.1.1 Low-income households are much more likely to lack internet access

While most Bloomington residents are well connected, the picture is different for lower-income residents. Seventeen percent of low-income respondents (with household income below \$25,000 per year) report not having internet access at home, often citing the cost. This is more than double the 8 percent of the respondents in the \$25,000–\$49,900 category and far higher than the low-single-digit percentages of households in higher income categories.

2.1.1.1 Many low-income households depend on a smartphone for internet access

Fifteen percent of those earning under \$25,000 annually report only using a smartphone for home internet access—triple the percentage of all respondents. This may limit their ability to fully utilize online services, such as editing online documents, completing online forms, and performing other tasks that are better suited to a larger screen and full keyboard.

¹ The technique of “over-sampling” of small subgroups of interest is standard in survey methodology. Weights are applied to compensate for the oversampling and ensure that results are statistically representative.

² The survey was conducted during the early peak of the epidemic when in-person learning, and work widely shut down and remote participation depended on adequate broadband connectivity.

2.1.2 A “homework gap” is a significant problem, especially for those who have lower-speed internet connections

More than one-fourth (27 percent) of internet users with a lower-speed connection (cellular/mobile, satellite, dial-up) strongly agreed that their school-age children cannot complete their homework because they do not have access to the internet or to laptops or other computers. We note that this figure may under-represent difficulties students may be having within their homes, because some of the students with lower-speed connections may be able to complete their homework by “borrowing” internet access at public or private hotspots or other locations; in that scenario, the survey respondent might not have strongly agreed with the statement even though their home internet connection is insufficient.

2.1.3 Subsidized internet services are not having a significant impact on digital equity, with uptake appearing low among likely eligible residents

Uptake of subsidized services appears very low. Only 14 percent of low-income Comcast subscribers reported participating in Comcast’s low-cost Internet Essentials program.³ While self-described income categories may not track precisely with eligibility for the program—which is established by participation in various federal aid programs—this low percentage suggests a potential gap and thus an opportunity for City intervention to identify eligible users and connect them with subsidy programs.

2.1.4 Many people lack the capacity to maintain their devices

Lower-income residents reported lower abilities to maintain or manage their computing devices. One in four people from households earning under \$25,000 per year said that if their computer was lost or damaged, they would not be able to replace it in the foreseeable future.

2.1.5 Older and lower-income residents in particular report lacking desired computing skills

In general, respondents 55 and older and those earning less than \$25,000 per year were less likely than younger respondents to agree that they are skilled in various uses of the internet. For example, more than 25 percent of respondents with household income of less than \$50,000 per year disagreed or strongly disagreed that they know how to recognize and avoid a phishing scam. The rate for people from households making more than \$100,000 per year was only 5 percent.

2.1.6 Lower-income residents express somewhat more desire for help gaining online skills and confidence

Lower-income residents expressed more interest than higher-income respondents in becoming more confident in using computers and the internet and in attending free or inexpensive classes. Respondents from the lowest-income group (less than \$25,000 household income) tended

³ Comcast is the dominant carrier in the City, and AT&T’s equivalent subsidized program has stricter eligibility requirements and ATT has a smaller footprint.

toward agreement with the statement that they would like to become more confident (with an average response of 3.5 on a scale of 1 to 5).

2.1.7 High-speed broadband is increasingly a critical requirement for middle- and higher-income work

One-half of respondents said their job requires them to have internet access at home. Of most concern, 36 percent of internet users who use cell phones, satellite, or dial-up services for their home service said their jobs require them to have internet access at home. This may suggest that many of them may lack adequate bandwidth or devices to fully facilitate online work.

2.1.8 Lack of need for internet in lower-paid and lower-skilled jobs can increase digital inequities

Low-income households are less likely than higher-income households to report needing the internet for their job, telecommuting, or education. If those respondents see less relevance for internet access and computing skills and have less confidence and practice with using such skills, this may become a barrier for being prepared for and having access to higher-paying jobs.

2.1.9 Caregivers report significant concerns with respect to risks minor children face online

Sizable percentages of respondents with minor children disagreed or strongly disagreed their children can avoid false or misleading information online (48 percent), online bullying (38 percent), online financial scams or predators (46 percent), and graphic violence or pornography (46 percent). Nearly two-thirds of respondents (63 percent) agreed or strongly agreed they have the time and skills to protect their children from these risks, but this leaves a significant number of respondents who did not agree or strongly agree with those self-assessments. Percentages were similar across income categories.

2.1.10 There is broad support for the City having an active role in ensuring affordable broadband is available to all residents

Overall, respondents expressed support for the City ensuring access to competitively priced broadband services, with 64 percent of respondents strongly agreeing. One-fourth of respondents disagreed or strongly disagreed that the market currently offers affordable high-speed internet service.

2.2 Stakeholders highlight community broadband gaps and describe promising programs that should be scaled and coordinated

In a series of meetings, stakeholders outlined digital inequities in greater detail. This section provides a summary of themes and problems noted by stakeholders in seven stakeholder meetings attended by 32 people. The full stakeholder report with detailed meeting writeups and a list of participants is presented in Section 5. The strategy recommendations that flowed from

the totality of these meetings, the survey findings, and our subsequent work with the City are presented in Section 3.

In general, participants made clear that while broadband (defined as an internet service delivering speeds of at least 25 Mbps download, 3 Mbps upload) is widely available in Bloomington, internet service is not affordable, reliable, stable, or adequate for many residents. Bloomington has one cable provider, Comcast, which was required to serve the entire City under a cable franchise law that was voided by the State of Indiana several years ago. AT&T also offers DSL broadband and some pockets of fiber, and Smithville offers fiber service in some limited areas. Despite this wide availability of broadband from Comcast—and limited competition in some areas—the City has received complaints that low bandwidth, inconsistent speeds, outages, poor customer support, and other issues are faced by many Bloomington residents, mostly with respect to Comcast. (With that said, the City does not have information about the extent to which inconsistent speeds or low bandwidth may result from an in-home Wi-Fi problem or high demands in the household, as opposed to the wired service itself.)

What’s more, participants made clear that residents also face significant device and skills gaps. This became especially evident when the pandemic struck, leaving adults working from home and students taking classes and trying to do homework at home at the same time. Many residents lacked robust speeds and high-quality devices. This was a pervasive problem that the Monroe County Community School Corporation (MCCSC) and Monroe County Library, in particular, sought to address through loaner programs.

2.2.1 Monroe County Community School Corporation officials noted staff were overwhelmed by the administrative burden of providing devices and that many students do not have adequate broadband

The Monroe County Community School Corporation (MCCSC) leadership said that while most students have access to the internet at home, that access is poor for many students. Parental discomfort, lack of skills, or lack of time to troubleshoot e-learning technology may make it difficult for some students to engage in remote learning. Ultimately, while MCCSC leadership stressed the need for schools to ensure that students have the technology necessary for remote learning, they also said that the administrative burden being put on schools as it relates to providing technical support to thousands of homes to manage stopgap solutions is not sustainable.

Schools cannot build new broadband infrastructure to students’ homes and do not have the staffing or operations resources to provide wide-scale technology support or hotspot management indefinitely. The emergency response programs that MCCSC took on, such as the hotspot program, created significant administrative burdens and affected MCCSC staff’s ability to do their core jobs. For example, with the onset of the pandemic, MCCSC’s tech support staff

became responsible for direct communication with approximately 11,000 students and 17,000 parents. One staff member reported that when school went online in the spring of 2020, about a third of students could not connect. MCCSC distributed several hundred hotspots to students starting in August 2020.

Stopgap solutions came with their own set of challenges. MCCSC has prioritized the distribution of hotspots to students without home internet access. However, the hotspots MCCSC has distributed have data caps that students often hit before the month is over, and hotspots are not an improvement for students who were relying on a cellular connection to begin with. MCCSC has also implemented several public Wi-Fi access points for families to connect to the internet in school parking lots. Transportation poses a challenge for many families, though, and sitting in a car all day is not conducive to online learning. And Comcast's Internet Essentials program is unavailable to many low-income families, sometimes because of past unpaid debts to Comcast.

A representative of the Community Foundation of Bloomington and Monroe County noted the connectivity gaps in the community first became very obvious when they worked to get families in poverty enrolled in pre-K programs. Many of the families had used inexpensive prepaid mobile phones and it was difficult to engage with them.

MCCSC stakeholders noted many long-term solutions to these broadband problems would likely be best managed by a third party, such as a community foundation. This approach would maximize the sustainability of any identified solutions.

2.2.2 The Monroe County Public Library reported a surge in e-library usage and a vast unmet need for laptops and hotspot devices, requiring more funding

The Monroe County Public Library (MCPL) system provides community members with internet and device access and skills training. MCPL staff said the pandemic vastly increased demand for online resources such as databases; downloadable platforms for print, audio and video content; interactive learning platforms; and digital periodicals.

Prior to the pandemic, eLibrary use had seen a steady increase of between 10 percent and 25 percent each year over the past several years; at the time of the stakeholder meeting, eLibrary use in 2020 was up a further 12 percent from the 2019 average. For example, monthly downloads and streaming on Hoopla (a platform that offers access to digital movies, music, and ebooks) increased by roughly 40 percent in the months after the March closure. The library implemented virtual story times and other activities that provide a remote option for families to connect with library programs.

As library locations closed to the public, MCPL extended Wi-Fi connections to building parking lots. This option saw significant use, and the library even fielded requests to set up picnic tables in parking lots. MCPL began scheduling appointments for people to come inside to use library

computers on a limited basis. The demand for internet and computer resources at the library, especially through the pandemic, underscored the lack of ubiquitous broadband access throughout Monroe County.

The library also offers various adult education programs, including technology skills training, through the Volunteers in Tutoring Adult Learners (VITAL) initiative. The technology skills program offers one-on-one training, and historically has been very popular. With the COVID-19 outbreak, VITAL has shifted to remote training. Students with broadband, devices, and technology skills adapted well to online work, but many others struggled. VITAL was unable to get in touch with approximately 10 percent of those that had indicated interest.

The library has 30 hotspots that it makes available for checkout, and the waiting list is consistently 40 to 50 people long. The pandemic is causing the library to consider if it has more of a role to play in circulating robust technology such as laptops. But it needs more funding to do so. MCPL does not expect the increased demand for digital access to resources to be short-lived and anticipates the need to further fund and support eLibrary collections and services.

2.2.3 Indiana University leaders reported strong demand for hotspots, noted student connectivity gaps, and discussed IU research on digital equity solutions

Indiana University leaders affirmed that the pandemic has highlighted digital inequities in the City and the student community. They noted that the University's mobile hotspot program—which makes available about 180 hotspots to students, faculty, and staff—has been fully used. The University has also seen high demand for the outdoor Wi-Fi in the school's stadium parking lot. Some participants were part of IU's faculty and were conducting research on digital equity. They noted that the problem of digital access and literacy often limited families' ability to access government programs; that there was a significant gap in access to skills training and tech support in the community, especially among teachers and parents; and that many people do not have the resources to repair broken devices in a timely manner. Participants stressed that it is important to provide in-person support from trusted individuals and institutions, with the goal of making access to digital education easy and accessible.

2.2.4 Health care provider representatives described a surge in remote medical appointments

Indiana University Health (IU Health) recently designated a chief medical officer for digital health and is working to improve its platforms. IU Health has found that behavioral health lends itself well to telehealth. Given limited behavioral health resources across the state, psychiatric emergency visits that come into IU Health are connected remotely to a behavioral health specialist. This makes psychiatric care more accessible.

While IU Health is anticipating a fifth of its outpatient visits to be digital moving forward, logistical and cultural hurdles remain. Adapting technology to suit older generations being served is one of the first challenges. For example, many seniors use flip phones, which makes it more difficult to coordinate a virtual visit. Additionally, the affordability of internet in Bloomington is a barrier. Protections need to be in place so that residents do not lose internet service if they are unable to pay—similar to protections for other utilities.

HealthNet Bloomington Health Center has been seeing increasing numbers of patients through virtual visits, and specifically, has been relying strongly on virtual visits for behavioral health needs. The trend toward virtual behavioral health care holds at both the city and national level. Virtual visits have a much lower no-show rate, and providers report better contact and ability to learn about their patients. Patients also seem to like their visits more. However, virtual visits are limited to those that are able to access them, and access problems are seen across all demographics. In many cases, phone visits are the only remote option available, which is limiting. Language and literacy barriers can also make it difficult for people to access online resources.

2.2.5 Elder care providers report that older residents have faced increased isolation and require more skills training and expanded loaner programs

Representatives of the Area 10 Agency on Aging said the community it serves can be split into two groups: those who are physically mobile and will show up at meal sites and other in-person services, and those who are homebound or have limited mobility. While those who are mobile typically do have access to a computer or smartphone, the homebound population often simply does not have access to the internet or internet enabled devices, usually because of the cost.

Much of Area 10's constituency is affected by social isolation issues on a normal day, and the COVID-19 pandemic has exacerbated this problem. It has also been difficult for individuals who only have access to a phone to receive complete remote care. Affordability of service is the primary barrier, and skills education is a secondary concern. Area 10 has been working to develop a "loaner kit" pilot program in which hotspots and devices could be dropped off with individuals to use for an appointment or other need, and then picked up and distributed to another individual in need.

TechHeroes is a program launched in California in 2010 to bridge the digital divide for the elderly population and others with barriers to digital access due to health or economic concerns. In Bloomington, TechHeroes has worked in partnership with high school students to provide tech training for seniors. More recently, TechHeroes hosted a virtual poetry reading in partnership with Area 10 Agency on Aging to promote social connections during the COVID-19 pandemic.

2.2.6 Housing Authority representatives reported multiple digital inequities and a need for partnerships

The Bloomington Housing Authority owns and operates 312 housing units and also facilitates the Section 8 Housing Choice voucher program. The Housing Authority has a physical computer lab location that includes PCs, a printer, and a staff person to help troubleshoot; Wi-Fi access in community buildings; and a dozen PCs donated to the Housing Authority and set up with families with children who are enrolled in virtual learning.

Current concerns include the ability of seniors to be able to access basic preventative care and mental health care services throughout the COVID-19 pandemic, and the more general concern that residents may lack digital skills or have a disability that makes using computers difficult. The eligibility criteria for Comcast's Internet Essentials program is often a barrier to access. Potential partnerships could include working with a low-cost broadband internet provider that has low-barrier eligibility, working with MCCSC to help school-aged children access e-learning tools, or working with IU Serve IT to assist with one-on-one training, tech support, or computer basics workshops.

2.2.7 Economic development officials cited the need for robust broadband for economic development

Representatives from the Greater Bloomington Chamber of Commerce indicated that in terms of economic development, the cybersecurity and artificial intelligence industries are strong in the region. The availability of high-speed broadband is critical to high-tech businesses and to the success of small businesses. Right now, many businesses are pivoting to online mechanisms and encouraging online purchasing, and it would help if the City could prioritize laying more fiber and working with internet service providers to ease the burden of deployment. There is also a need to invite internet service providers to the table to have a discussion about what is working and what is not, and to make programs like Comcast's Internet Essentials more known and available to the community.

A representative from the Community Foundation of Bloomington and Monroe County said that the organization's 2014 strategic study identified broadband access as a significant issue for the region and that it is difficult to attract people to the region if there is not fiber access in the neighborhoods, and that various "quality of place" and workforce attraction studies done in the region also identified broadband as a need. While some communities have received grants from the state, even big grants do not meet the full need.

2.2.8 Bloomington's technology incubator reported connectivity gaps among entrepreneurs working from home

Representatives from The Mill, a 501(c)(3) coworking and incubator space in downtown Bloomington with a mission to launch and accelerate startups, said that while The Mill provides

gigabit broadband access on-site from two different internet service providers, they had to rely on home connections during the pandemic. Digital access is a barrier for much of The Mill's community because having access to a computer and high-speed internet at home is often seen as necessary in order to learn to code or start a business. Representatives said it would help if a sponsor organization lent out devices and took charge of maintenance and operations.

2.2.9 City officials expressed a willingness to be a full partner in addressing challenges

Mayor John Hamilton and other City leaders expressed a broad recognition of the challenges, affirmed that the internet is in effect an essential utility, and said the City should be a full partner at the table to help fulfill the community's needs. Deputy Mayor Mick Renneisen pointed out that the pandemic exposed existing vulnerabilities in the community that would not disappear when the pandemic ends. He added that the light shed on the challenges will better prepare the City to meet current and future needs.

Alex Crowley, director of economic and sustainable development, noted that a choice needs to be made between pursuing a "big" solution, like a broadband infrastructure deployment, or starting small and addressing what can be done in increments. He advocated for the latter with respect to manageable efforts to address access to the internet, affordability of internet service, access to devices, and development of digital skills.

When the City moved services online, Shatoyia Moss, a program director with the department, noted a drop-off in engagement by youth and those 60 and older. She said it became more difficult to disseminate resources to those experiencing homelessness. She noted that many residents lacked knowledge about what information is available and where to find it. For example, she noted that the Commission on the Status of Black Males has an annual event that brings together black youth, but the participating students are low-income and many do not have a device at home or reliable broadband. She said that others suffered from "Zoom fatigue;" when students spend all day on a computer for remote learning, they are not motivated to engage in other virtual events.

Rick Dietz, director of information & technology services, said he believed the City should continue to work to improve baseline broadband services by recruiting new entrants and exploring other partnership options. He added that highspeed broadband in Bloomington is not where it needs to be, especially in light of the pandemic. He said that if a global pandemic wasn't enough to get broadband providers to improve their services, what would it take? He said the City needed to work on citywide solutions while also bettering understanding and addressing the digital inequities faced by individuals and families. Dietz stated that the purpose of this strategic planning process was to address those inequities as well as to identify "shovel-ready" projects in case new resources, including federal, become available.

The full stakeholder meeting report, organized in the order the dates the meetings occurred and providing a full list of participants, is contained in Section 5.

3 Strategy Recommendations

In light of the findings and insights from the survey and the stakeholder meetings, the following are the strategies we recommend the City explore. The strategic recommendations presented here flow directly from the findings and are further informed by the experiences of cities that have implemented digital equity strategies or specific programs.

These recommendations require City resources, funding, and the participation of a range of stakeholders (potentially including public and private entities). Assuming the availability of these resources, these are the kinds of strategies targeted to address the challenges illuminated by the research conducted for this effort.

We anticipate that this document will be a starting point, and that the City will add to the insights, refine strategies, set priorities, and establish timetables with input and direction from local stakeholders. Indeed, as noted below, we recommend that the City convene a coalition of stakeholders for this purpose. All of these recommended strategies are important, and many can be pursued simultaneously. For example, there will be an ongoing need to help low-income residents obtain subsidized internet access plans, as well as an ongoing need to assist residents in improving their digital skills.

The experiences of other cities suggest that solutions to tackle digital inequities must involve a broad range of public and private community stakeholders. Section 5, which presents the full stakeholder report, includes some additional granular suggestions made by stakeholders.

At the end of this section, we provide a list of readings and resources from associations and nonprofits such as the National Digital Inclusion Association.

3.1 Expand the City's newly created digital equity fund

Some implementation efforts are already underway. The City has proposed and funded—through Mayor John Hamilton's Recover Forward initiative—a new digital equity grants fund to support local nonprofits in their efforts to bridge the digital divide. The fund has \$35,000 available in grants to be awarded in December of 2020 and will have \$50,000 available in 2021.

The City might consider expanding this community digital equity fund's reach and resources. The fund could help support many of the strategic recommendations made by stakeholders. And the process of vetting and awarding grant applications will help the City maintain good relationships with stakeholders in the community.

As one model and precedent, Seattle has used a technology matching fund since 1997 to support local organizations working to close the digital divide.⁴ In addition to providing financial support

⁴ <https://www.seattle.gov/tech/initiatives/digital-equity/technology-matching-fund>

to organizations working on digital inclusion initiatives, the fund has helped the city build trust with these organizations and improve its understanding of the needs of target population groups. The fund's annual budget has grown to \$320,000; it supports an average of 12 organizations per year. Inspired by Seattle's program, the City of Austin launched its [Grants for Technology Opportunities Program](#) in 2001.⁵ Similarly, the City of Boston began offering \$35,000 in grants through its [digital equity fund](#) in 2017, and expanded it to \$100,000 a year in 2019.

3.2 Convene a digital equity and inclusion coalition to guide implementation efforts

We recommend that the City play a convening role to incent and establish a coalition tasked with actively promoting digital equity and inclusion. Potential partners could include the MCCSC, MCPL, Monroe County United Ministries, Monroe County government, Community Foundation of Bloomington and Monroe County, Greater Bloomington Chamber of Commerce, the Bloomington Economic Development Corporation (BEDC), United Way, and ServeIT, the Indiana University organization that facilitates students helping local nonprofits on technology matters. Representatives of the partners could develop an operational plan for the coalition. (As noted later, engagement with foundations should be another priority for determine how to fund and implementing solutions.)

This coalition could be charged with managing many of the initiatives proposed here and by other community stakeholders in the digital equity planning process. It could identify volunteer "navigators" to improve adoption and utilization through direct work with community members in need. And it could encourage current providers to improve their marketing and outreach to customers who might qualify for ISPs' existing subsidy programs for low-income residents. It could try to identify an organization that could pay for internet service for households in Bloomington that are eligible for those programs but not currently enrolled.

It is important to develop such coalitions to engage stakeholders and drive change, as a recent [Benton Foundation report](#)⁶ noted. Potential models for such an effort include the [Digital Inclusion Alliance San Antonio \(DIASA\)](#)⁷, which is cultivating and promoting public policies and initiatives that prioritize digital equity; the [Portland Digital Inclusion Network](#),⁸ a coalition of community organizations interested in raising awareness about digital equity barriers and developing solutions to bridging the digital divide; and the [Digital Empowerment Community of](#)

⁵ <https://www.austintexas.gov/department/grant-technology-opportunities-program>

⁶ https://www.benton.org/sites/default/files/growinghealthy_ecosystems.pdf

⁷ <https://digitalinclusionsa.org/>

⁸ <https://www.portlandoregon.gov/oct/73860>

[Austin](#), a network of community stakeholders in Austin, TX, working on different facets of the digital equity issues there.⁹

3.3 Establish a community digital equity specialist/navigator position

The City and partners could collaborate to fund a full-time staff member who would serve as a community digital equity “navigator.” This person could, for example, help residents sign up for broadband subsidy programs, or otherwise address gaps identified in the Digital Equity Strategic Plan. The National Digital Inclusion Association has offered a [definition of such a position](#).¹⁰

In Bloomington the staff member could:

- Promote subsidized services (Comcast Internet Essentials, AT&T Access, Lifeline program) to eligible residents and assist eligible residents in not just the sign-up process, but also through successful enrollment, installation, and usage
- Arrange training opportunities for residents on effective, safe, and secure use of the internet, and partner with nonprofits to address gaps identified as part of this process
- Keep abreast of digital inclusion programs offered in other cities and identify and pursue any future digital equity program funding opportunities
- Directly provide training and other services to residents needing help and serve as a central point of contact

3.4 Engage with local philanthropic organizations to broaden the reach of broadband equity initiatives

We recommend convening with local foundations and other philanthropic entities to determine the types of projects they are willing to fund and their application requirements. Although we did not engage with foundations or corporate entities as part of this study, Laurie McRobbie, First Lady of Indiana University, mentioned that the City and other stakeholders could work with foundations such as the James Graham Brown Foundation and the Lily Endowment to explore opportunities to fund new broadband projects.

Given the range of potential initiatives outlined in this strategic plan, a number of potential project types could be suitable for foundation funding. These include:

- Providing laptops, Chromebooks, and other devices to low-income residents or others who have devices in poor condition;

⁹ <http://austintexas.gov/page/digital-empowerment-community-austin>

¹⁰ <https://www.digitalinclusion.org/digital-navigator-model/>

- Establishing resource centers where members of the community can access devices, high-speed internet, and training/mentoring;
- Paying a third-party organization to manage device maintenance on behalf of students—thus relieving MCCSC from this workload and allowing it to focus on its educational mission;
- Providing funding to a train-the-trainer nonprofit to recruit and pay a corps of tech-savvy community outreach specialists to help older residents or others in need to learn basic digital skills;
- Subsidizing broadband subscriptions on behalf of low-income families, or assisting in the structured payoff of past debts to Comcast to allow families to reconnect with Internet Essentials; and
- Paying for the City’s construction of new broadband infrastructure, such as fiber, if allowed by foundation guidelines.

A particularly powerful model for a foundation role arose earlier this year in Cleveland, where the Cleveland Foundation, Cuyahoga County, and T-Mobile partnered to launch the [Greater Cleveland Digital Equity Fund](#).¹¹ The fund was initially launched with \$3 million in commitments intended to address immediate and long-term needs involving access, computing devices, skills, and technology support. The George Gund Foundation gave an additional \$1 million grant to support digital needs—such as hotspots and laptops—for K-12 students in the Cleveland Metropolitan School District and others who lack broadband access and devices to learn remotely during the pandemic. T-Mobile committed to providing 7,500 unlimited data hotspots and \$1 million of in-kind equipment donations, while other local organizations will provide up to 10,000 computers and ongoing support to area students.

One potential strategy is to approach banks to see if there may be avenues for them meeting Community Reinvestment Act (CRA) obligations through investments in digital equity. The [National Collaborative for Digital Equity’s \(NCDE’s\) Guide to CRA Grantmaking for Digital Equity and Economic Inclusion](#) offers more information.

3.5 Sponsor subscriptions to Internet Essentials and find other ways to remove barriers to adoption

The Internet Essentials program has broad eligibility, and Comcast is widely available in Bloomington. (AT&T’s Access program could also be promoted by the City, but eligibility is stricter and AT&T broadband has a smaller footprint in Bloomington.) As such, the City should consider

¹¹ https://www.clevelandfoundation.org/news_items/digital-equity-fund/

sponsoring subscriptions to Internet Essentials, the Comcast program that offers service for \$10 monthly to eligible low-income households. To do this, the City could purchase subscription “codes” allowing the City to be directly billed for the subsidized service. City, County, Township or School staff who interact with potentially eligible people populations can help identify potential recipients.

Other cities have pursued this approach. Cambridge, Massachusetts, this year launched a pilot program of this kind. It purchased 415 such codes and expects to distribute them to students through its Department of Human Service programs. It appropriated \$50,000 for the pilot program. In Bloomington, there is a potential large need. Amber Scoby noted that there are currently 1,700 households (about 3,800 individuals) living in public housing or Section 8 subsidized housing and 4,176 households (with 8,196 total residents) receiving SNAP food assistance in Monroe County.

The City might also explore how to protect residents so they do not lose broadband service if they are unable to pay—similar to how residents are protected if they cannot pay an electric or water bill. The City could also consider a debt forgiveness or payoff program—similar to those administered by Township trustees for other essential utilities—to help pay off past customer debts to providers (and thus enable them to access the low-cost service programs). Funding such an effort might be a role for foundations or others in a position to offer grants.

Such an effort would be responsive to stakeholder observations that enrolling in Internet Essentials is fraught with roadblocks and our survey findings that only 14 percent of low-income respondents use Internet Essentials.

3.6 Partner with organizations to provide low-cost devices and training to City residents and to expand loaner programs

The City could forge partnerships with, or replicate programs offered by, organizations such as [PCs for People](#), [Tech Soup](#), and [Tech Goes Home](#), which have a variety of successful and scalable models for reselling, refurbishing or offering new laptops and other devices and training to partner organizations. These organizations can potentially scale to entities in Bloomington or offer other suggestions for expanding the availability of devices and training.

There are also local ideas of filling a need for a community loaner program that provides hotspots, laptops and potentially smartphones to those in particular need, such as older residents who are not well-versed in technology but need to connect with online medical appointments. Setting up a loaner program like this would have significant capital and operating costs—and hotspots are only as good as cellular service where used—but could be helpful to many in the community.

Some versions of this already under development in Bloomington and could be scaled up. For example, Chris Myers, CEO of the Area 10 Agency on Aging, said the agency is working to develop a “loaner kit” program, in which hotspots and devices can be dropped off with individuals to use for an appointment or other need, and then picked up and distributed to another individual. Tina Peterson, president and CEO of the Community Foundation of Bloomington and Monroe County, and CEO of Regional Opportunity Initiatives, Inc., also recommended implementing this model. Rick Dietz noted that the City’s ITS department provides used computers to IU’s ServeIT organization which places them in local not for profit organizations. And Dan Calarco, chief of staff to the Vice President for Information Technology and CIO at Indiana University, mentioned that IU has an existing program for lending hotspots (also called Mi-Fi devices) to IU students and that this could fairly easily be expanded because the relevant contracts and processes are already in place.

This initiative would be responsive to survey and stakeholder findings that many people lack home broadband connections, well-functioning devices, the ability to pay for repairs, or skills in using digital devices.

There is a large and growing need for funds and third-party assistance to support library and school device lending programs. The Monroe County Library made clear that it has a need to scale up its device loaning capacity. The library has just 30 hotspots, and the waiting list is consistently 40 to 50 people long. And the pandemic made the library realize it has a role to play in circulating robust technology such as laptops in the years ahead. Similarly, the Monroe County Community School Corporation needs assistance managing the tremendous workload associated with provisioning and maintaining devices for thousands of students. MCCSC representatives recommended that long-term device and connectivity solutions for students be managed by a third party, such as a community foundation. And Mike Trotzke, entrepreneur and board member of The Mill, also recommended that a third-party organization could create a program to lend out devices, handle maintenance, and manage operations. As a potential additional resource for devices, Jenny Donegan, founder of TechHeroes, suggested the City could implement storefront computer centers with resources available to the public. These efforts all require substantial assistance in terms of funding.

3.7 Expand library-based training for seniors and study the evolving needs of library users

The Monroe County Library is poised to play a growing role in helping offer training and education to patrons and in connecting them with digital resources. Acknowledging the challenges older users face in using technology, Bethany Turrentine, who coordinates the library’s Volunteers in Tutoring Adult Learners (VITAL) program, suggested the creation of a “learn to earn” program, in which technology skills students would learn how to use a device—then keep that device at the

conclusion of the course. Marilyn Wood, director of the Monroe County Public Library, suggested the library may need to conduct a user experience study in order to determine how best to respond to the new demand for digital services and programming.

This would be responsive to survey findings that older residents face relatively larger device and skills gaps, and stakeholder reports that older residents often lack devices or connectivity for basic needs like attending medical appointments.

3.8 Establish a digital skills training corps that is representative of the population it serves, and leverage the IU Corps student volunteer network

More broadly, Laurie McRobbie, First Lady of Indiana University, said a training corps reflective of the population it serves could be created for digital skills training. She suggested that this might be a role for an expansion of IU Corps (a network of IU Bloomington students, campus stakeholders, and community partners who volunteer in local neighborhoods). Other stakeholders echoed this idea and suggested that other nonprofit stakeholders could be involved.

There are other models for scaling up training and providing basic technical support for residents. The District of Columbia launched a program called All Hands on Tech that holds events providing free technical support, using District employee technicians to directly help District residents with basic tasks like data backup, computer cleanup, virus removal, and troubleshooting. They have held a total of eight events since 2018 and have directly helped hundreds of people while, along the way, gaining insights on the types of problems people are experiencing and who is most in need. More information is available here: <https://connect.dc.gov/free-tech-support>

This would be particularly responsive to survey findings that low-income residents in particular are vulnerable to online harms and face skills deficits.

3.9 Strengthen ties between the Bloomington Housing Authority and entities that offer skills training

The Bloomington Housing Authority would benefit by identifying and working with partners to address these gaps. Amber Skoby, executive director of the Bloomington Housing Authority, added that strengthening connections between the BHA and the Boys and Girls Club and the Mill's coding school could help build technology skills among residents. She also noted that IU's Serve IT program—which seeks to apply the technology skills of undergraduates to build capacity in the local nonprofit community to help them better serve their missions—could potentially assist with one-on-one digital skills training or tech support workshops. She added that a community hackathon could tackle the issue of making digital tools and services more accessible for those with disabilities.

Such efforts would address the extensive survey findings and stakeholder reports that lower-income residents face larger digital skills, device, and connectivity gaps.

3.10 Ensure that City migration to digital service delivery does not exacerbate existing digital inequities

As Bloomington continues to migrate core services online and reduces paper-based or in-person options, it is important that City ensure resources remain accessible. For example, the city's Parks and Recreation department has a waiver process for eligible families to be able to use the pools for free. Submitting the waiver has historically involved scanning documents into a computer to submit online, and this kind of digitization process can be a high barrier to entry for many families.

3.11 Explore a variety of infrastructure-based initiatives

In addition to the programmatic recommendations above, we believe the City might have opportunities to incrementally expand broadband infrastructure over time.

3.11.1 Continue to seek new market entrants to improve broadband service and increase competition

The City has worked for several years to attract additional providers to Bloomington, with the goal of securing high-bandwidth fiber connectivity for all. This effort should continue. In the intervening years Incumbents have done little to improve their services. Additional competition would be beneficial.

3.11.2 Explore the feasibility of creating a new public-private broadband partnership

If the City is unable to attract new private sector competition, it might consider other public/private partnerships models, such as building a complete conduit network and contracting with an external network operator. To this end, the City could consider conducting a feasibility study to assess the viability of a City-funded spin-off infrastructure provider or utility model to secure the digital infrastructure the community needs. Alex Crowley, director of economic and sustainable development for the City, agreed that public-private partnership options could address how to best incentivize new infrastructure deployment.

3.11.3 Consider a targeted infrastructure buildout to public housing in Bloomington

Given the broadband gaps facing low-income residents in particular, the City could consider funding free broadband in public housing. As one model, San Francisco, through a partnership with a local ISP, launched a [Fiber to Housing](https://tech.sfgov.org/news/fiber-housing/) program that offers free broadband in public housing facilities.¹² The local ISP uses a combination of fiber optic and fixed wireless technology to connect the buildings, and some units have wired ethernet connections while others have shared

¹² <https://tech.sfgov.org/news/fiber-housing/>

Wi-Fi networks distributed throughout the building. The San Francisco Housing Development Corporation (SFHDC) pays \$10 per month per unit, for an estimated total cost of \$26,000. The local cable company proposed to charge more than twice this amount to provide a single shared Wi-Fi access point in each building.¹³

3.11.4 Study the feasibility of strategically expanding Wi-Fi access downtown or in parks

Expanding the availability of public Wi-Fi downtown and in parks can be helpful in addressing some digital equity issues, such as by providing a means for people who are homeless to access the internet. However, this is not a solution for residential broadband problem. It asks a lot of potential users to leave their homes to come to the hotspots; transportation, parking, crowds, and weather, can be complicating factors. Public Wi-Fi may be thought of more of an amenity or an aid to economic development.

As the City explores the potential for expanding free public Wi-Fi, it is worth continuing conversations with IU. Marianne Chitwood, the director of operations for GlobalNOC, the network operations center at IU, noted that IU had prepared an application for federal funding to enable outdoor wireless access throughout Ivy Tech Community College campuses in Indiana. While the project has not been funded, the project planning has largely been done, making it ready for implementation. We recommend that the City work with IU and other stakeholders to explore opportunities for public Wi-Fi expansion that would benefit residents of Bloomington.

3.12 Digital equity guides and resources

Numerous coalitions have formed to support digital inclusion work happening at the grassroots, and to help scale successful solutions. They have developed the following guidebooks and resource pages to help individuals pursuing digital equity learn what is working in other communities and develop their own plan of action.

[National Digital Inclusion Alliance's \(NDIA'S\) Discount Internet Guidebook](#) offers a guide for digital inclusion practitioners wanting to help their community find affordable home broadband service. It describes large ISPs affordable broadband options and explains how eligible households can sign up.

[Digital Inclusion Coalition Guidebook](#) reports on lessons learned from six established community-wide digital inclusion coalitions in an effort to help local communities implement their own digital inclusion coalition.

[Digital Inclusion Start-Up Manual](#) provides guidance for communities looking to increase access and use of technology in disadvantaged communities through digital literacy training, affordable

¹³ <https://ilsr.org/wp-content/uploads/2019/03/sf-broadband-public-housing-2019.pdf>

home broadband, affordable devices, and tech support. The guidebook was updated in September 2020 to reflect best practices around Digital Inclusion programming in the age of COVID-19.

[NDIA's Resource Page](#) includes link to strategy guides, local government plans and reports, sources of data and research on the digital divide.

[National Collaborative for Digital Equity's \(NCDE's\) Guide to CRA Grantmaking for Digital Equity and Economic Inclusion](#) offers a detailed description of how banks can meet Community Reinvestment Act (CRA) obligations through investments in digital equity.

[NCDE's Digital Equity Resource Page](#) provides links to sources of free and low-cost broadband, devices, apps, software and technical support, as well as other digital literacy, education and professional development resources.

[Consortium for School Networking's Digital Equity Toolkit](#) details strategies that school systems are successfully using to narrow the Homework Gap in their communities, as well as guidance on how these steps can integrate with broader digital inclusion efforts.

[HUD's ConnectHome Playbook](#) provides a step by step guide for building a digital equity initiative, lessons from 28 pilot projects, and tips for how ConnectHome partners can help families in HUD-assisted housing overcome some barriers to adoption.

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4 Survey Report

As part of its efforts to perform a comprehensive evaluation of broadband gaps—in access, affordability, and skills—affecting low-income and other populations, the City of Bloomington conducted a mail survey of residents in the spring of 2020. In addition to gathering data about usage of services by City residents and their willingness to switch, the survey asked questions designed to provide insights into questions about residents’ ability to use broadband effectively.

To this larger end, the survey sought insights into a range of topics including price sensitivity, self-assessments of internet skills, levels of acquisition of subsidized services, and whether respondents or children under their care were able to avoid security risks and harmful content online. This report documents the survey process, presents results, and provides key findings intended to help the City of Bloomington assess the computer and broadband needs of its residents.

Key survey findings include:

- **Residents are highly connected.** Ninety-three percent of Bloomington households have some form of internet connection. Eighty-eight percent of residents have home internet service and 84 percent have a cellular/mobile telephone with internet. Most (96 percent) respondents access the internet from any location, including outside the home. However, 12 percent of respondents from very low-income households (less than \$25,000 per year) say they never access the internet, even from outside the home.
- **Low-income households are much more likely to lack internet access.** While Bloomington residents in generally well connected, the picture is different for lower-income residents. Seventeen percent of low-income households (less than \$25,000 per year) report not having internet access at home. This is more than double the eight percent of the respondents in the \$25,000-\$49,900 category and far higher than low single-digit percentages reported by people in higher income categories.
- **Many low-income households depend on a smartphone for internet access.** Fifteen percent of those earning under \$25,000 annually report only using a smartphone for home internet access—triple the percentage of all respondents. This may limit their ability to fully utilize online services at home.
- **Subsidized internet services are not having a significant impact.** Uptake of subsidized services appears very low. Only 14 percent of low-income Comcast subscribers reported participating in Comcast’s Internet Essentials subsidized programs. This suggests a potential opportunity for City intervention to identify eligible users and connect them with subsidy programs.

- **Caregivers report significant concerns with respect to risks to minor children associated with the internet.** Sizable percentages of respondents with minor children disagreed or strongly disagreed their children can avoid false or misleading information online (48 percent), online bullying (38 percent), online financial scams or predators (46 percent), and graphic violence or pornography (46 percent).
- **Many caregivers report lacking the ability to protect minor children from online harms.** Nearly two-thirds of respondents (63 percent) agreed or strongly agreed they have the time and skills to protect their children from these risks, but this leaves a significant number of respondents who did not agree or strongly agree with those self-assessments. Percentages were similar across income categories.
- **Lower income residents in particular report lacking desired computing skills or sufficient ability to recognize online threats.** Lower-income residents reported lower levels of skills in managing their computing devices or contending with a wide range of online threats. For example, more than 25 percent of respondents with household income of less than \$50,000 per year disagreed or strongly disagreed that they know how to recognize and avoid a phishing scam. The rate for people from households making more than \$100,000 per year was only five percent. As such it is likely that lower-income residents are significantly more vulnerable to being victimized by online scams.
- **Lower-income residents express somewhat more desire for help gaining online skills and confidence.** Lower-income residents expressed somewhat more interest than their higher-income peers in becoming more confident in using computers and the internet and in attending free or inexpensive classes. Respondents from the lowest-income group (less than \$25,000 household income) tended toward agreement with the statement that they would like to become more confident (with an average response of 3.5 on a scale of 1 to 5), but respondents in the highest income group tended toward disagreement with this statement (2.6 on a scale of 1 to 5).
- **A “homework gap” is a significant problem for those with only lower speed internet.** More than one-fourth (27 percent) of internet users with a lower-speed connection (cellular/mobile, satellite, dial-up) strongly agreed that their minor children cannot complete their homework because they do not have access to the internet or to computers. We note that this figure may under-represent difficulties students may be having within their homes, because some of the students with lower-speed connections may be able to complete their homework by “borrowing” internet access at public or private hotspots or other locations.

- **The skills gap is pronounced among low income and older residents.** Respondents ages 55 and older and those earning less than \$25,000 per year were less likely than younger respondents to agree that they are skilled in various uses of the internet.
- **Internet at home is increasingly a critical requirement for middle- and higher-income work.** One-half of respondents said their job requires them to have internet access at home, including 36 percent of internet users who use cell phones, satellite, or dial-up services for their home service.
- **Lack of need for internet in lower paid/skilled jobs can increase digital inequality.** Low-income households are less likely than higher income households to report needing the internet for their job, telecommuting, or education. If those respondents see less relevance for internet access and computing skills and have less confidence and practice with using such skills, this may become a barrier for being prepared for and having access to higher paying jobs.
- **There is broad support for the city having an active role in ensuring affordable broadband.** Overall, respondents expressed support for the City ensuring access to competitively priced broadband services, with 64 percent of respondents strongly agreeing. One-fourth of respondents disagreed or strongly disagreed that the market currently offers affordable high-speed internet service.

4.1 Survey Process

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

CTC developed the draft survey instrument based on the project objectives and provided it to City staff for review and comment. The City of Bloomington 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 April to a random selection of residential households with a goal of receiving at least 800 valid responses. Recipients were provided with a postage-paid business reply mail envelope in which to return the completed questionnaire.

The sample was stratified by income to be sure low-income households were represented in the sample. The sampling frame included a larger proportion of older adults and homeowners (non-University students) than the general population of Bloomington according to US Census data (which does include University students).

A total of 1,080 useable surveys were received by the date of analysis¹⁴, providing a gross¹⁵ response rate of 16.6 percent. The margin of error for aggregate results at the 95 percent confidence level for 1,080 responses is ± 2.9 percent, within the initial sample design criteria. 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 ± 2.9 percent of the target population as a whole (over 30,000 households in the City of Bloomington).

The survey responses were entered into SPSS¹⁶ software and the entries were coded and labeled. SPSS databases were formatted, cleaned, and verified prior to the data analysis. Address information was merged with the survey results using the unique survey identifiers printed on each survey. 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 following sections summarize the survey findings.

4.2 Survey Results

The results presented in this report are based on analysis of information provided by 1,080 respondents from an estimated 30,000 residences in the City of Bloomington. Results are representative of the set of households with a confidence interval of ± 2.9 percent at the aggregate level.

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.

4.2.1 Internet Connection and Use

Respondents were asked about their use of the internet, including home internet connection types and providers, use of the internet for various activities, and satisfaction and importance of features related to internet service. This information provides valuable insight into residents’ need for various internet and related communications services.

4.2.1.1 Internet Usage

Use of the internet is robust in the Bloomington market, with 96 percent of respondents making some use, on any device from any location. Low-income respondents are less likely than those

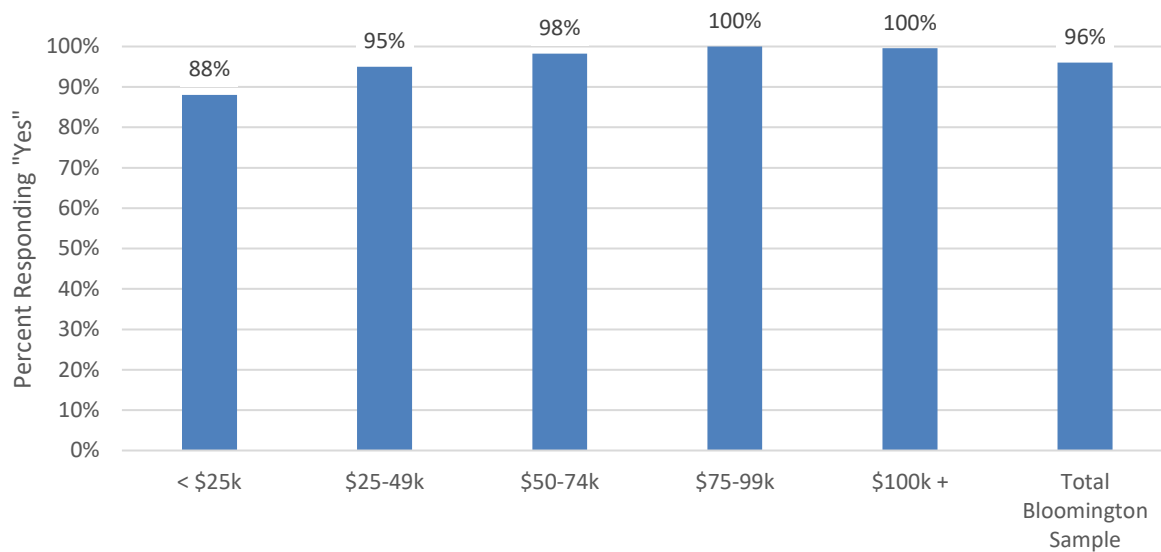
¹⁴ At least 60 responses were received after analysis had begun, and are not included in these results.

¹⁵ 379 surveys were undeliverable, mostly to vacant residences. The “net” response rate is $1,080 / (6,500 - 379) = 17.6\%$.

¹⁶ Statistical Package for the Social Sciences (<http://www-01.ibm.com/software/analytics/spss/>)

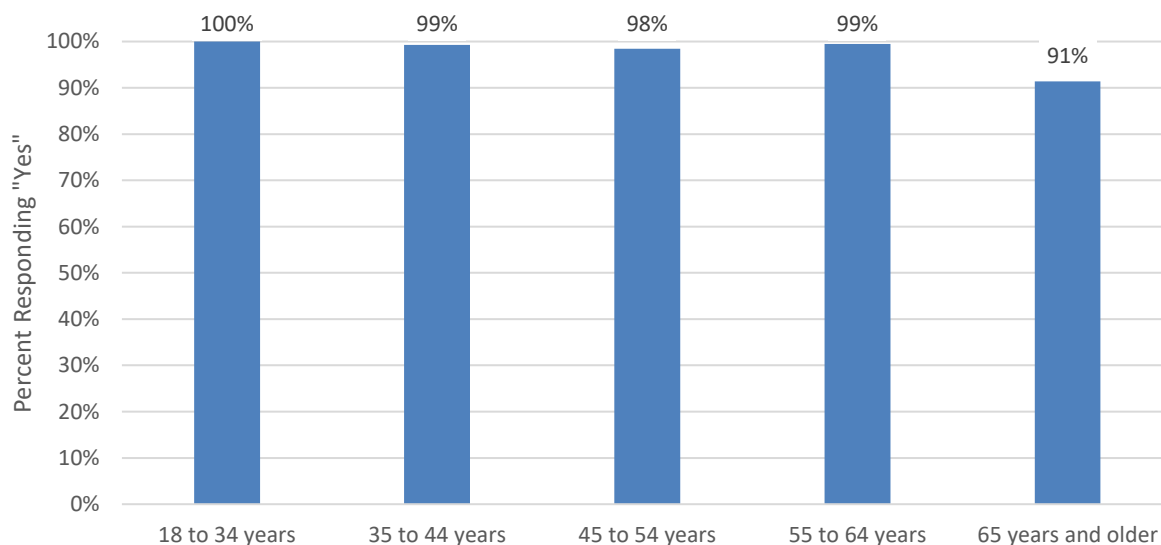
with a higher household income to access the internet at all, although usage is still relatively high among this cohort (see Figure 1).

Figure 1: Internet Usage by Household Income



Internet usage is also somewhat lower among respondents ages 65+ compared with younger respondents (see Figure 2).

Figure 2: Internet Usage by Respondent Age



Virtually all respondents with internet service in their household do personally access the internet. Seventeen percent of those without home internet service also access the internet from other locations.

Agreement with reasons for not accessing the internet are highlighted in Figure 3 and Figure 4. Key reasons for not accessing the internet are expense and concern about safety and privacy.

Figure 3: Reasons for Not Using the Internet (Mean Ratings)

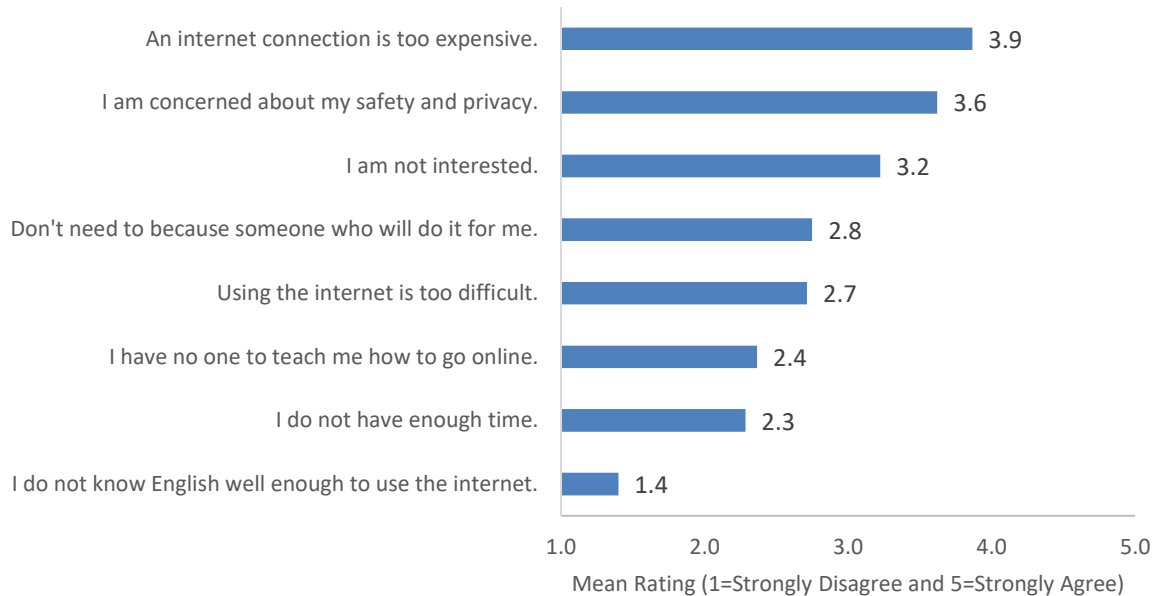
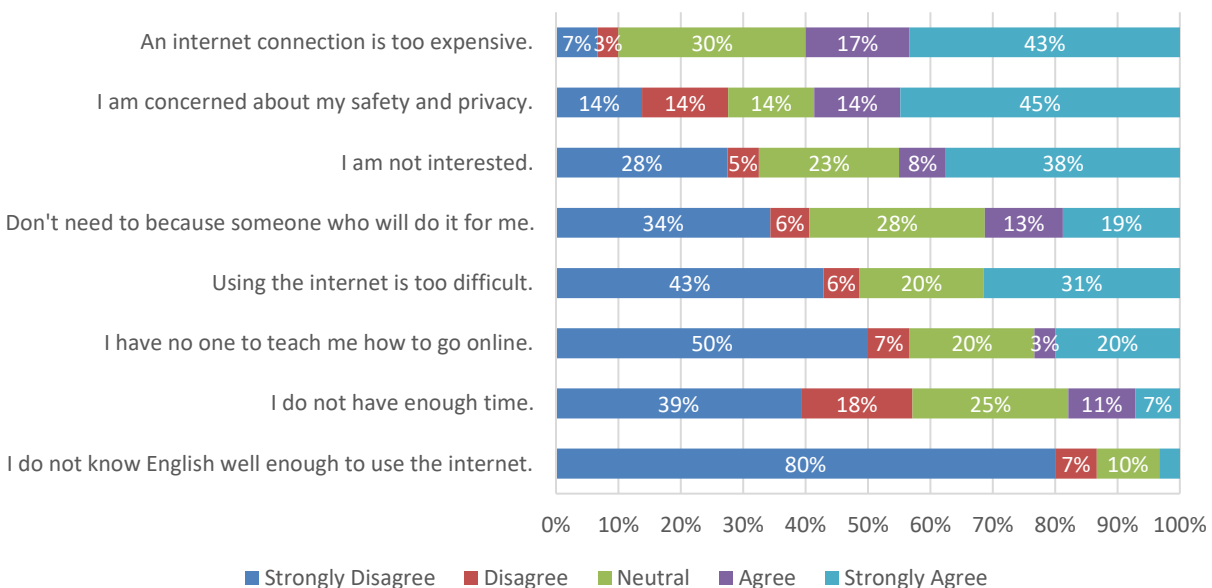


Figure 4: Reasons for Not Using the Internet

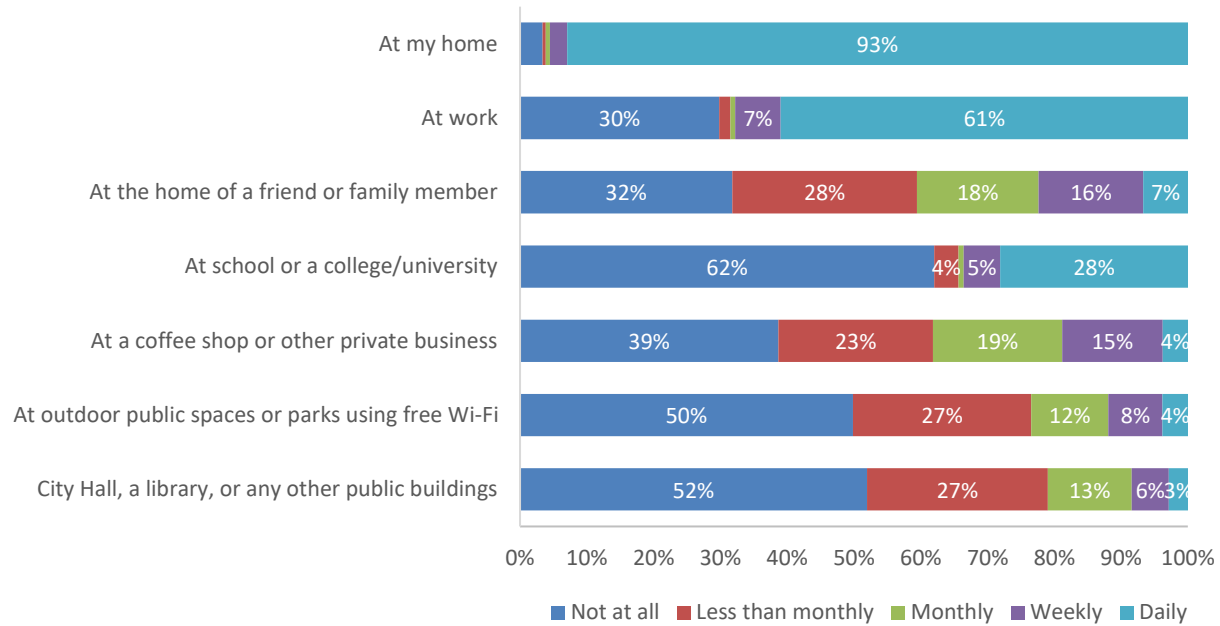


4.2.1.1.1 Internet Use by Location

Respondents were also asked to indicate how often they use the internet in various locations. As shown in Figure 5, most respondents use their internet at home daily (93 percent). Six in 10

respondents use the internet at work daily. Other locations are used less frequently, with the majority of respondents saying that internet use in public spaces or buildings never happens.

Figure 5: How Often Use the Internet in Various Locations



Older respondents and low-income respondents are less likely than their counterparts to make daily use of the internet at home, at work, or at school or a college/university (see Figure 6 and Figure 7). Use of the internet in public spaces or buildings does not vary significantly by respondent age or household income.

Figure 6: Daily Use of the Internet by Respondent Age

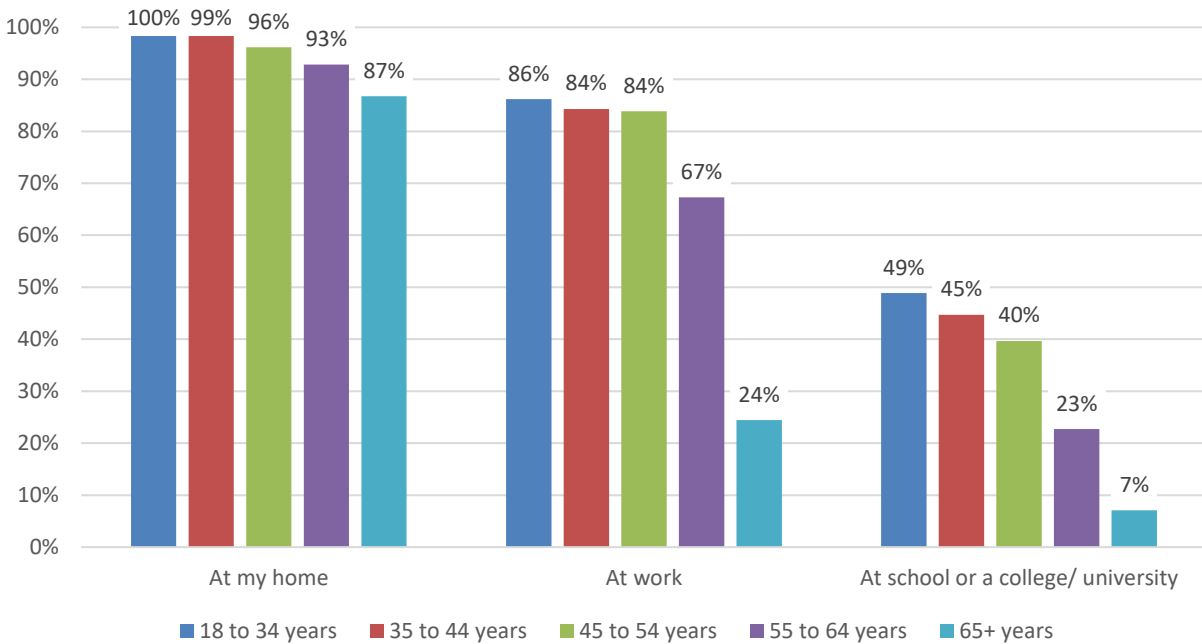
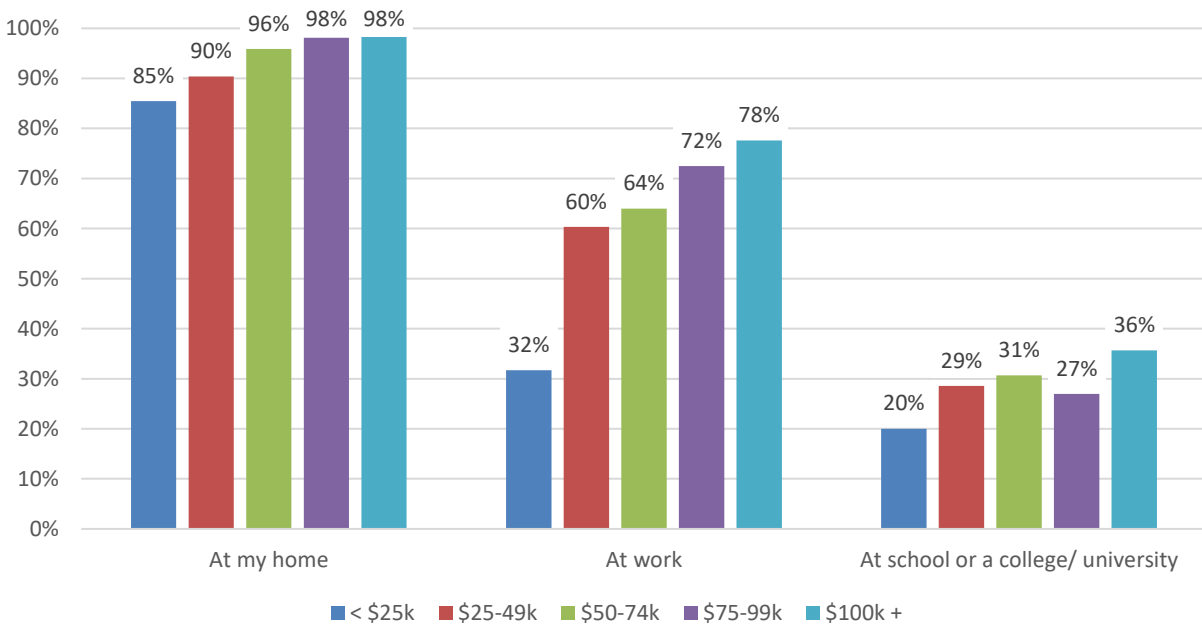


Figure 7: Daily Use of the Internet by Household Income

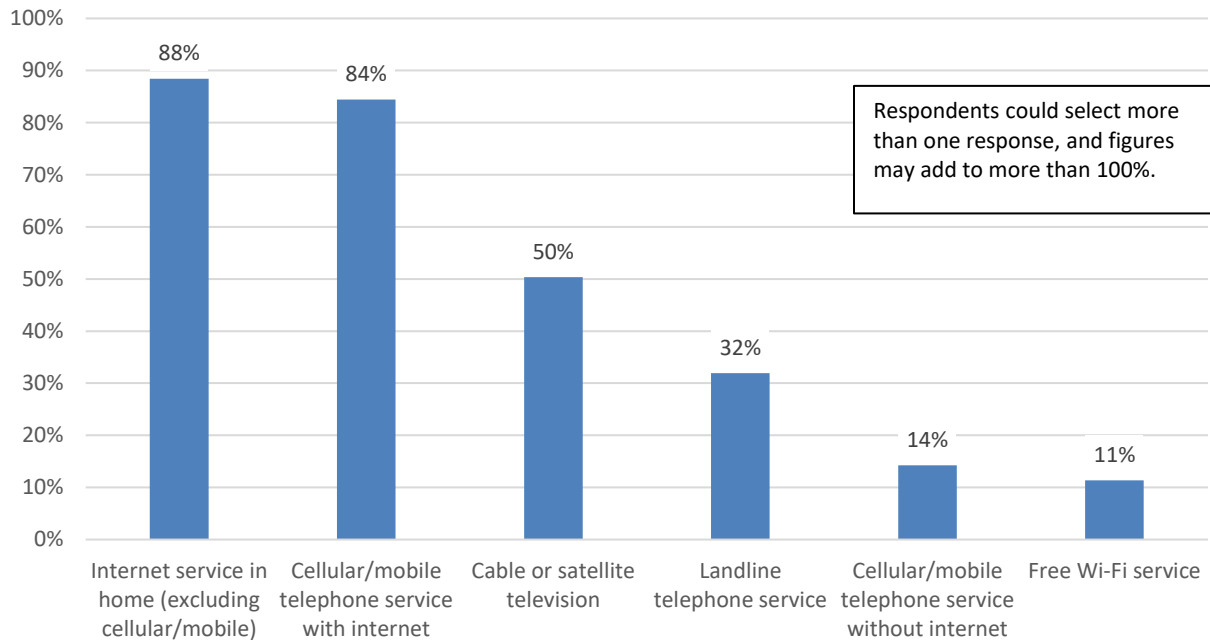


4.2.1.2 Communications Services

Respondents provided information about the communications services currently purchased for their household. As illustrated in Figure 8, almost all households have internet access, including 88 percent with internet service in the home and 84 percent with cellular/mobile telephone service with internet. Fewer households have cable/satellite television service, landline telephone service, cellular/mobile telephone service without internet, and free Wi-Fi service.

Overall, 93 percent of respondents indicated having some internet access—either a home connection or via smartphone.

Figure 8: Communication Services Purchased



Purchase of cable or satellite television, fixed (landline) telephone service, or cellular/mobile service without internet is higher among those ages 55 and older, while use of internet services in the home and cellular/mobile telephone with internet is lower among this age cohort (see Figure 9).

Use of internet service is also correlated with household income. Households with less than \$25,000 annual income are less likely than households with a higher average household income to have internet access at home or via smartphone, as illustrated in Figure 10. Approximately seven in 10 (71 percent) respondents in low-income households have a cellular/mobile phone with internet, and 68 percent have home internet service.

Figure 9: Services Purchased by Respondent Age

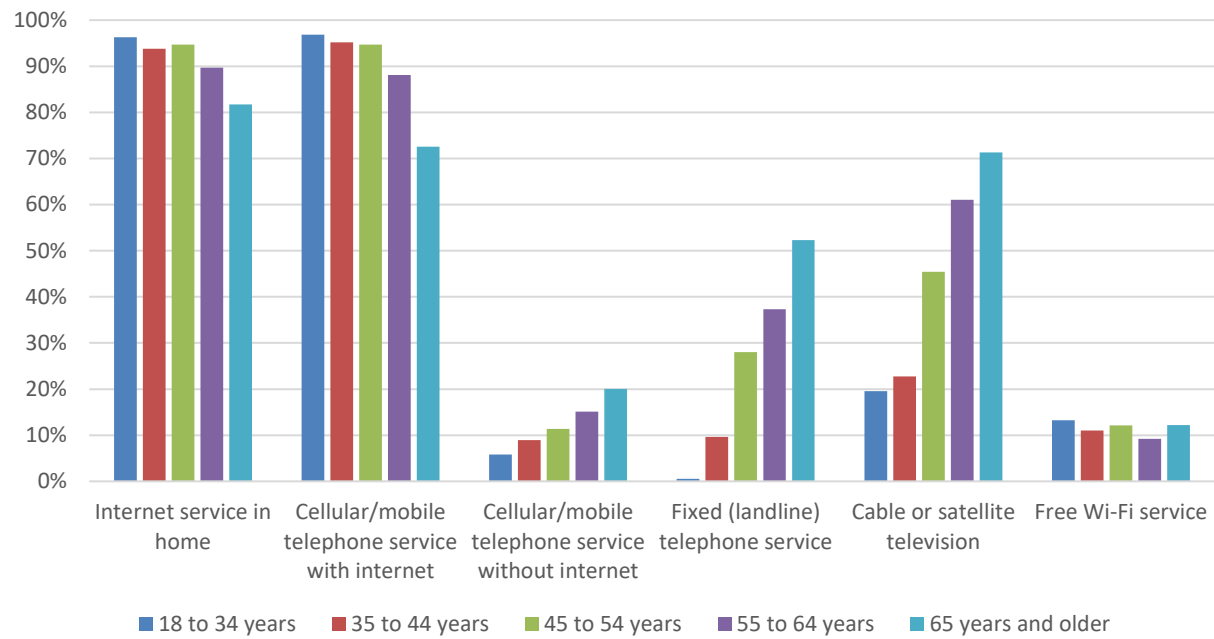
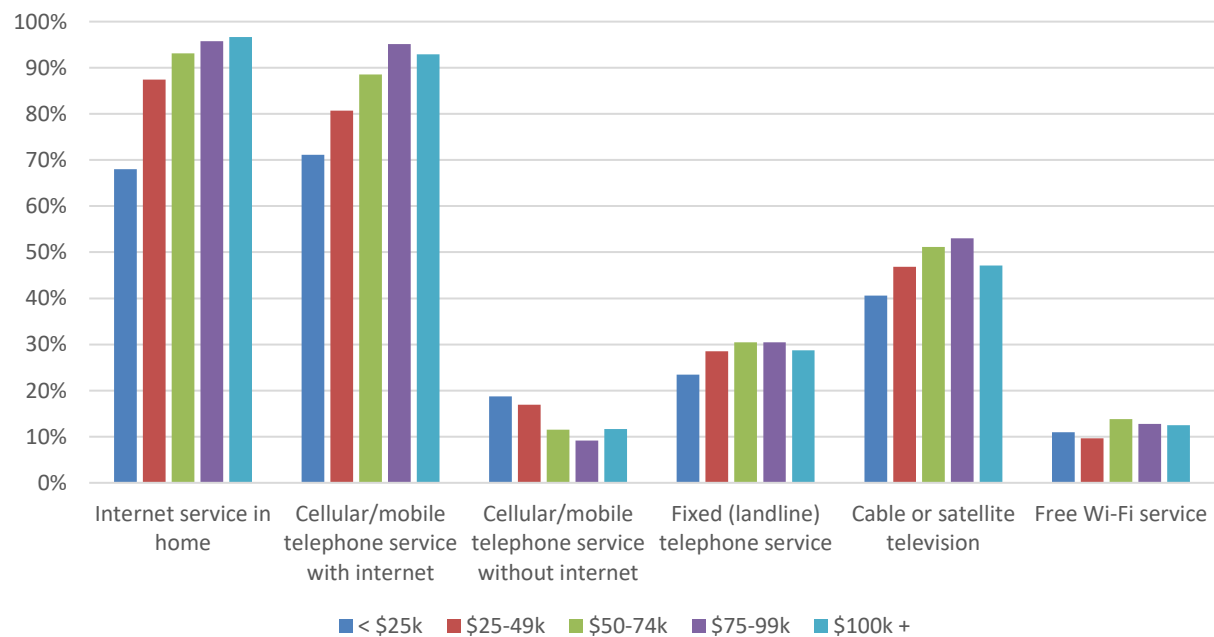


Figure 10: Services Purchased by Household Income



As discussed previously, most respondents have some internet access, including 80 percent who have both home internet service and a cellular/mobile telephone service with internet (smartphone). Total internet access by demographics is illustrated in Table 1.

Table 1: Internet Access by Key Demographics

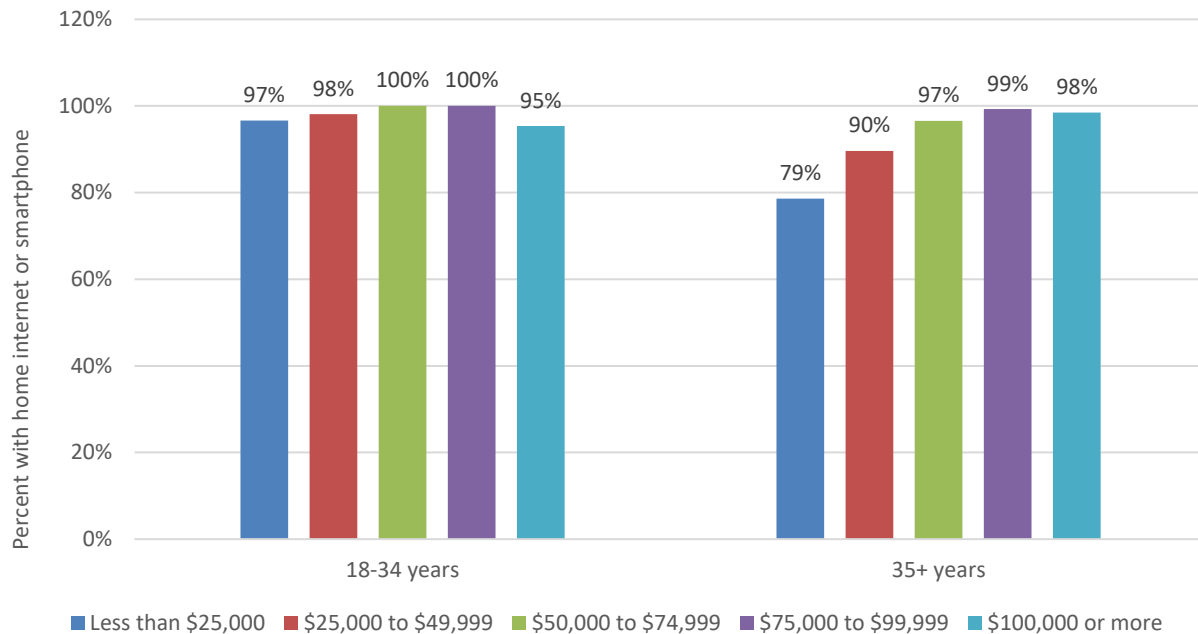
TOTAL	7%	9%	5%	80%	93%	1,080
Respondent Age						
18 to 34 years	2%	1%	2%	95%	98%	189
35 to 44 years	2%	3%	4%	91%	98%	145
45 to 54 years	2%	3%	3%	92%	98%	132
55 to 64 years	4%	8%	6%	82%	96%	185
65 years and older	11%	16%	7%	66%	89%	394
Education						
HS education or less	16%	15%	10%	59%	84%	182
Two-year college or technical degree	6%	5%	8%	81%	94%	132
Four-year college degree	5%	6%	3%	86%	95%	280
Graduate, professional, or doctorate degree	2%	8%	4%	86%	98%	451
Household Income						
Less than \$25,000	17%	12%	15%	56%	83%	128
\$25,000 to \$49,999	8%	11%	4%	76%	92%	207
\$50,000 to \$74,999	3%	9%	4%	84%	97%	174
\$75,000 to \$99,999	1%	4%	4%	91%	99%	164
\$100,000 or more	2%	5%	1%	92%	98%	240
Race/Ethnicity						
White/Caucasian only	6%	8%	5%	81%	94%	927
Other race/ethnicity	8%	6%	6%	79%	92%	97

Gender Identity						
Woman	6%	8%	6%	81%	94%	573
Man	6%	9%	4%	81%	94%	445
Total Household Size (Adults + Children)						
1	14%	12%	7%	67%	86%	312
2	4%	9%	4%	84%	96%	468
3	1%	5%	4%	90%	99%	125
4 or more	1%	3%	4%	93%	99%	139
Children in Household						
No Children in HH	7%	10%	5%	78%	93%	851
Children in HH	1%	3%	3%	93%	99%	193
Own/Rent Residence						
Own	6%	9%	5%	80%	94%	784
Rent	7%	7%	5%	80%	93%	270
Years at Residence						
Less than 1 year	2%	2%	6%	90%	98%	124
1 to 2 years	6%	5%	4%	84%	94%	166
3 to 4 years	6%	5%	2%	87%	94%	148
5 or more years	7%	12%	6%	75%	93%	627

As indicated previously, respondents ages 65+ and those in low-income households (who are disproportionately older) are less likely to have internet access. Fifteen percent of those earning under \$25,000 per year use a smartphone only and do not have home internet access; this saturation is much higher than that of other income groups. Low-income households are less likely than higher income households to have both a smartphone and home internet access.

Almost all respondents between ages 18 and 34 have either a smartphone or home internet access (or both), regardless of income group. Among those ages 35+, lower-income households are less likely to have internet access. Figure 11 shows the saturation of internet access by respondent age and income level.

Figure 11: Saturation of Internet Access by Respondent Age and Household Income



4.2.1.3 Importance of Communication Services

Respondents were asked to indicate the importance of various communication services to their household, using a scale where 1 is “Not at All Important” and 5 is “Extremely Important.” The mean importance of various service aspects is illustrated in Figure 12, while detailed responses are illustrated in Figure 13.

Cellular/mobile telephone and internet services are extremely important to respondents, while television services and landline telephone service are significantly less important. Specifically, 85 percent said cellular/mobile phone service is extremely important, and 81 said an internet connection of any speed is important. Seven in 10 respondents said high-speed internet is extremely important.

Figure 12: Importance of Communication Service Aspects (Mean Ratings)

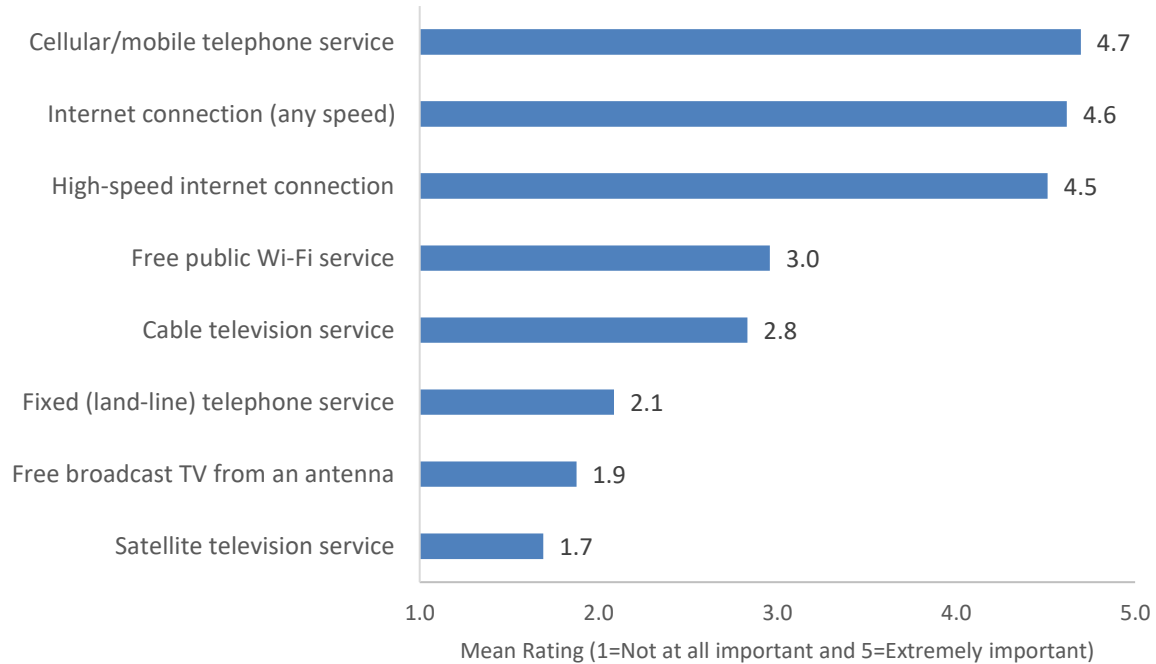


Figure 13: Importance of Communication Service Aspects

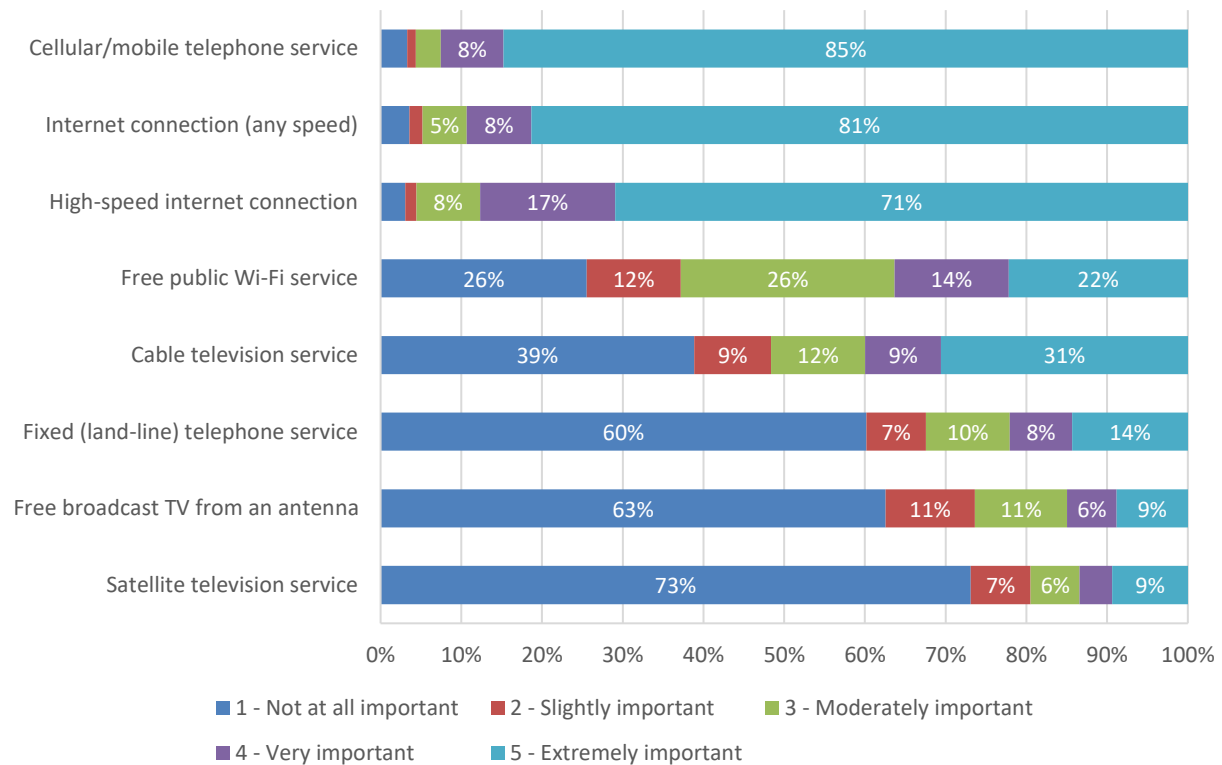


Figure 14 and Figure 15 illustrate the importance of internet services and mobile telephone service by the age of the respondent and by household income. The importance of internet services is slightly lower for those ages 65+ and those in low-income households compared with their counterparts.

Figure 14: Importance of Communication Services by Respondent Age

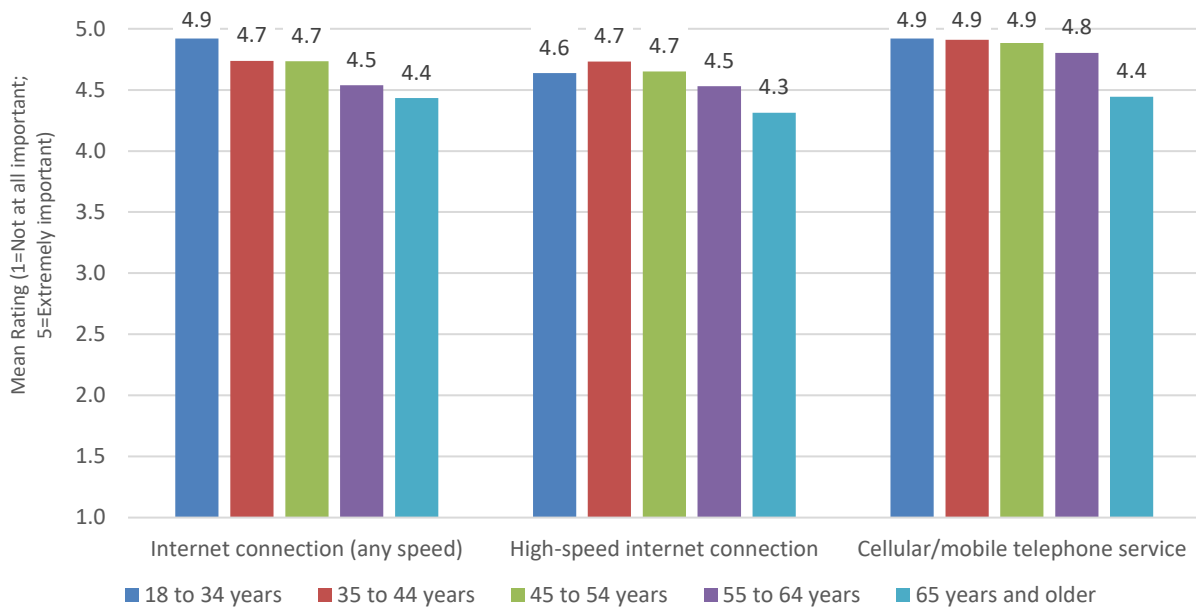
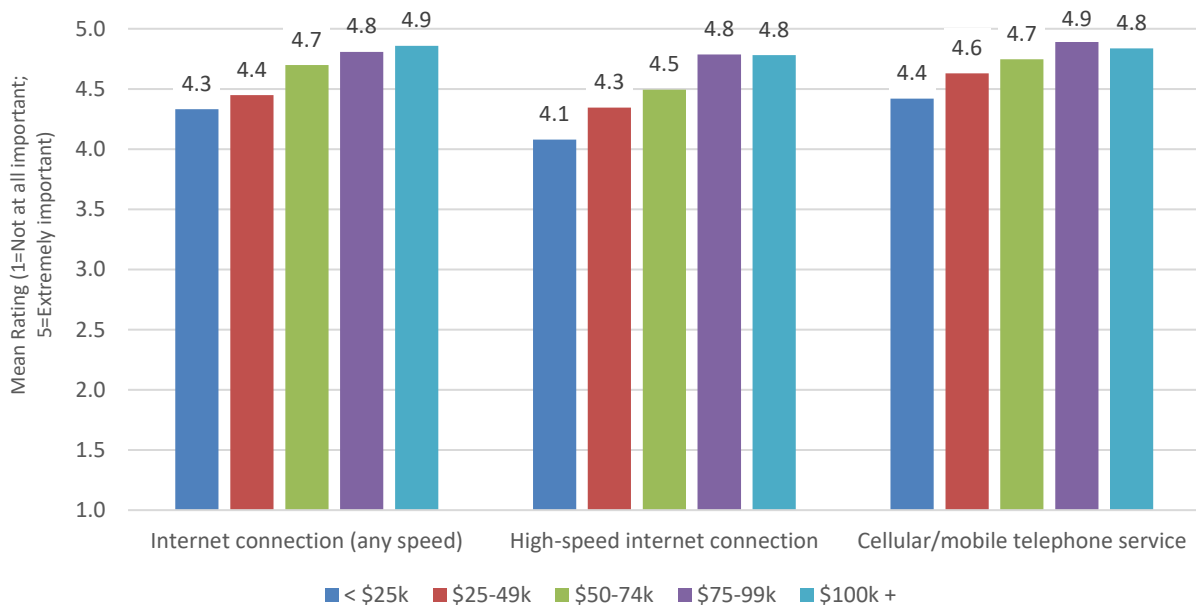


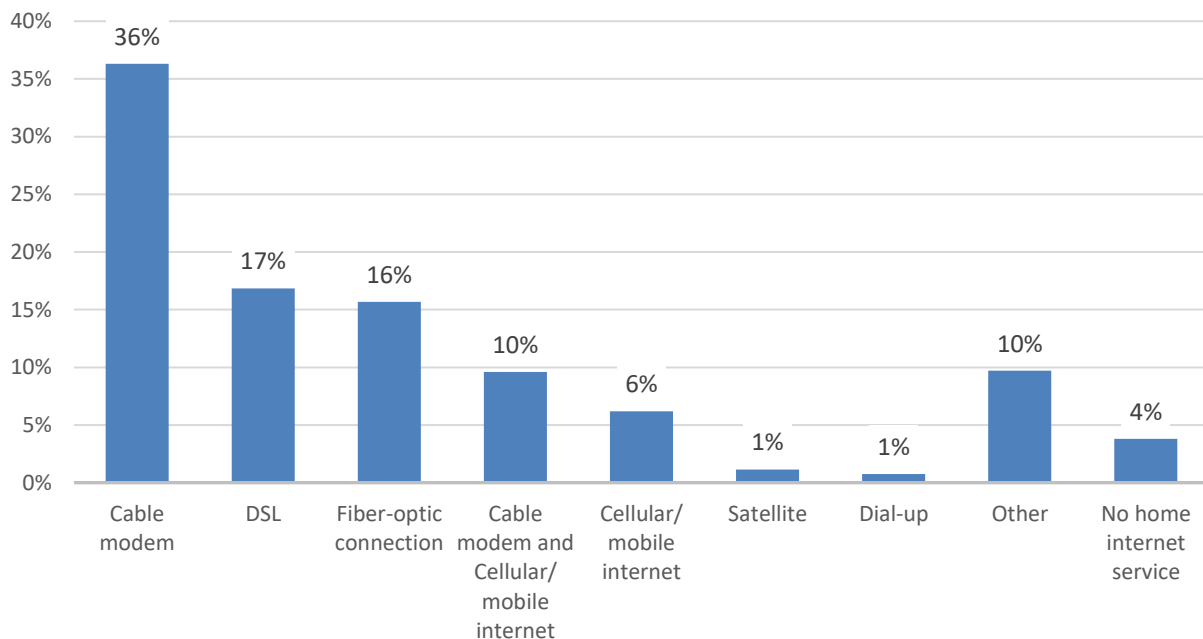
Figure 15: Importance of Communication Services by Household Income



4.2.1.4 Internet Services Purchased

As shown in Figure 16, a majority of homes (96 percent) reported having home internet service, consistent with 93 percent reporting internet access via a home connection or via a smartphone in Question 1. Cable modem (36%) is the leading internet service used, followed by DSL (17%) and fiber optic (16%). Although respondents were instructed to select their primary service, one in 10 said they use both cable modem and cellular/mobile internet. Other connection types represent much smaller shares of the Bloomington market area.

Figure 16: Primary Home Internet Service



Respondents were segmented into connectivity groups based on type of internet service:

1. No internet service
2. Below minimum criteria (Dial-up, satellite, cellular/mobile)
3. Possible below minimum criteria (DSL, fixed wireless, other)
4. Above minimum criteria (fiber, cable modem)

Although most households have internet access in the home, three in 10 have service that is below or possibly below the minimum criteria (see Figure 17).

Those with service below the minimum criteria rated the importance of high-speed internet somewhat lower than did those with service possibly below or above the minimum criteria, as shown in Figure 18. Still, high-speed internet service is very important on average to those with below minimum criteria connection. Specifically, one-half of internet subscribers with below

minimum service said that high-speed internet is extremely important (compared with three-fourths of those with faster internet service).

Figure 17: Internet Connectivity Groups

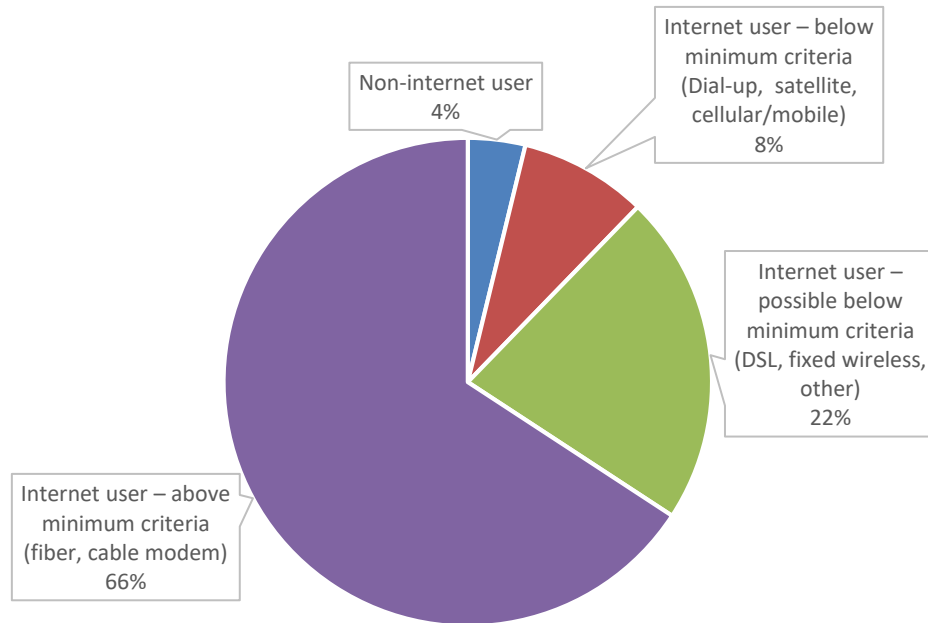
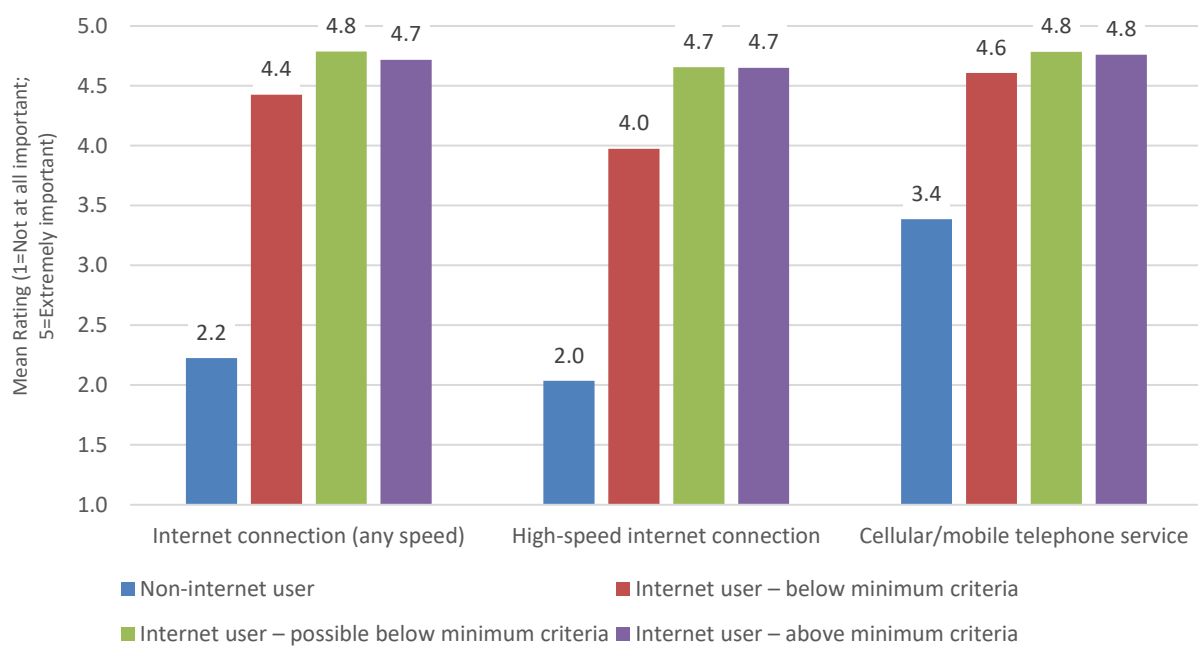


Figure 18: Importance of Internet and Mobile Phone Services by Internet Connectivity Group



Low-income households are more likely than higher-income households to have internet service below the minimum criteria. Specifically, they are more likely to use a cellular/mobile internet service as their primary method of connecting to the internet, although cable leads across all income groups (see Figure 19 and Figure 20).

Figure 19: Internet Connectivity Group by Household Income

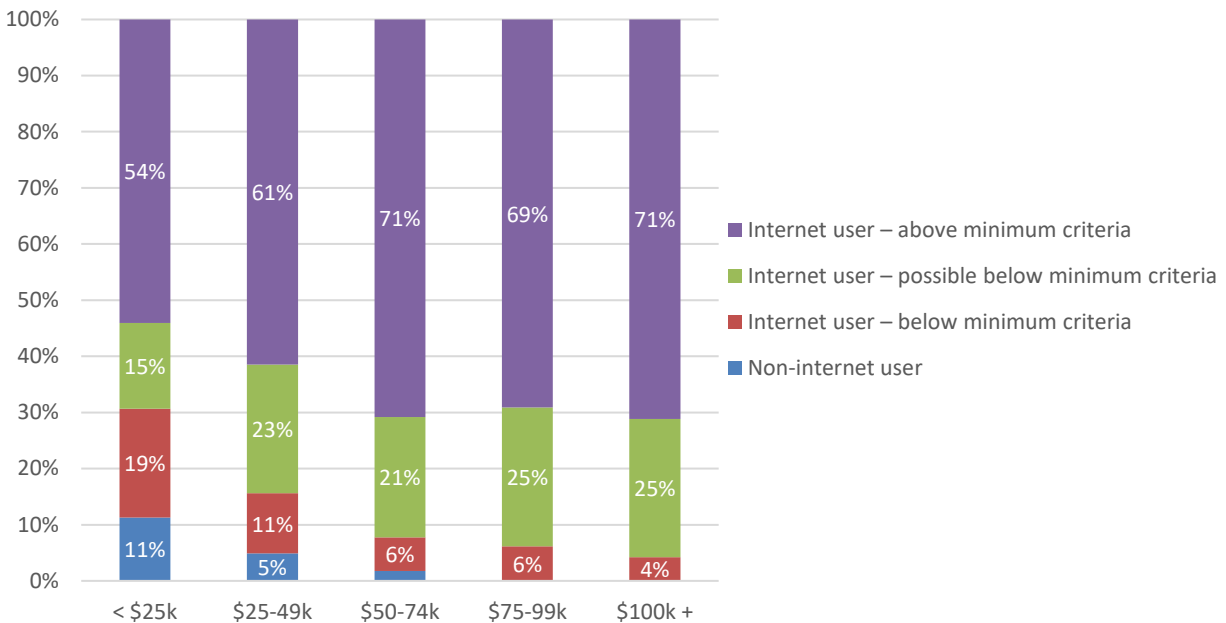
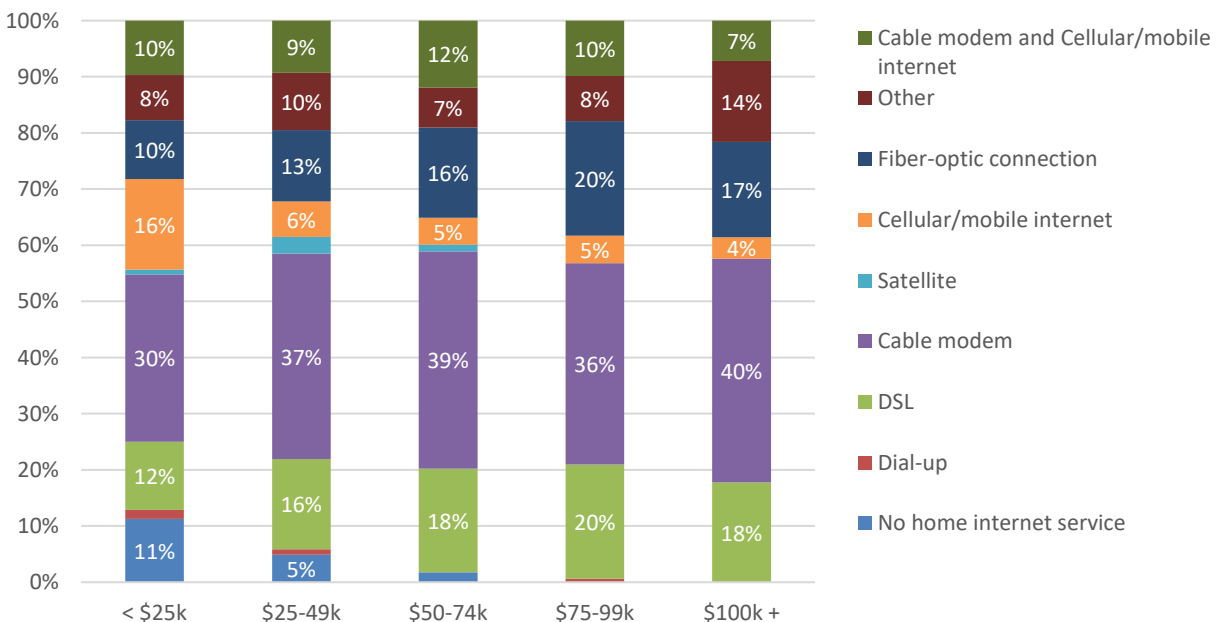


Figure 20: Primary Home Internet Service by Household Income







4.2.1.5 Internet Service Aspects

Home internet subscribers were asked to evaluate their satisfaction with various internet service aspects. This was compared with importance ratings given for these same aspects. The importance and satisfaction levels among internet users are compared in the following tables and graphs.

4.2.1.5.1 Importance

Respondents were asked to rate their levels of importance and satisfaction with various internet service aspects. Respondents rated connection reliability as the most important aspect, with nine in 10 saying it is extremely important, as shown in Table 2. Three-fourths of respondents rated online privacy as extremely important. Two-thirds of respondents said connection speed is extremely important, and 63 percent said price of services is extremely important.

Table 2: Importance of Internet Service Aspects

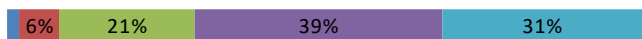
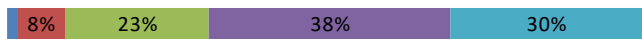


Service Aspect	Mean	Percentages
Speed	4.5	
Reliability	4.9	
Cost	4.5	
Online privacy	4.6	

■ 1 - Not at all important ■ 2 - Slightly important ■ 3 - Moderately important
 ■ 4 - Very important ■ 5 - Extremely important

4.2.1.5.2 Satisfaction

Overall, respondents are very satisfied with connection speed, reliability, and online privacy, as shown in Table 3. They are less satisfied with cost of service, which is typical of satisfaction surveys.

Table 3: Satisfaction with Internet Service Aspects

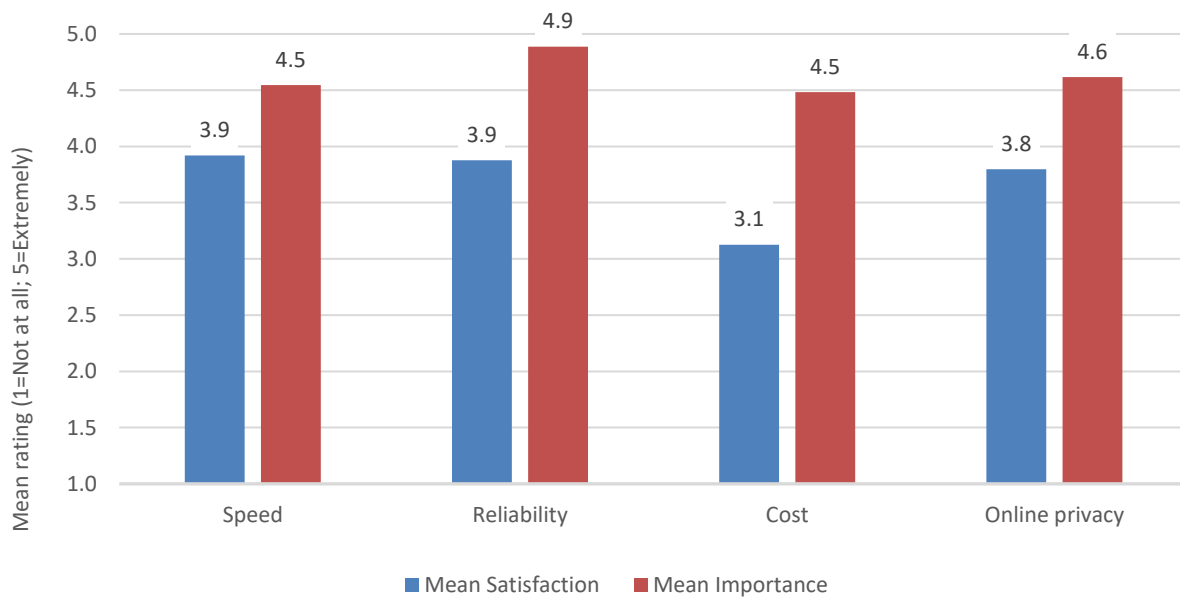
Service Aspect	Mean	Percentages
Speed	3.9	
Reliability	3.9	
Cost	3.1	
Online privacy	3.8	

■ 1 - Very dissatisfied ■ 2 - Slightly satisfied ■ 3 - Moderately satisfied
 ■ 4 - Very satisfied ■ 5 - Extremely satisfied

4.2.1.5.3 Performance

Comparing respondents' stated importance and satisfaction with service aspects allows an evaluation of how well internet service providers are meeting the needs of customers (see Figure 21). Aspects that have higher stated importance than satisfaction can be considered areas in need of improvement. Aspects that have higher satisfaction than importance are areas where the market is meeting or exceeding customers' needs. However, it should be cautioned that the extremely high level of importance placed on some aspects (such as reliability) may make it nearly impossible to attain satisfaction levels equal to importance levels.

Figure 21: Importance of and Satisfaction with Internet Service Aspects



The difference between importance and satisfaction of home internet aspects is also presented in the "gap" analysis table (see Table 4). The largest gaps between importance and performance is for cost of service, followed by reliability, online privacy, and speed. The lower satisfaction levels could indicate a desire for improved service offerings or a willingness to switch internet service providers if needs are not being met.

Table 4: Internet Service Aspect "Gap" Analysis

	<u>Mean</u> <u>Satisfaction</u>	<u>Mean</u> <u>Importance</u>	<u>GAP</u> <u>< = ></u>	<u>Customer</u> <u>Expectations</u>
Cost	3.1	4.5	-1.4	Not Met
Reliability	3.9	4.9	-1.0	Not Met
Online privacy	3.8	4.6	-0.8	Not Met
Speed	3.9	4.5	-0.6	Not Met

Fiber optic subscribers have a higher level of satisfaction with internet service aspects, compared with DSL and cable modem users (the leading connection types in the market area) as shown in Figure 23. At the same time, there are only slight differences in importance across connection types, which indicates that fiber providers are better meeting customer needs (see Figure 22).

Figure 22: Importance of Internet Service Aspects by Primary Home Internet Service

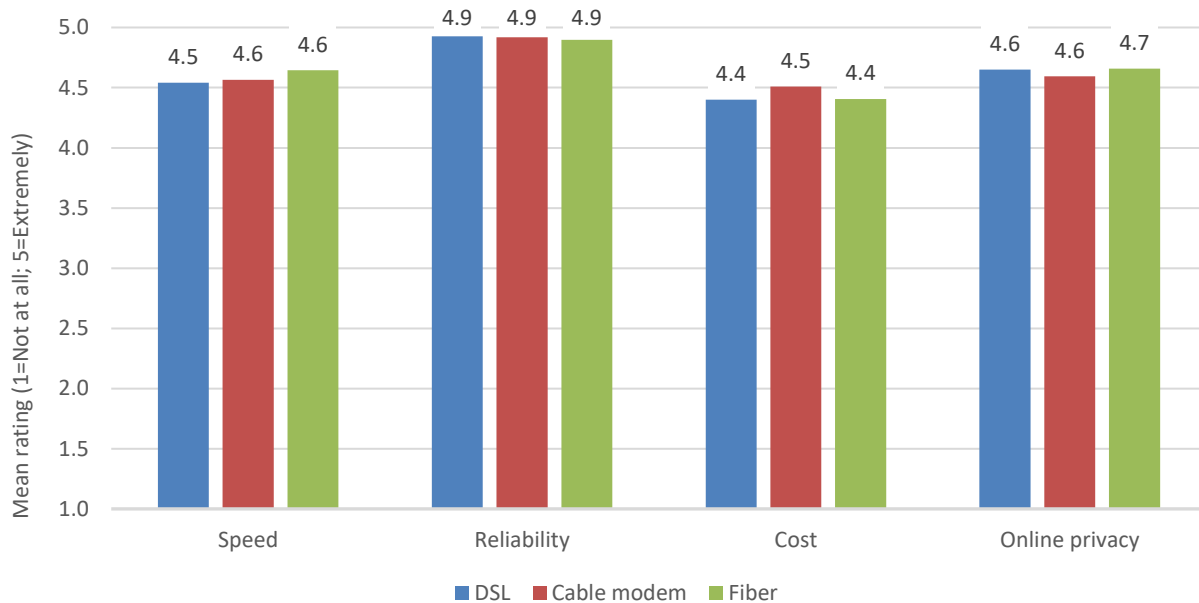
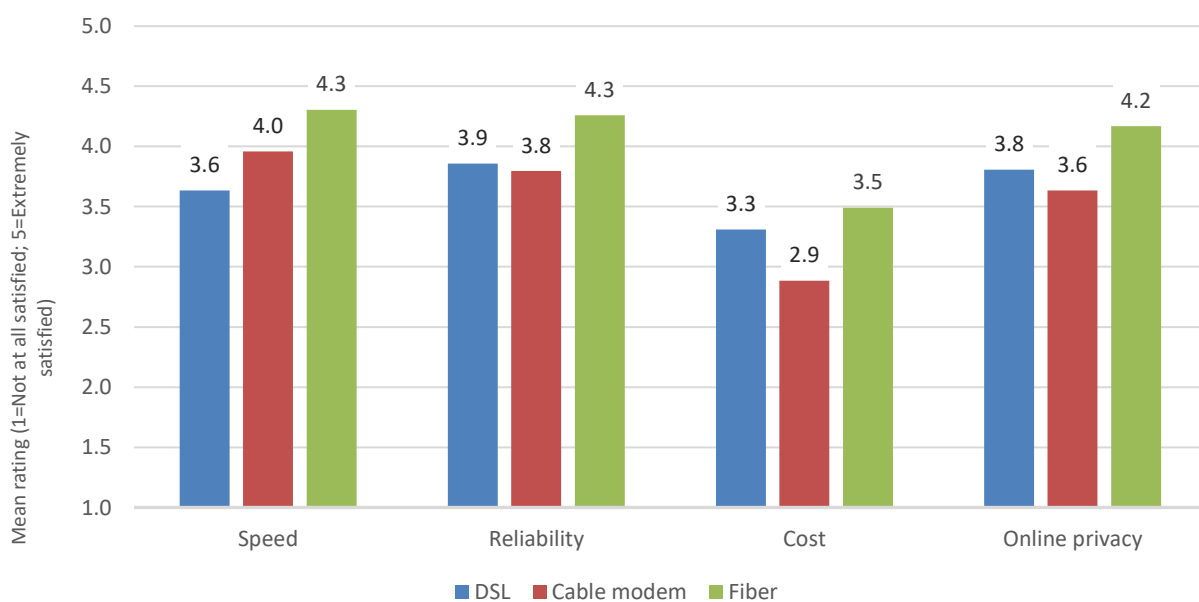


Figure 23: Satisfaction with Internet Service Aspects by Primary Home Internet Service



4.2.1.6 Personal Computing Devices

Respondents were asked to indicate the number of personal computing devices they have in the home. As might be expected, almost all (96 percent) respondents with internet access (either home connection or smartphone) have at least one personal computing device.

Eight in 10 respondents have three or more personal computing devices, including 52 percent with at least five devices (see Figure 24).

The number of personal computing devices in the home is strongly associated with household size. Fifteen percent of one-member households have five or more devices, compared with 86 percent of those with four or more household members (see Figure 25).

Low-income households and those ages 65+ have fewer devices in the home compared with higher income and younger respondents, but they are also more likely to be the only person in the home. Sixty-two percent of those earning under \$25,000 and 42 percent of those ages 65+ live alone.

Figure 24: Number of Personal Computing Devices

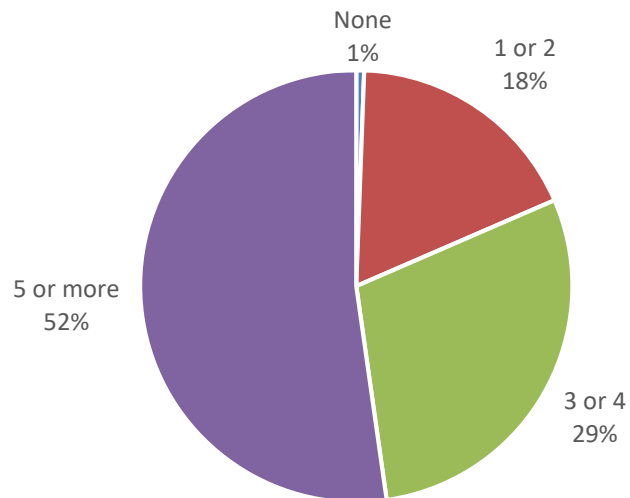
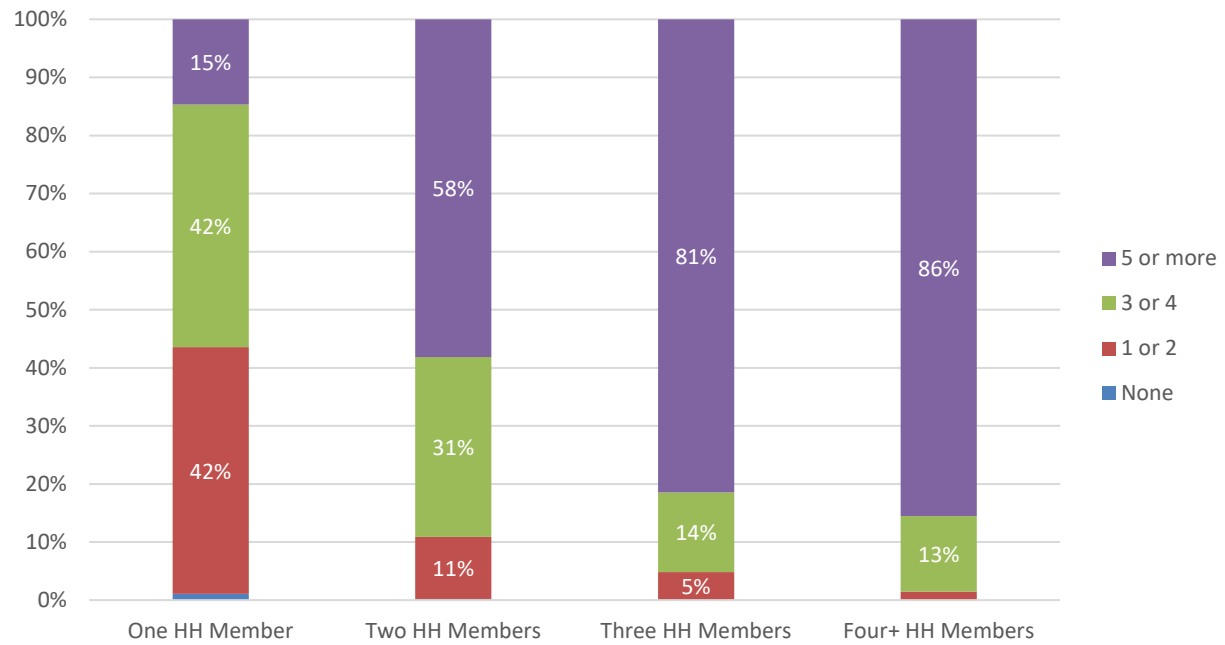


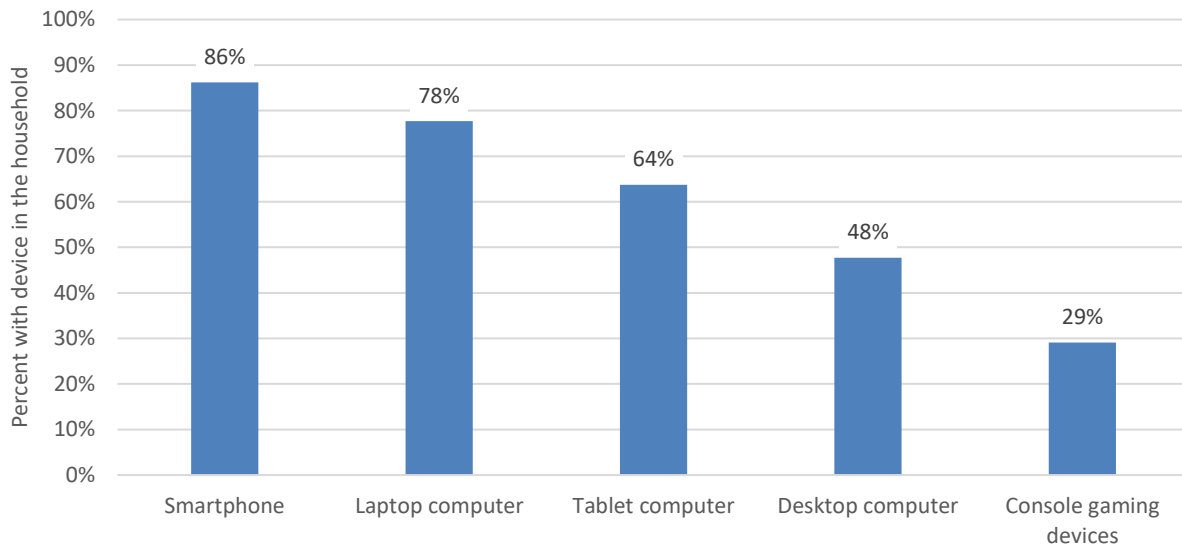
Figure 25: Number of Personal Computing Devices in Home by Household Size



4.2.1.7 Devices in the Home

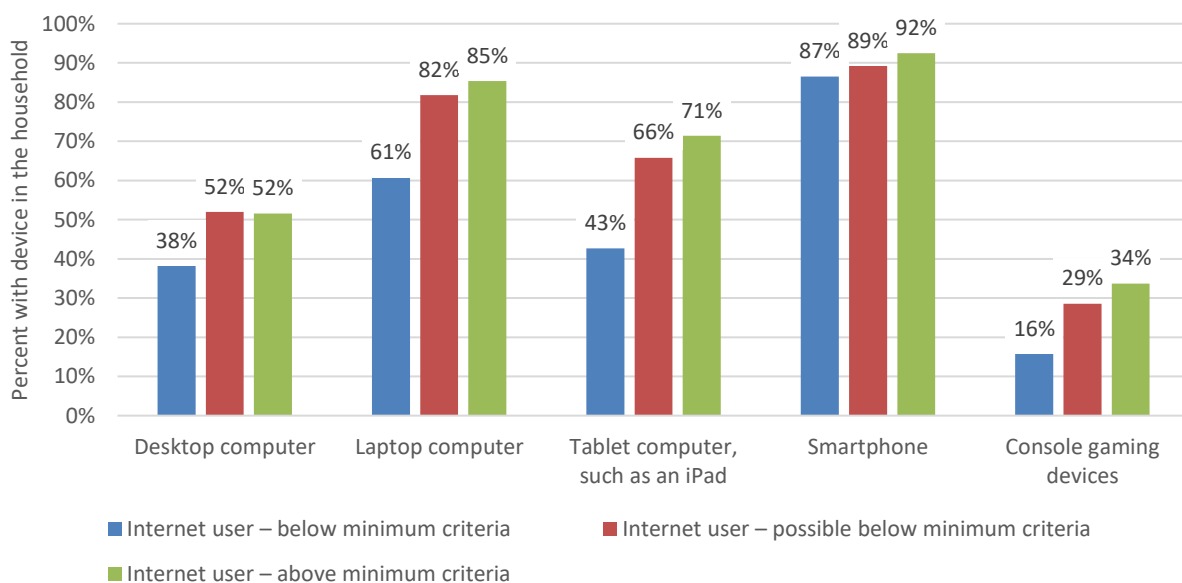
Availability of devices is high in households with internet access, with respondents selecting an average of 3.1 types of devices in the home. Use of smartphone is highest, with 86 percent of internet users having one, followed by laptops (78%) and tablets (64%). Nearly one-half of respondents with home internet have a desktop computer, and 29 percent have a console gaming device (see Figure 26).

Figure 26: Devices Available in the Home



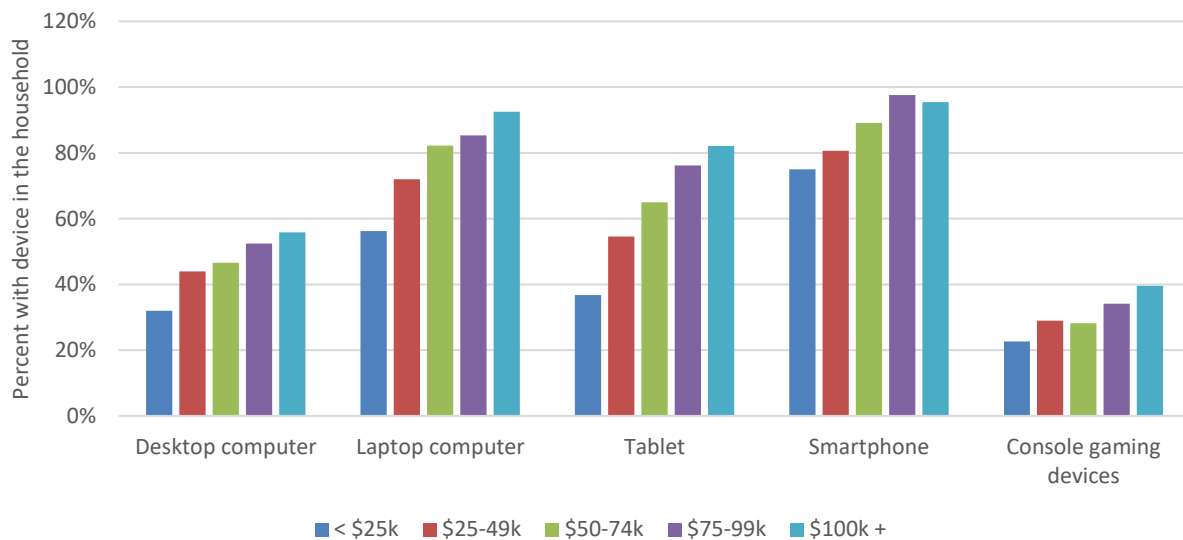
Internet users with connections below the minimum criteria (which includes cellular/mobile internet) are less likely to have computers in the home (see Figure 27).

Figure 27: Devices Available in the Home by Connectivity Group



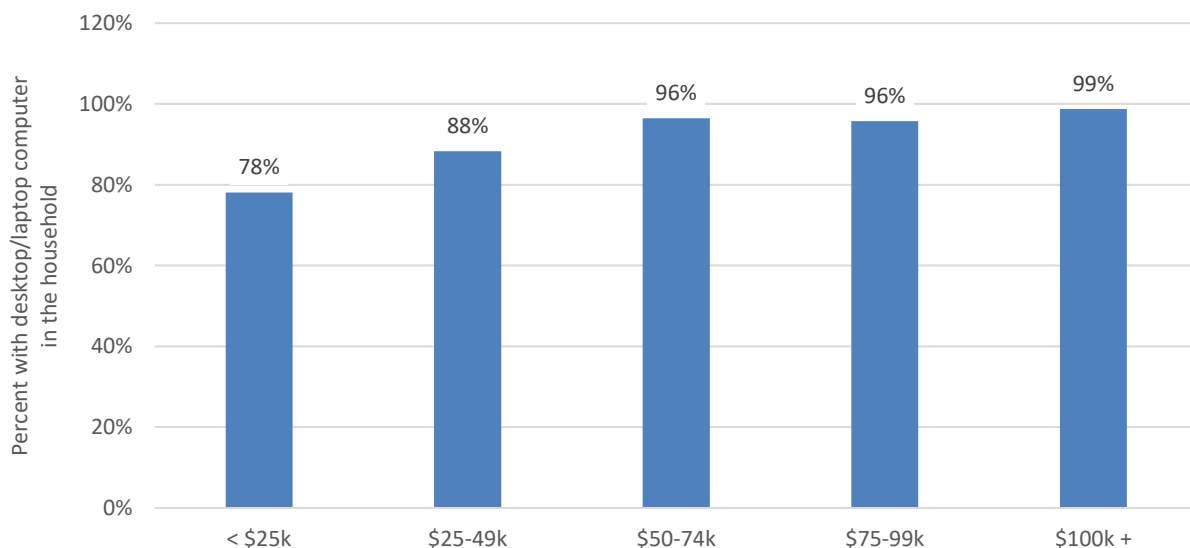
Similarly, low-income households are less likely to have various devices, as illustrated in Figure 28. Among households earning less than \$25,000 per year, 32 percent have a desktop computer, compared with 56 percent of those earning \$100,00 or more. Another 56 percent of low-income households have a laptop computer, compared with 93 percent of those earning \$100,000 or more.

Figure 28: Devices Available in the Home by Household Income



Specifically, more than one-fifth of low-income households with internet service do not have any computer (desktop or laptop). Almost all households earning \$50,000 or more have a computer available in the home (see Figure 29).

Figure 29: Computers Available in the Home by Household Income



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. Three-fourths of respondents have had some issues with their computer, but most (66%) could replace their computer within one week if necessary (see Figure 30 and Figure 31).

Figure 30: Computer Becomes Unusable

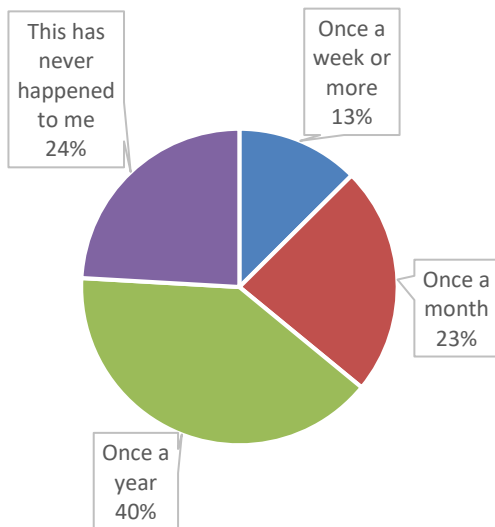
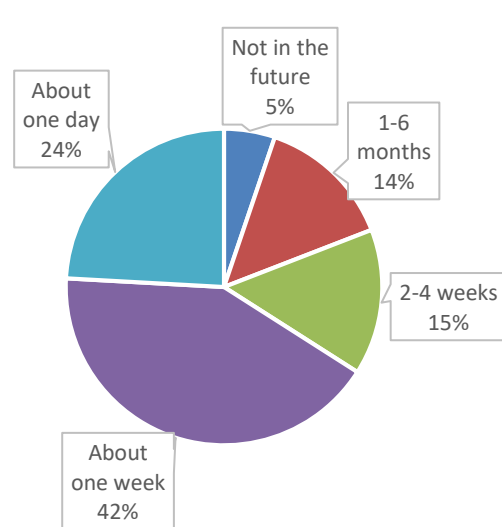
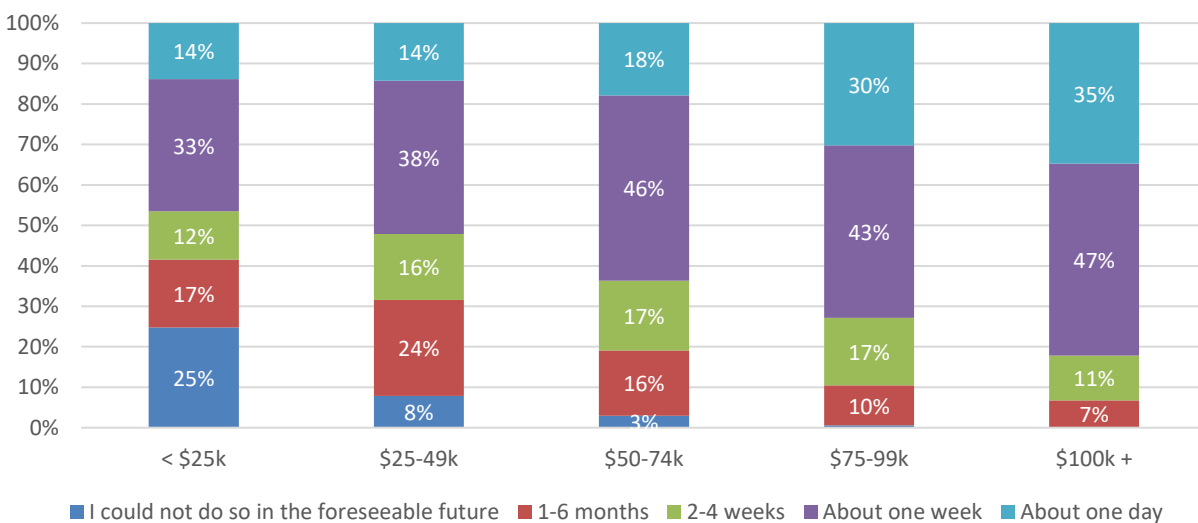


Figure 31: When Could Replace Computer



Although low-income households do not experience issues with their computer becoming inaccessible or unusable more frequently than do others, they would be less likely to replace their computer should it become lost or damaged beyond repair. One-fourth of those earning under \$25,000 per year said they would not be able to replace a lost or damaged computer in the foreseeable future (see Figure 32).

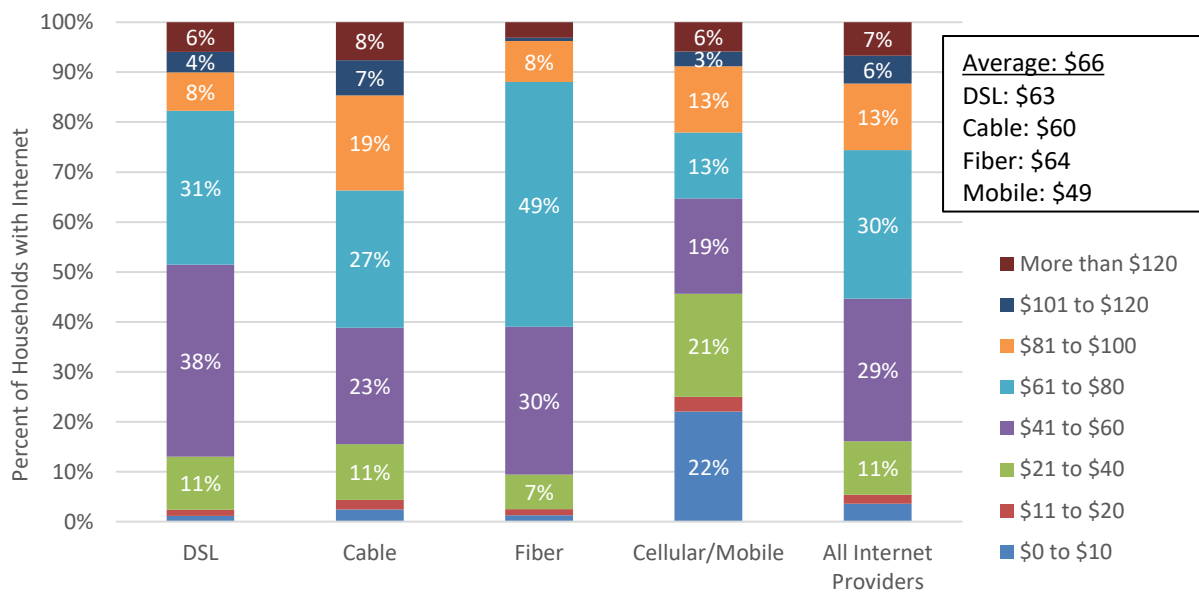
Figure 32: When Could Replace Lost or Damaged Computer by Household Income



4.2.1.8 Cost of Internet Service

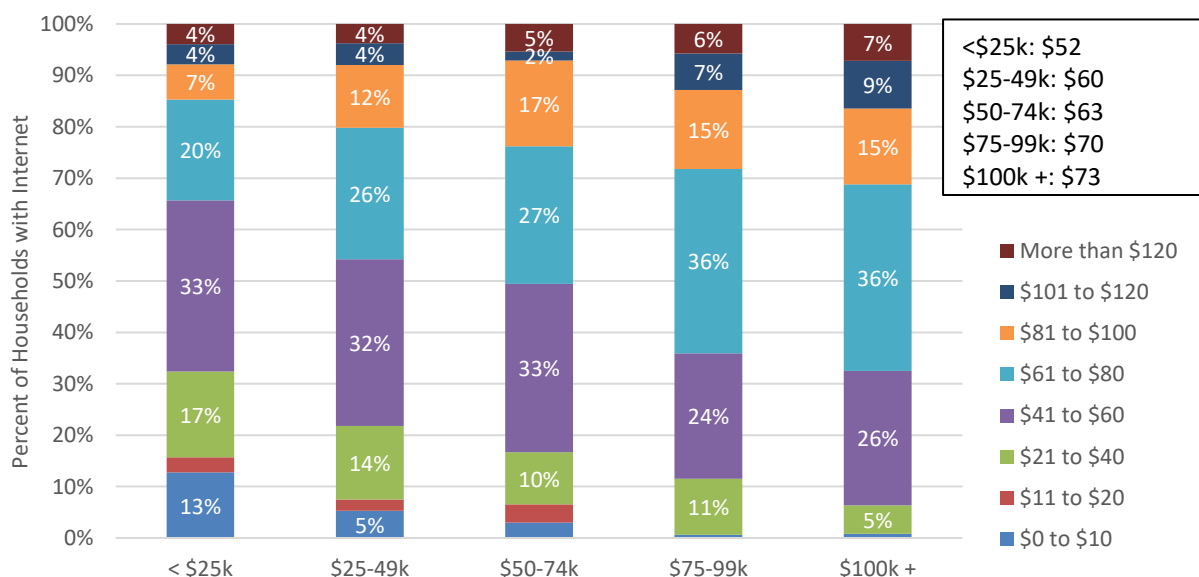
As Figure 33 illustrates below, more than one-half of subscribers pay over \$60 per month for home internet, with the estimated monthly average cost for internet service being \$66. Cellular/mobile internet subscribers pay less per month on average compared with other internet services.

Figure 33: Monthly Price for Internet Service



Households earning under \$25,000 annually pay an estimated average monthly price of \$52 for internet service. Just 13 percent of low-income households receive free or low-cost internet service (\$0 to \$10/month), while more than one-third pay over \$60 per month (see Figure 34).

Figure 34: Monthly Price for Internet Service by Household Income



More than one-half of internet subscribers said their monthly internet fee is part of a bundled service (see Figure 35). Estimated monthly prices for bundled and unbundled services are shown in Figure 36. Bundled services cost more in total than do unbundled services for DSL and cable.

Figure 35: Monthly Internet Fee Is Part of Bundled Service

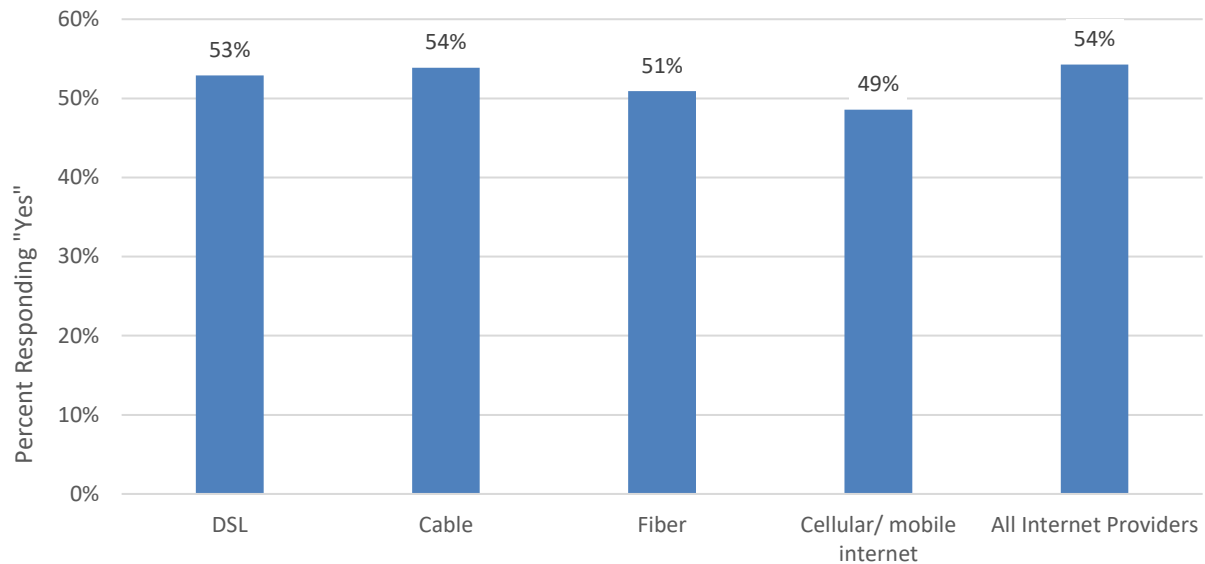
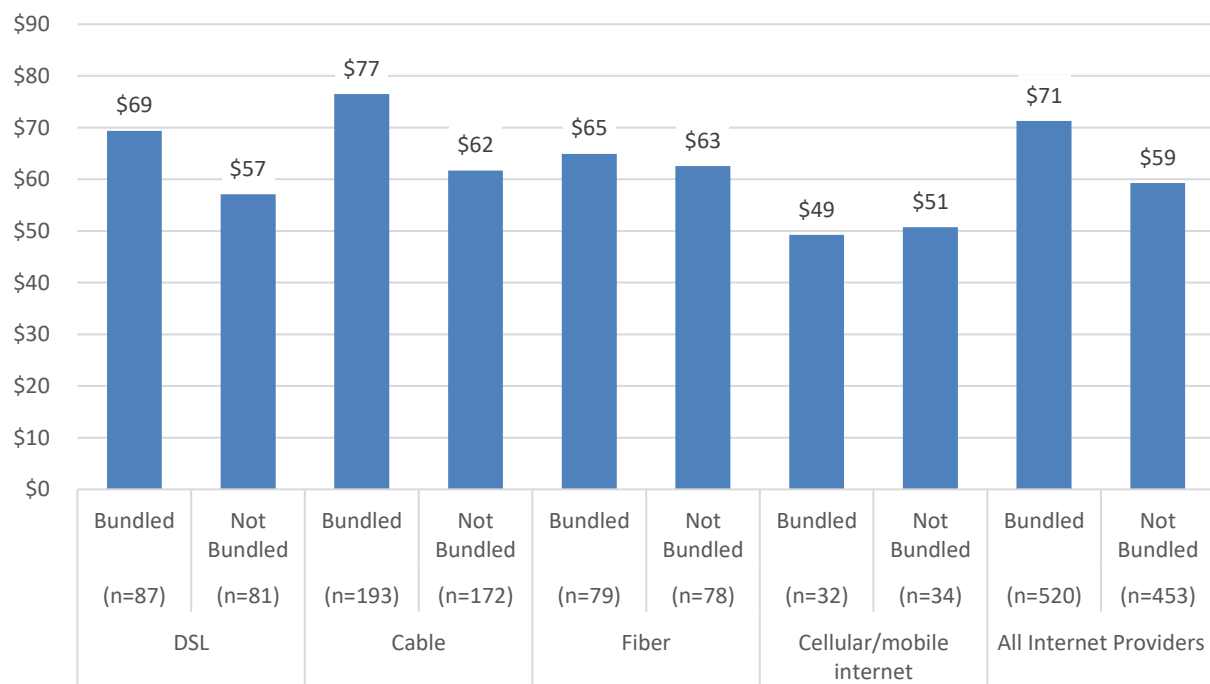


Figure 36: Estimated Average Monthly Price for Bundled and Non-Bundled Internet Service

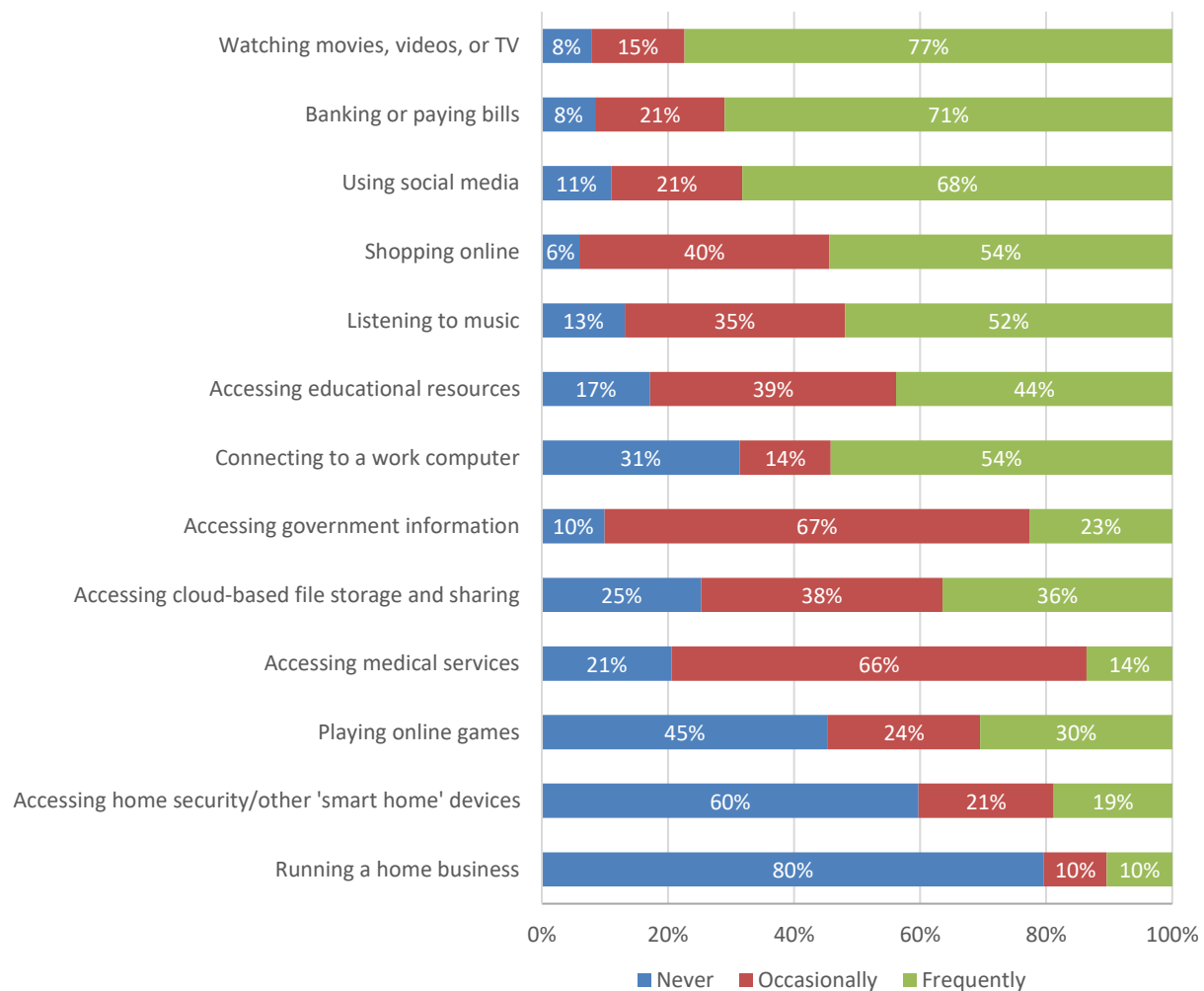


4.2.1.9 Internet Uses

Respondents were asked about their use of their home internet connection and of their cellular/mobile internet connection for various activities, as illustrated in Figure 37 and Figure 38. Among those items listed, the home internet connection is most frequently used for watching movies, videos, or TV; banking or paying bills; using social media; shopping online; and listening to music. Almost all respondents do these activities at least occasionally.

More than one-half of respondents frequently use their home internet to connect to a work computer, and 44 percent use it frequently to access educational resources. Two-thirds of respondents occasionally access government information or medical services via their home internet connection, but only a small segment does so frequently. One-fifth of respondents occasionally or frequently use their home internet connection for running a home-based business.

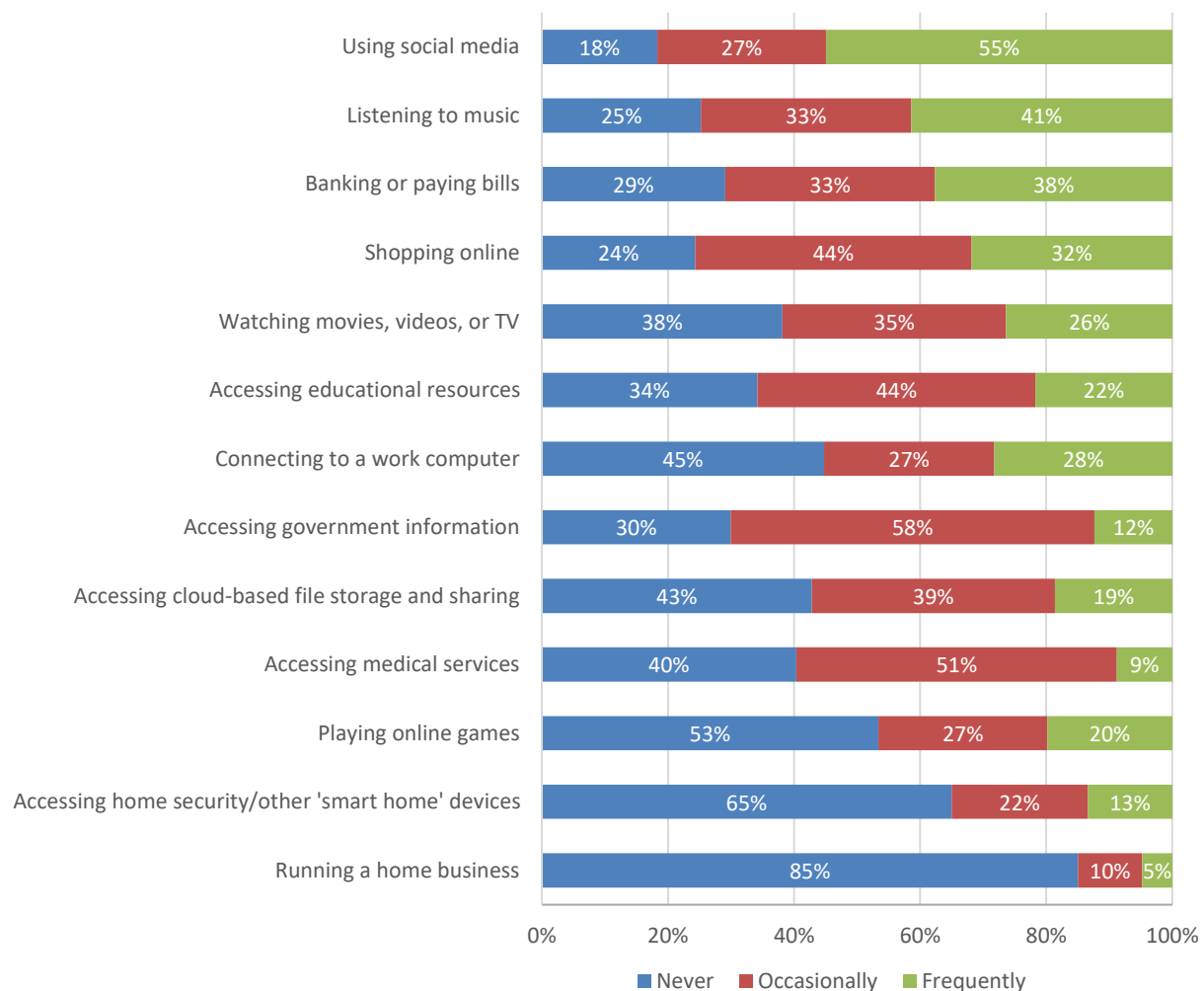
Figure 37: Home Internet Connection Use for Various Activities



A smartphone is used most frequently for social media, streaming music, banking or paying bills, and shopping online, as shown in Figure 38.

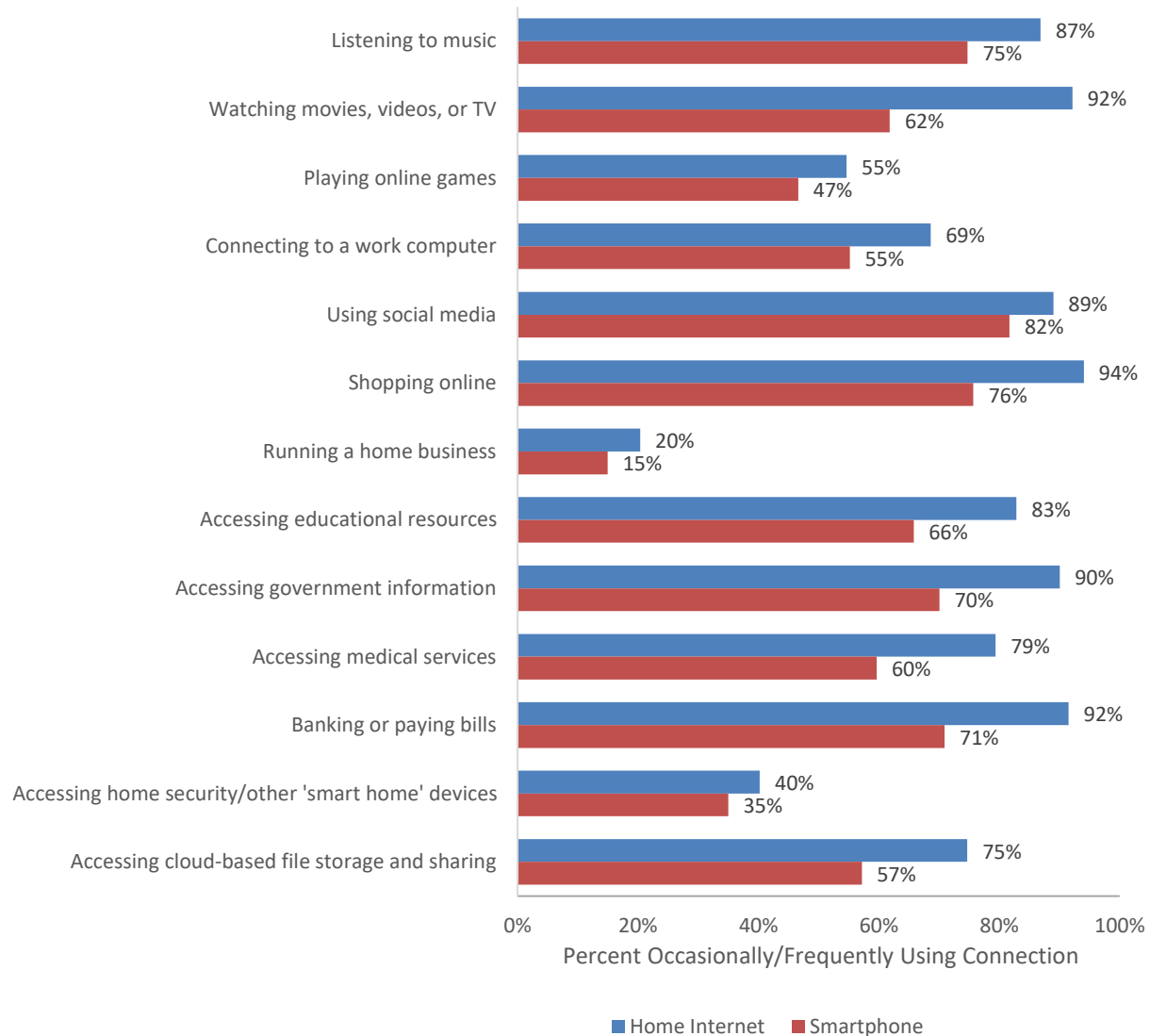
A sizeable segment of respondents frequently uses a cellular/mobile internet connection for other activities, including accessing key information and services. Two-thirds of respondents with internet service at least occasionally access educational resources via smartphone, and more than one-half connect to a work computer. More than one-half of respondents occasionally use their smartphone to access government information or medical services, although just a small segment does so frequently. Fifteen percent occasionally or frequently use their smartphone for running a home-based business.

Figure 38: Cellular/Mobile Connection Use for Various Activities



Respondents are less likely to use a cellular/mobile connection than a home internet connection for the activities listed. Figure 39 compares the percentage of respondents by connection type who ever use their connection for various activities. As discussed previously, a majority of internet subscribers are using a smartphone to access key information and services, such as connecting to a work computer or running a home-based business, accessing educational resources, accessing government information, or accessing medical services.

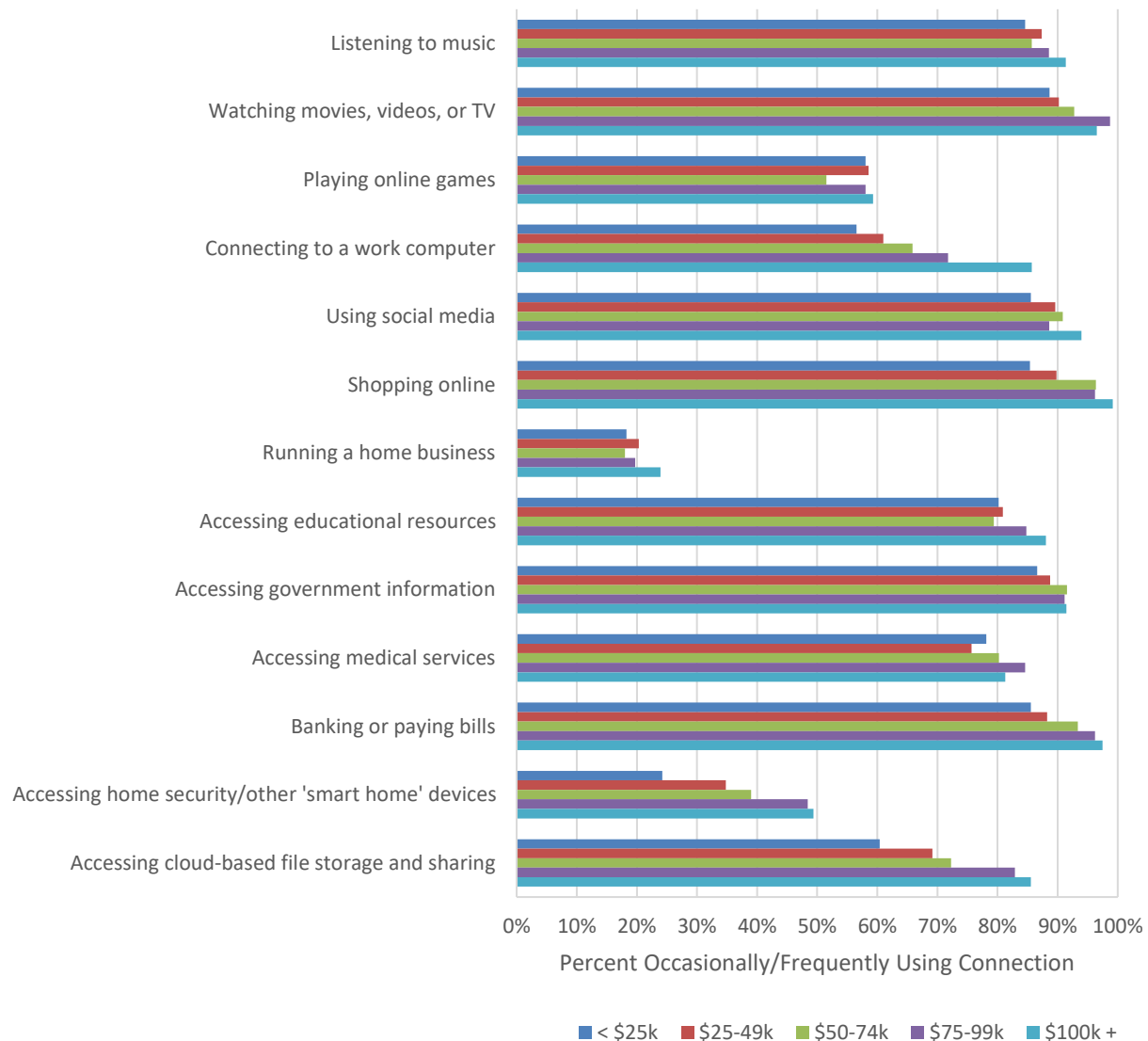
Figure 39: Internet Connection Ever Used for Various Activities by Connection Type



4.2.1.9.1 Internet Uses by Income Groups

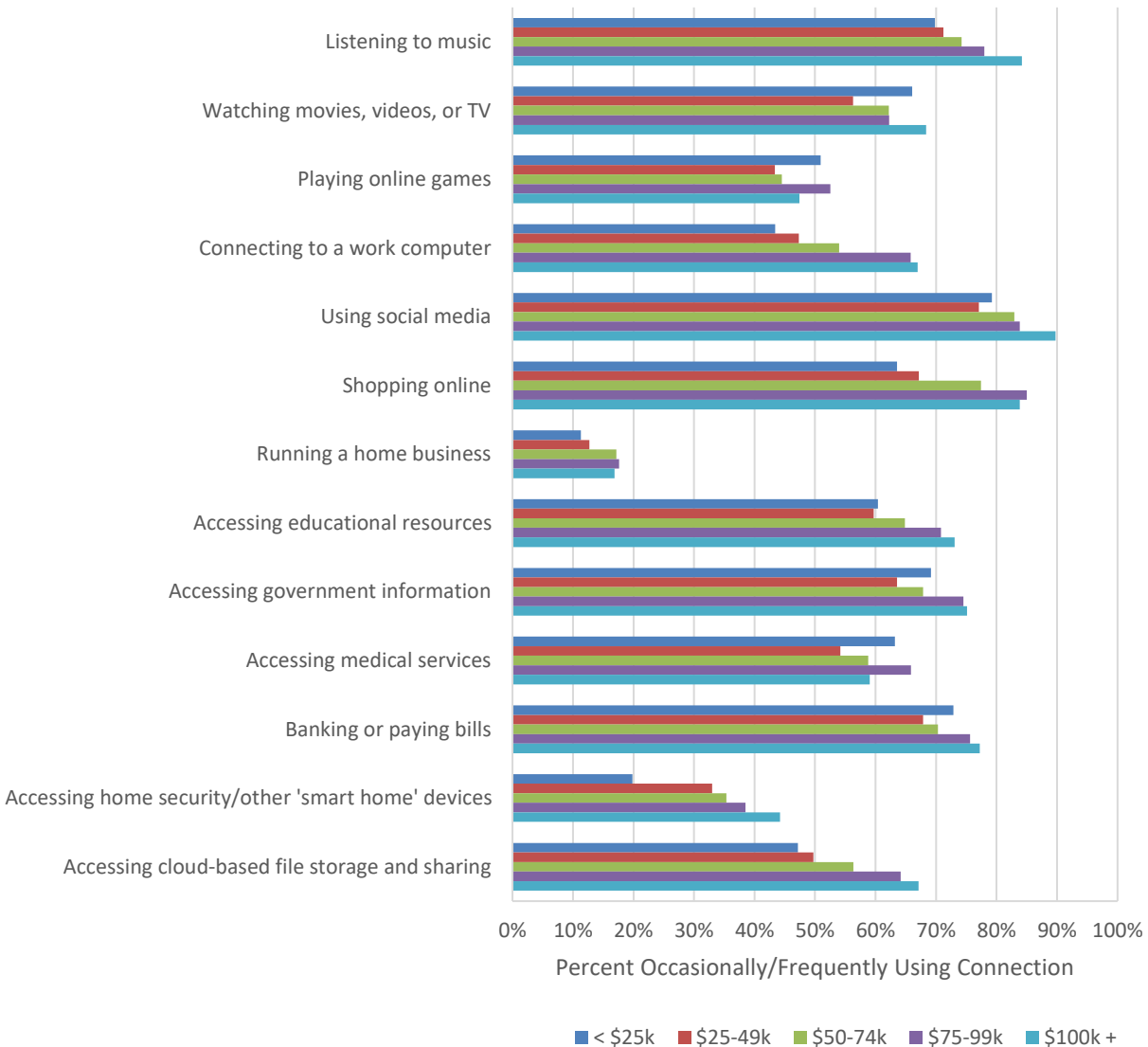
Households earning under \$25,000 per year are less likely than higher income households to ever use their *home internet connection* for some activities, such as watching movies, videos, or TV; connecting to work; shopping online; banking or paying bills; accessing home security/other “smart home” devices, and accessing cloud-based file storage and sharing (see Figure 40). Keep in mind that high-income households have a lower share of respondents ages 65+ (one-fourth for those earning \$100,000 or more vs. approximately four in 10 for those earning under \$100,000).

Figure 40: Home Internet Connection Ever Used for Various Activities by Household Income



Similarly, lower income households are less likely than higher income households to ever use their *cellular/mobile internet connection* for listening to music, connecting to work, using social media, shopping online, accessing home security/other “smart home” device, and accessing cloud-based file storage and sharing (see Figure 41).

Figure 41: Cellular/Mobile Connection Ever Used for Various Activities by Household Income



As illustrated in the previous charts, both low-income and high-income groups are more likely to use a home internet connection than a smartphone to access information and services. Low-income households are less likely than higher income households to ever use any connection (either home internet or smartphone) to connect to a work computer, access educational resources, access government information, or access medical services. Higher-income households have more household members, are younger on average, and are more likely to have children at home, which could explain the higher participation in these key activities.

4.2.1.9.2 Smartphone User Segments

Individuals were classified into one of three groups, based on their overall usage of a smartphone for various activities. One-third of internet subscribers frequently use their smartphone for key activities, as shown in Figure 42.

These highly connected individuals are using their smartphone for social media, streaming music, online shopping, banking, and watching movies, videos or TV (see Figure 43). A sizable percentage use their smartphone for other functions, including accessing information and resources. One-half are frequently connecting to a work computer via their smartphone.

Figure 42: Smartphone User Segments

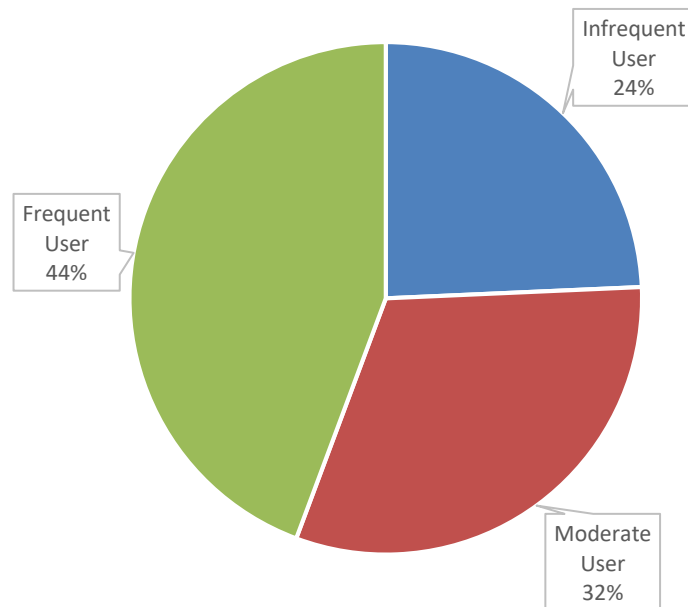
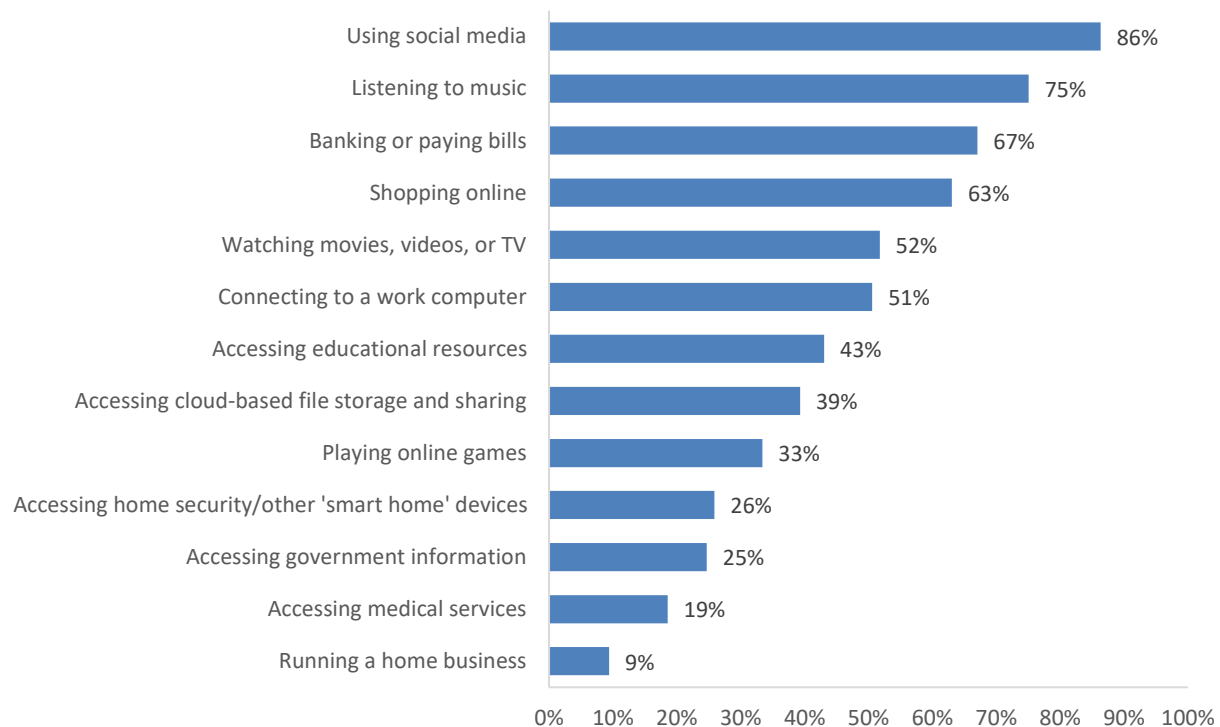


Figure 43: Smartphone Activity for Frequent Users



Usage is highly correlated with age of respondent and less so with other demographic characteristics, such as household income. The majority of infrequent smartphone users are ages 55+. Table 5 shows the demographic profile of the various segments of smartphone users.

Table 5: Demographic Profile of Smartphone User Segments

		Infrequent User	Moderate User	Frequent User	Total
Internet Service in Home	Home Internet Connection	3%	1%	2%	2%
	Smartphone	11%	3%	5%	6%
	Both Home/Smartphone	86%	95%	93%	92%
	<i>Total</i>	<i>172</i>	<i>288</i>	<i>413</i>	<i>873</i>
Respondent Age	18 to 34 years	11%	16%	28%	20%
	35 to 44 years	4%	14%	21%	15%
	45 to 54 years	7%	11%	17%	13%
	55 to 64 years	21%	19%	16%	18%
	65 years and older	57%	40%	18%	34%
	<i>Total</i>	<i>227</i>	<i>297</i>	<i>419</i>	<i>943</i>
Highest Level of Education	High school education or less	23%	12%	12%	15%
	Two-year college/technical	10%	11%	14%	12%
	Four-year college degree	23%	27%	31%	28%
	Graduate degree, etc.	44%	49%	43%	45%
	<i>Total</i>	<i>227</i>	<i>297</i>	<i>420</i>	<i>944</i>
Household Income	Less than \$25,000	15%	12%	12%	13%
	\$25,000 to \$49,999	30%	24%	17%	22%
	\$50,000 to \$74,999	22%	20%	18%	19%
	\$75,000 to \$99,999	14%	18%	21%	19%
	\$100,000 or more	19%	27%	32%	27%
	<i>Total</i>	<i>194</i>	<i>256</i>	<i>380</i>	<i>830</i>
Race/Ethnicity	White/Caucasian only	90%	94%	89%	91%
	Other race/ethnicity	10%	6%	11%	9%
	<i>Total</i>	<i>221</i>	<i>287</i>	<i>416</i>	<i>924</i>
Gender	Woman	52%	48%	62%	55%
	Man	45%	51%	36%	43%
	Other	2%	1%	2%	2%
	<i>Total</i>	<i>227</i>	<i>291</i>	<i>414</i>	<i>932</i>
Children in Household	No Children in HH	92%	87%	70%	81%
	Children in HH	8%	13%	30%	19%
	<i>Total</i>	<i>226</i>	<i>297</i>	<i>419</i>	<i>942</i>
Own/Rent Residence	Own	77%	79%	68%	74%
	Rent	23%	21%	32%	26%
	<i>Total</i>	<i>226</i>	<i>295</i>	<i>421</i>	<i>942</i>
Years at Current Residence	Less than 1 year	8%	13%	15%	13%
	1 to 2 years	13%	14%	19%	16%
	3 to 4 years	11%	12%	18%	14%
	5 or more years	68%	62%	47%	57%
	<i>Total</i>	<i>228</i>	<i>299</i>	<i>424</i>	<i>951</i>

4.2.1.10 Internet Skills

Respondents were asked to indicate their level of agreement with various statements about their internet skills. Average rating scores are highlighted in Figure 44, while Figure 45 shows detailed responses.

Figure 44: Agreement with Statement About Internet Skills (Mean Ratings)

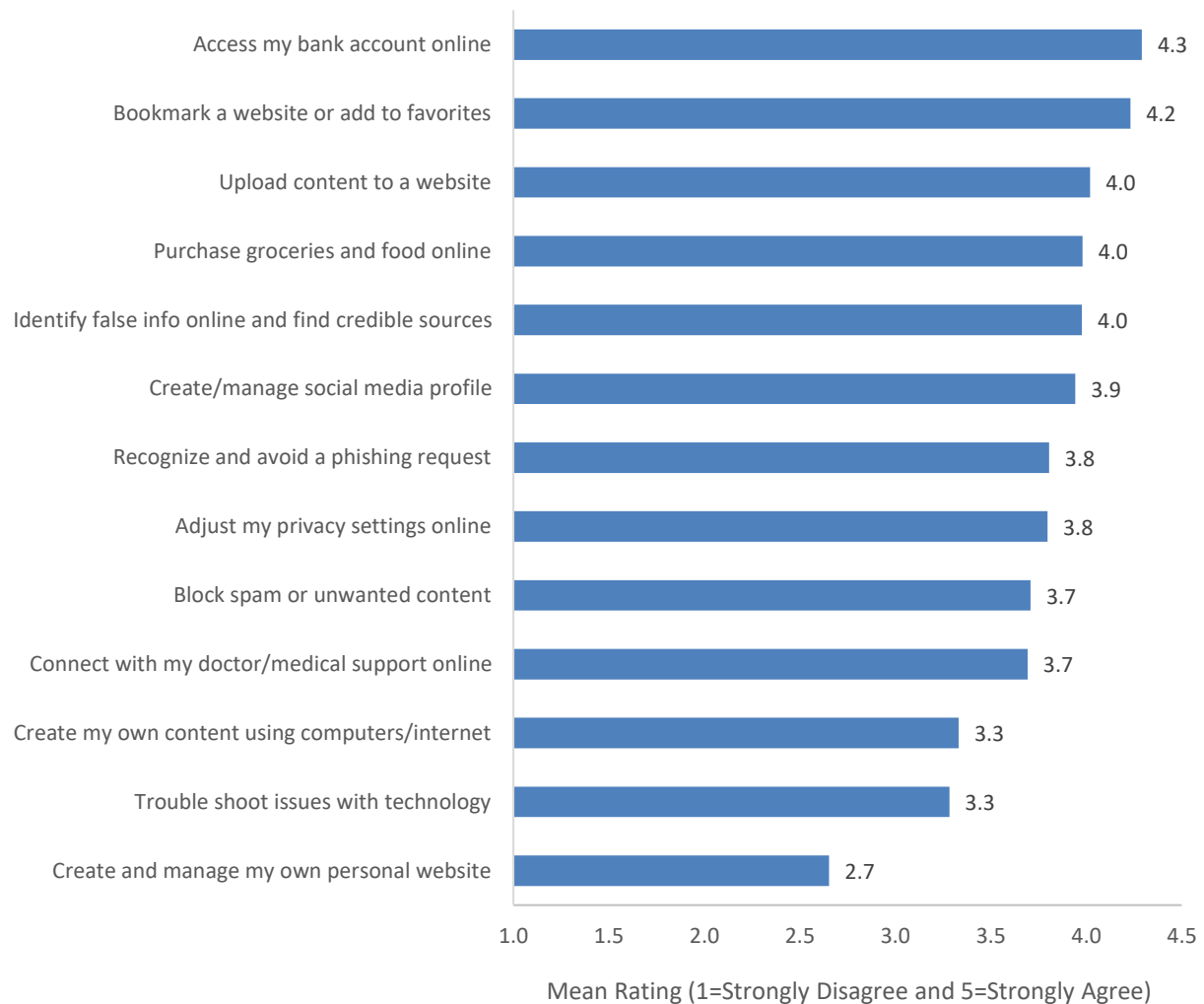
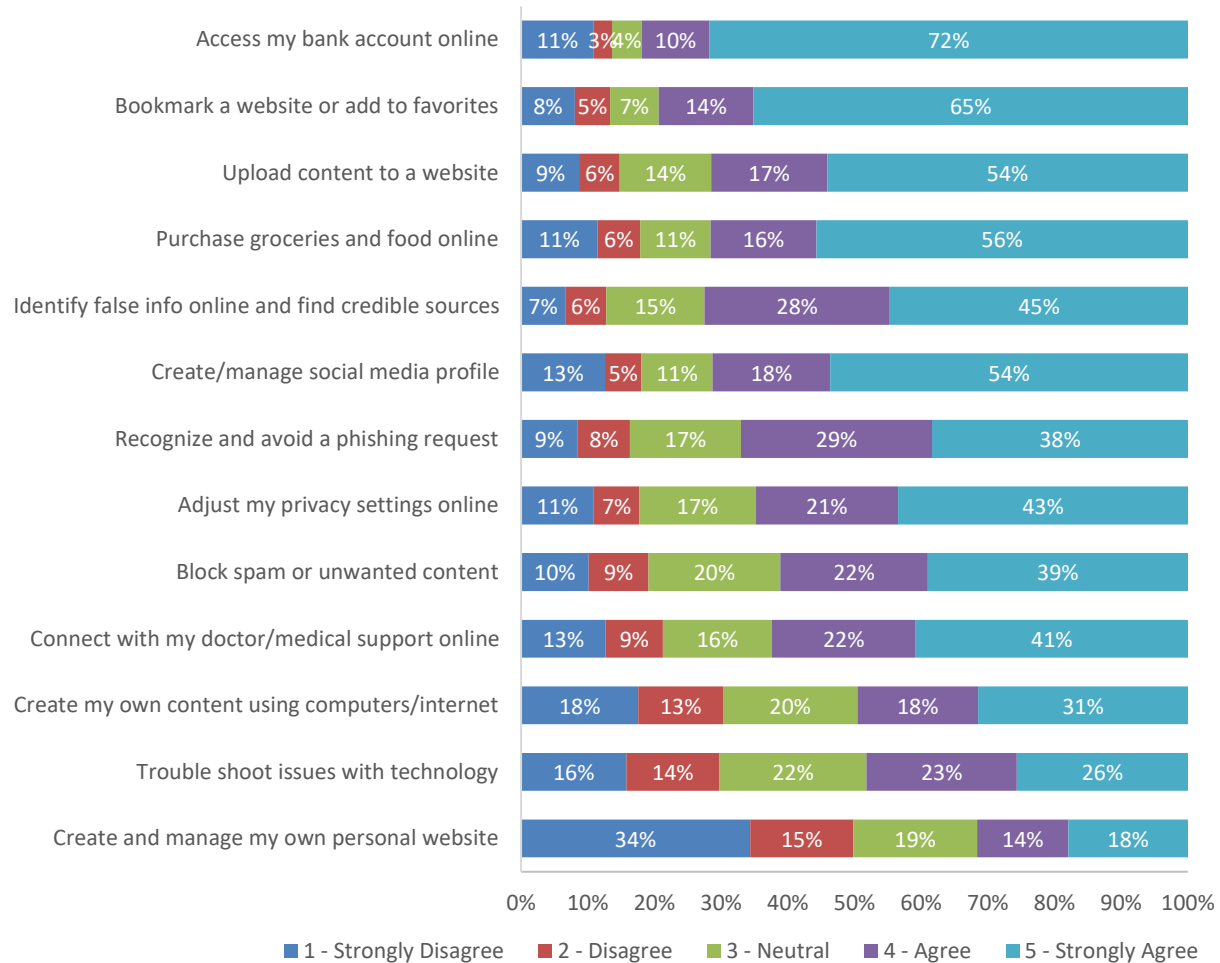


Figure 45: Agreement with Statement About Internet Skills



Overall, most internet subscribers agree that they know how to use the internet for various functions. Nearly three-fourths of respondents strongly agreed they can use the internet for accessing a bank account online, and 65 percent strongly agreed they can use it for bookmarking a website. At least one-half of respondent strongly agreed they can use the internet for creating or managing a social media profile, uploading content to a website, and purchasing groceries and food online. Respondents were least likely to agree that they are skilled in creating content or their own personal website or troubleshooting issues with technology.

Respondents ages 55 and older and those earning less than \$25,000 per year were less likely to agree that they are skilled in various uses of the internet (see

Figure 46 and Figure 47). Although those in low-income households are less skilled with computer technology, they also are more likely to not have internet service or to use a cellular/mobile connection as their primary service. Detailed responses for low-income households are highlighted in Figure 48 to Figure 60.

Figure 46: Agreement with Statement About Internet Skills by Respondent Age

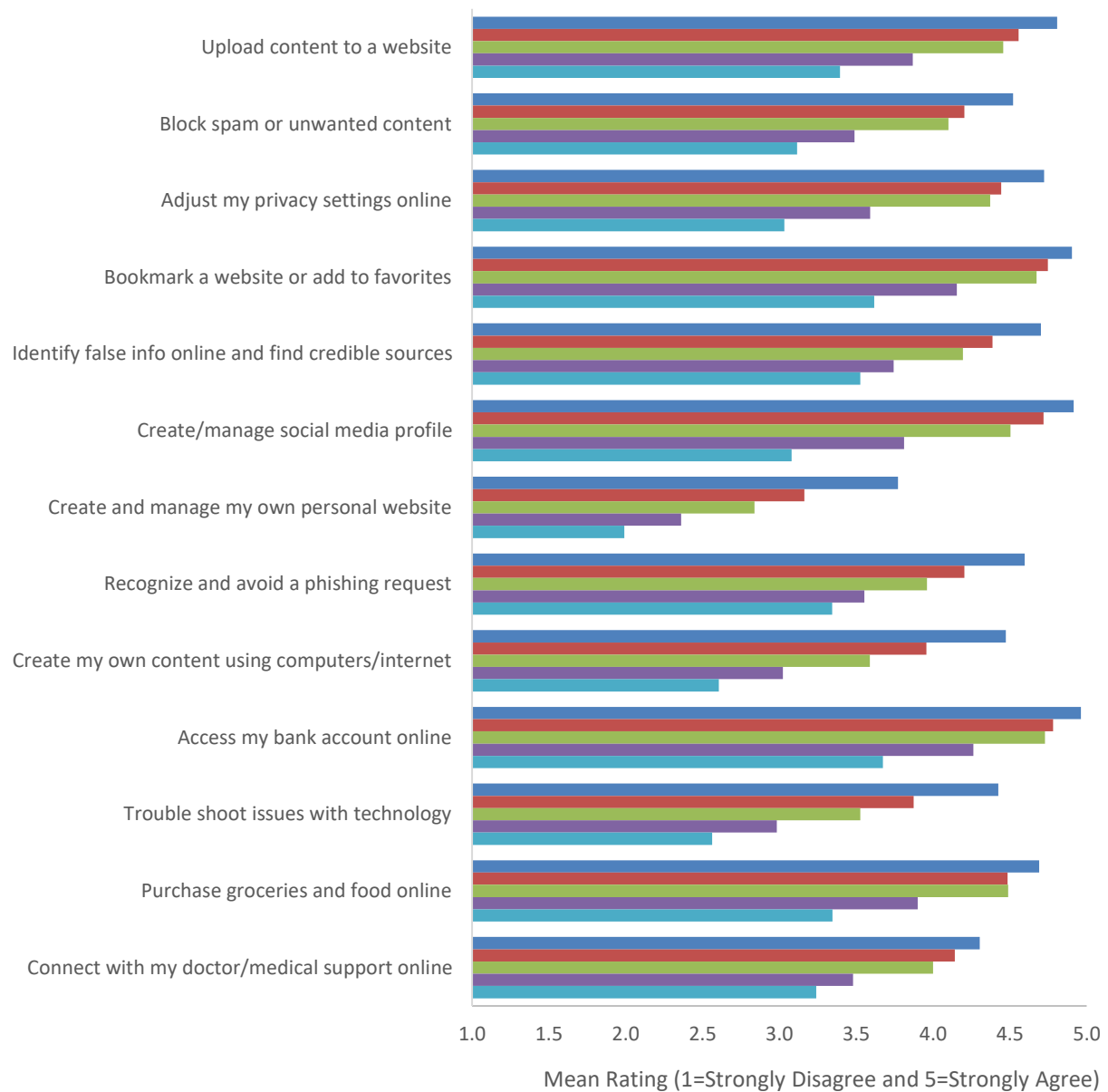
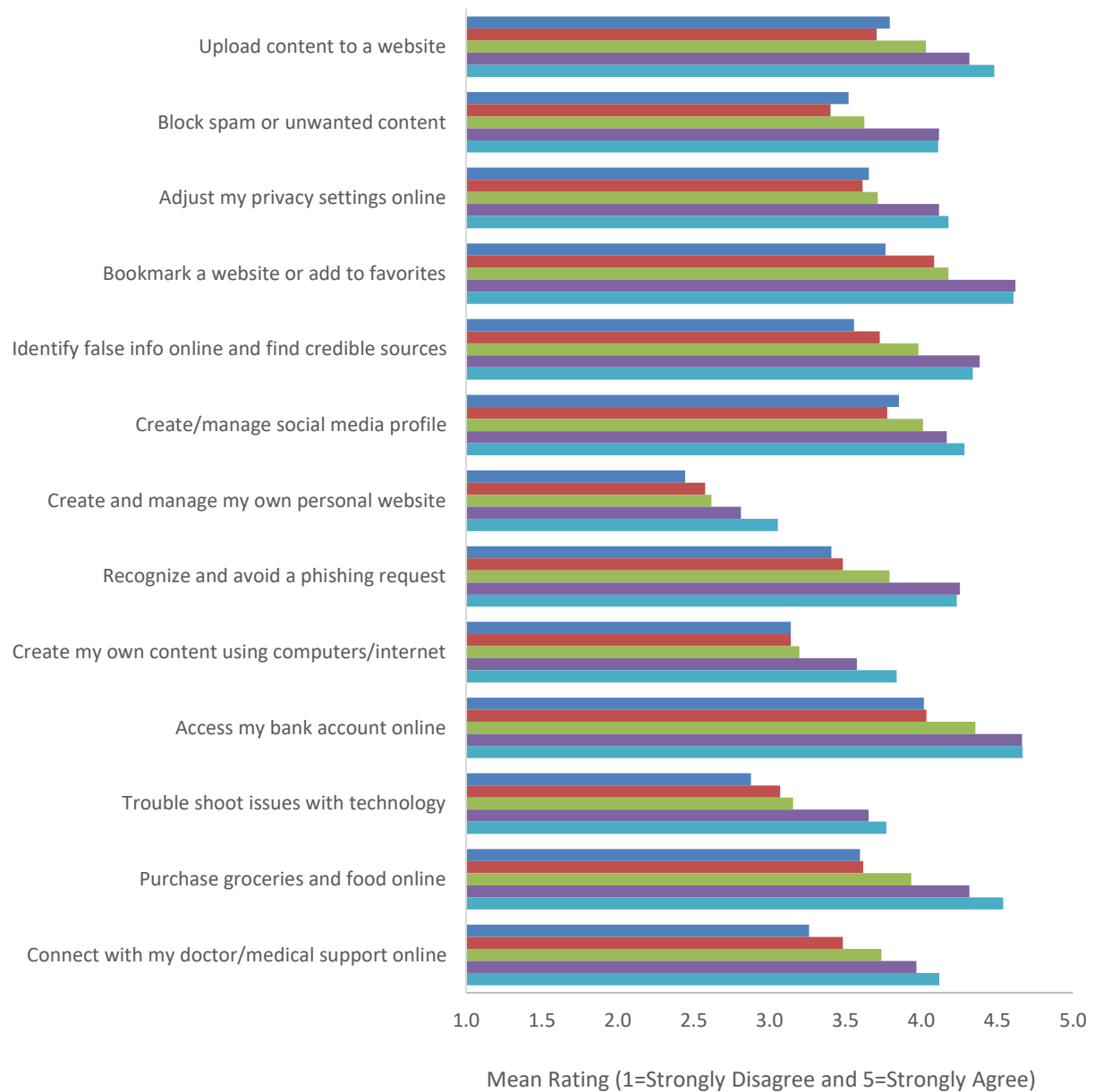
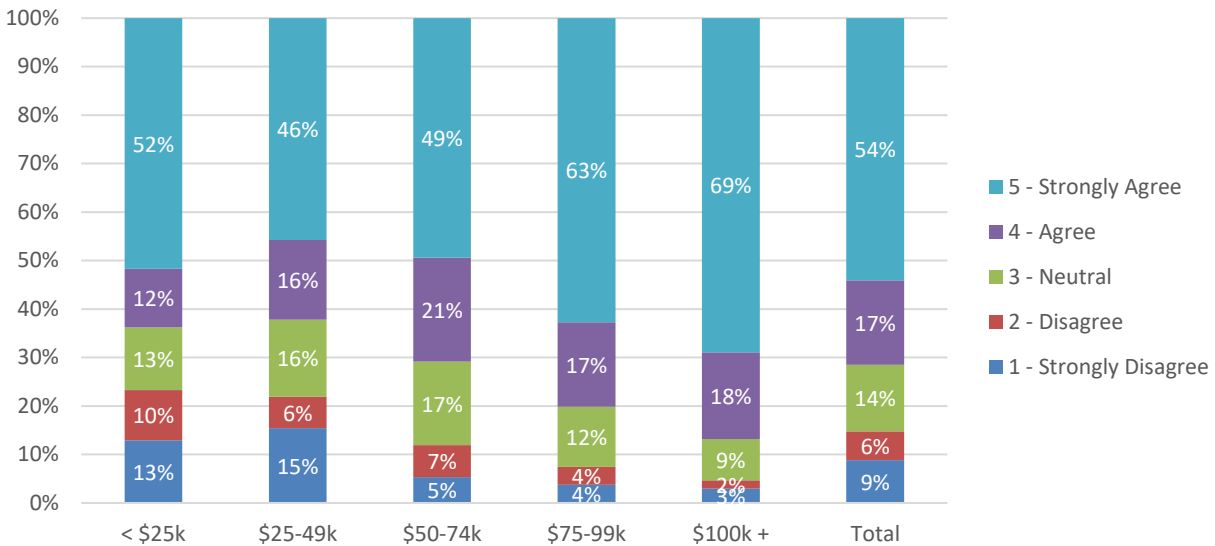


Figure 47: Agreement with Statement About Internet Skills by Household Income



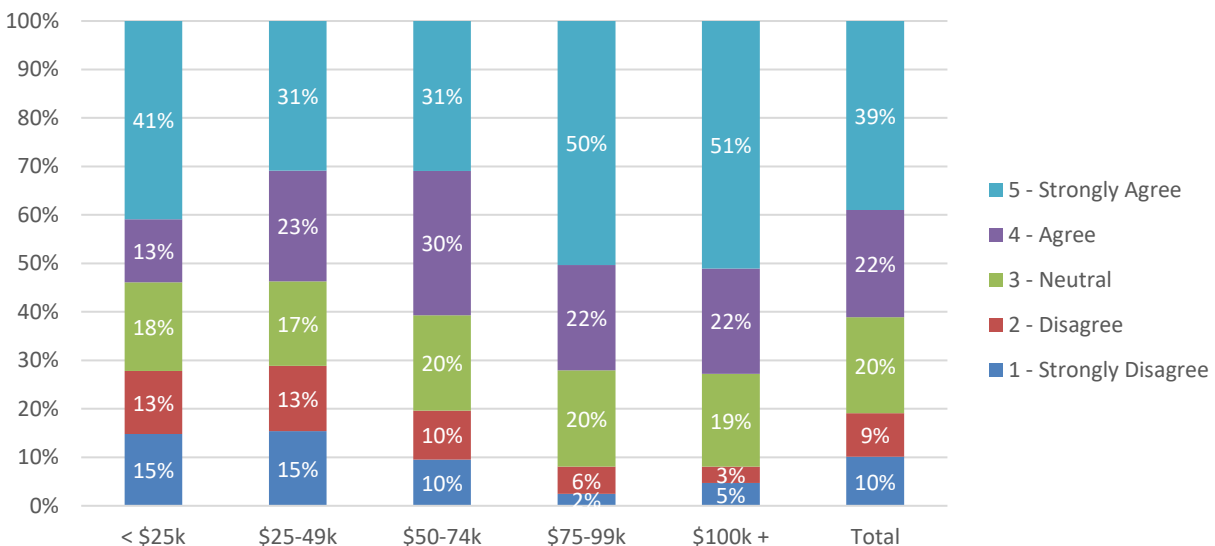
More than one-fifth of respondents earning under \$50,000 per year disagreed or strongly disagreed that they know how to upload content to a website. Those earning \$75,000 or more were more likely than lower-income households to agree or strongly agree with this statement (see Figure 48).

Figure 48: Know How to Upload Content to a Website by Household Income



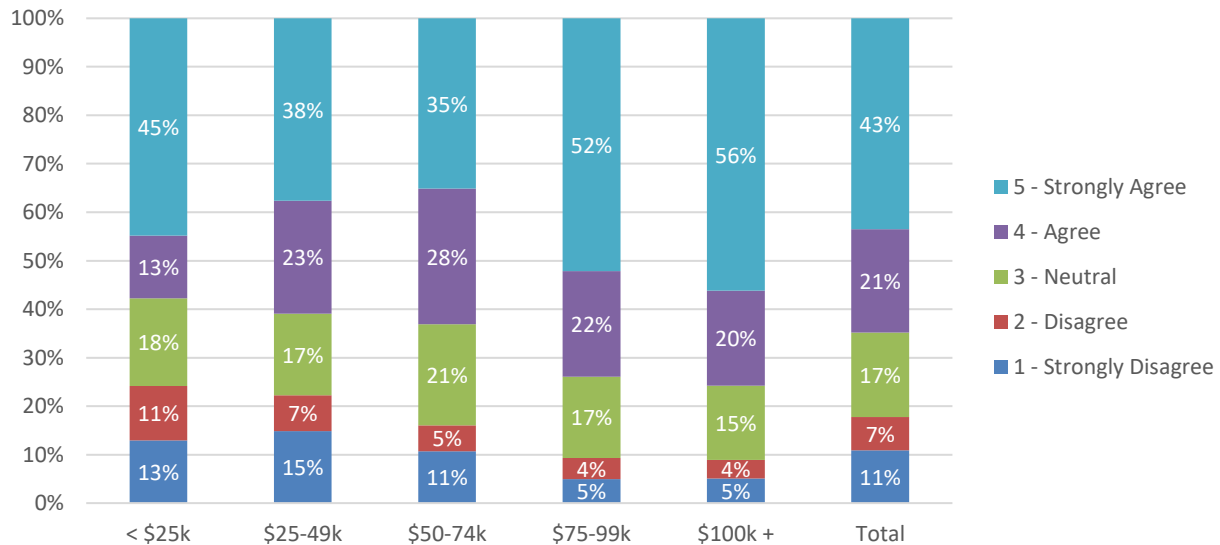
More than one-fourth of respondents earning under \$50,000 per year disagreed or strongly disagreed that they know how to block spam or unwanted content (see Figure 49).

Figure 49: Know How to Block Spam or Unwanted Content by Household Income



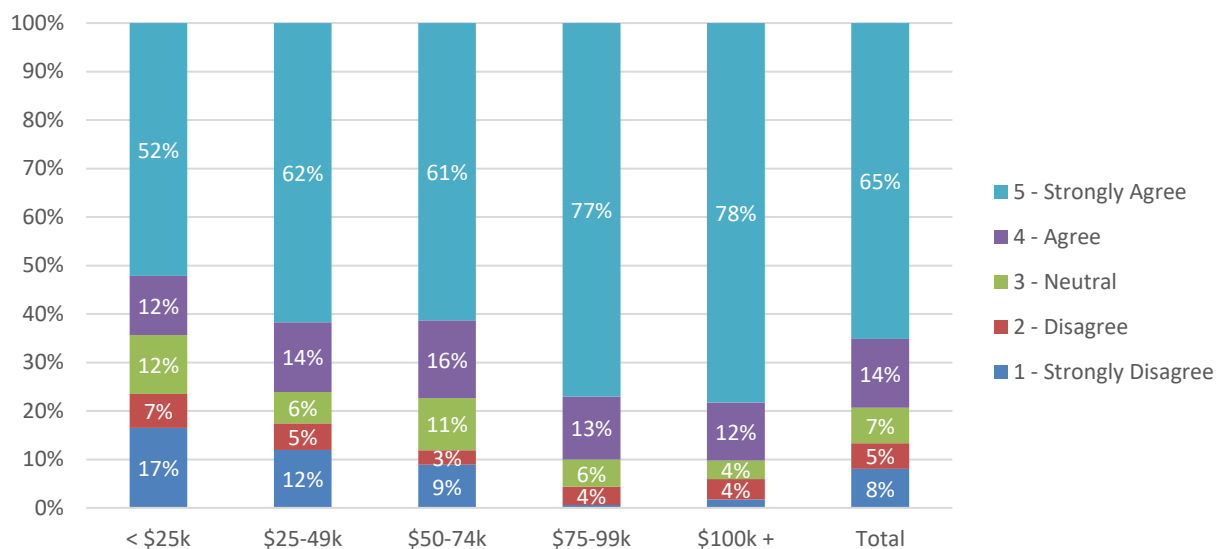
Nearly one-fourth of respondents earning under \$50,000 per year disagreed or strongly disagreed that they know how to adjust their privacy settings online (see Figure 50).

Figure 50: Know How to Adjust Privacy Settings Online by Household Income



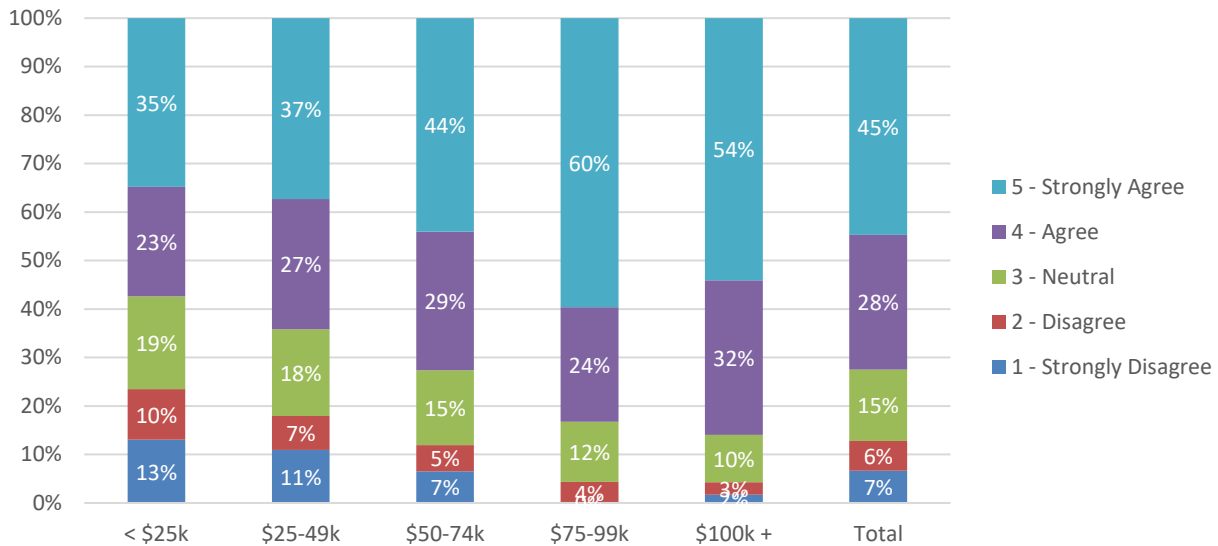
Approximately one-fourth of respondents earning under \$25,000 per year disagreed or strongly disagreed that they know how to bookmark a website or add a website to their list of favorites. They were less likely to strongly agree with this statement (see Figure 51).

Figure 51: Know How to Bookmark a Website by Household Income



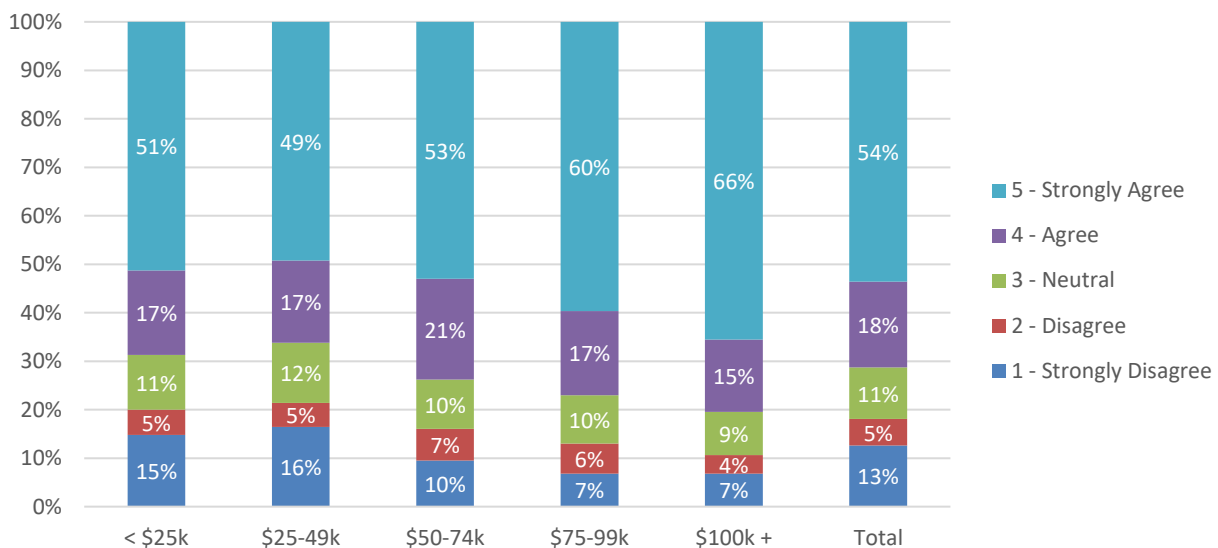
Respondents earning under \$75,000 per year were less likely than higher-income households to strongly agree that they know how to identify false or misleading information online. Nearly one-fourth of respondents earning under \$25,000 per year disagreed or strongly disagreed with this statement (see Figure 52).

Figure 52: Know How to Identify False or Misleading Info Online by Household Income



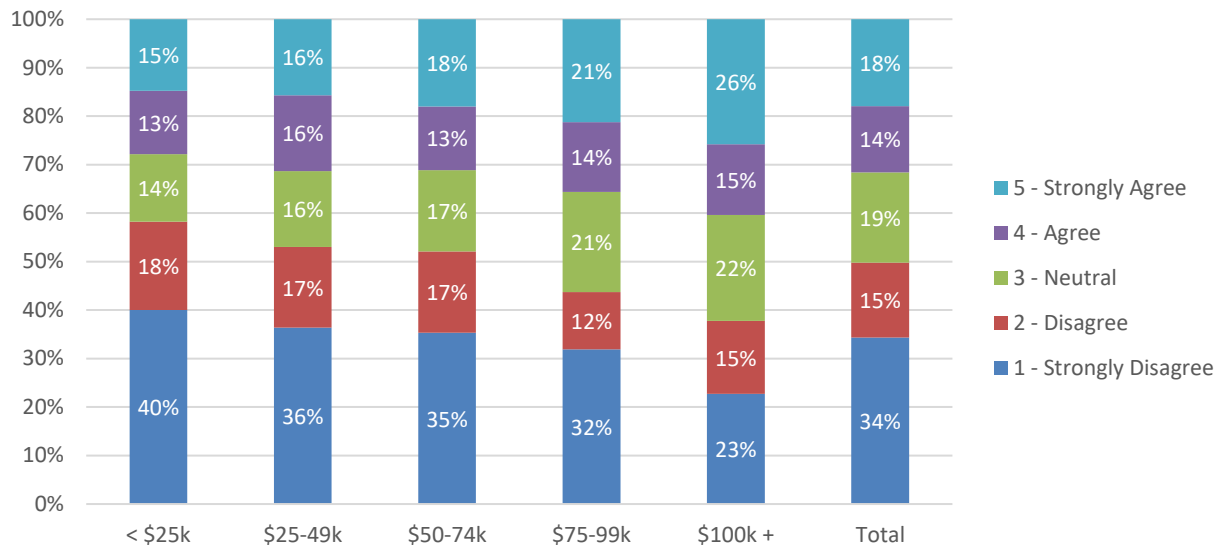
Respondents earning under \$75,000 per year were less likely than higher-income households to strongly agree that they know how to create and manage their own profile on social media. Approximately one-fifth of respondents earning under \$75,000 per year disagreed or strongly disagreed with this statement (see Figure 53).

Figure 53: Know How to Create/Manage Profile on Social Media by Household Income



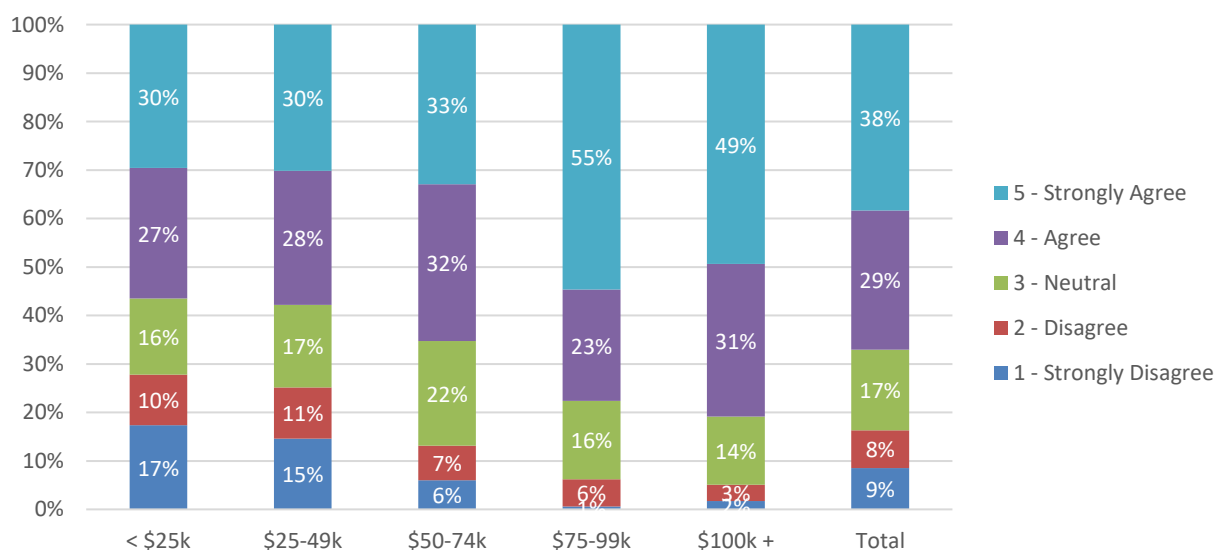
More than one-half of respondents earning under \$75,000 per year disagreed or strongly disagreed that they know how to create or manage a personal website. Approximately three in 10 agree or strongly agree with this statement (see Figure 54).

Figure 54: Know How to Create or Manage Personal Website by Household Income



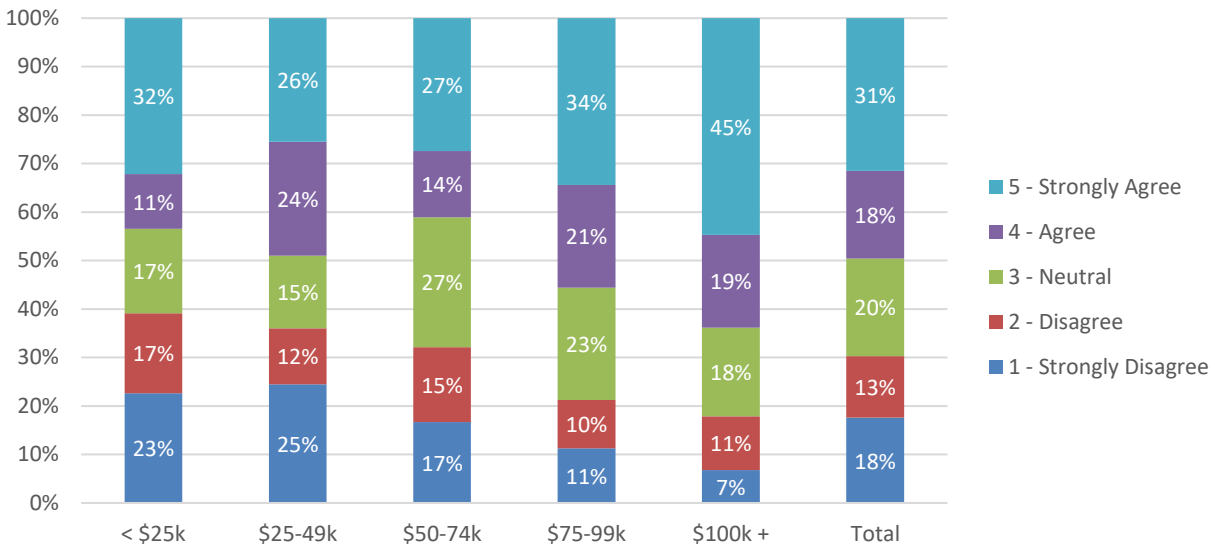
More than one-fourth of respondents earning under \$50,000 per year disagreed or strongly disagreed that they know how to recognize and avoid a phishing scam. Those earning \$75,000 or more were more likely than lower-income households to agree or strongly agree with this statement (see Figure 55).

Figure 55: Know How to Recognize and Avoid a Phishing Scam by Household Income



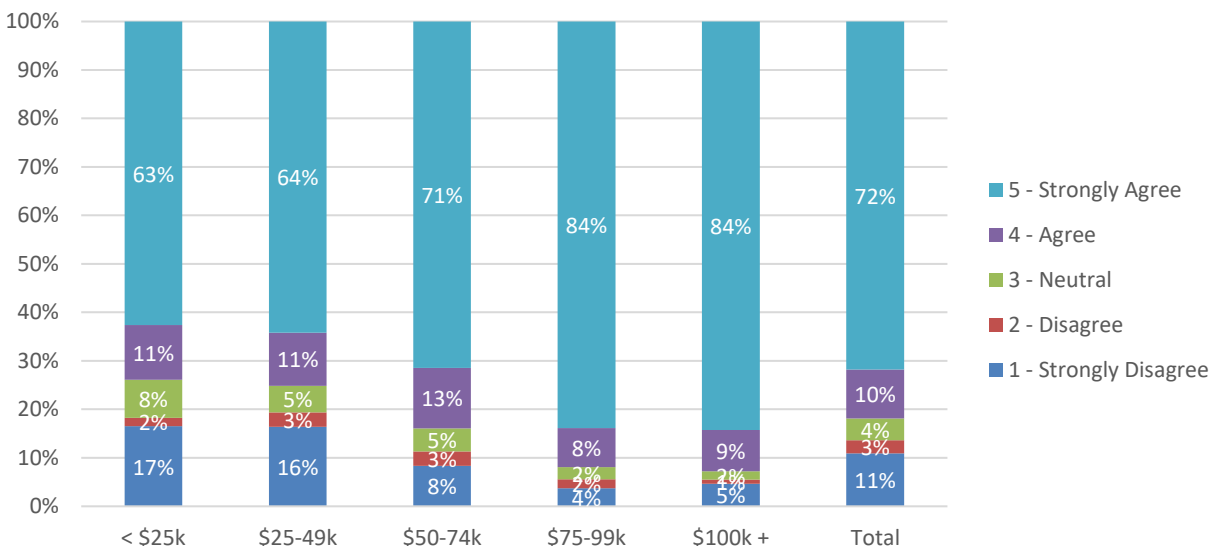
Approximately four in 10 respondents earning under \$50,000 per year disagreed or strongly disagreed that they know how to create their own content using computers and the internet. Those earning \$100,000 or more were more likely than lower-income households to agree or strongly agree with this statement (see Figure 56).

Figure 56: Know How to Create Own Content by Household Income



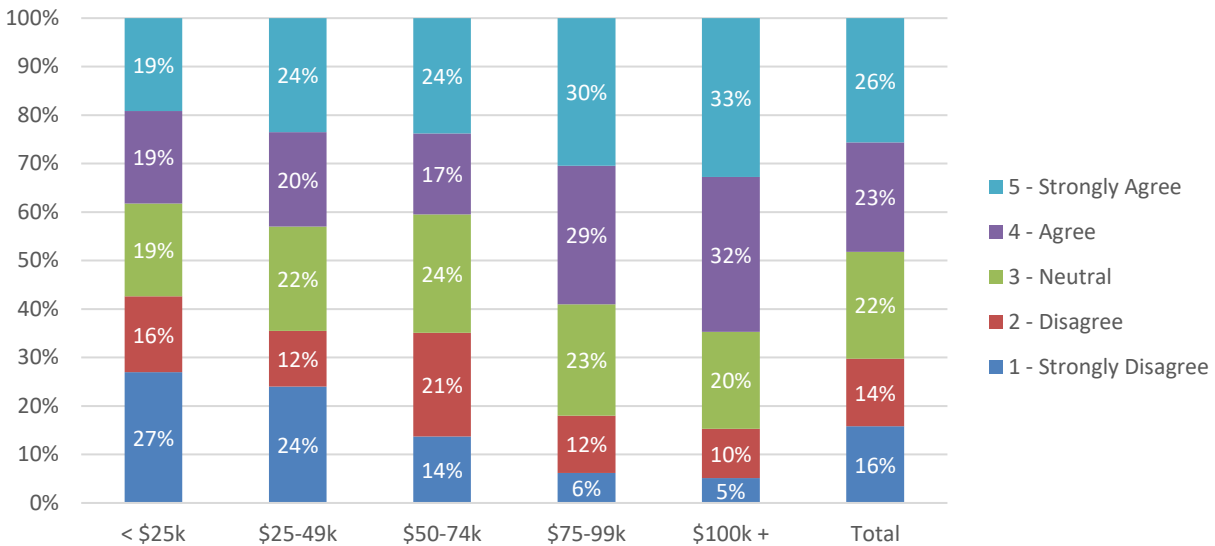
A majority of respondents strongly agreed that they know how to access their bank account online. Agreement is highest among those earning \$75,000 or more, with 84 percent saying they strongly agree. One-fifth of respondents earning under \$50,000 per year disagreed or strongly disagreed with this statement (see Figure 57).

Figure 57: Know How to Access Bank Account Online by Household Income



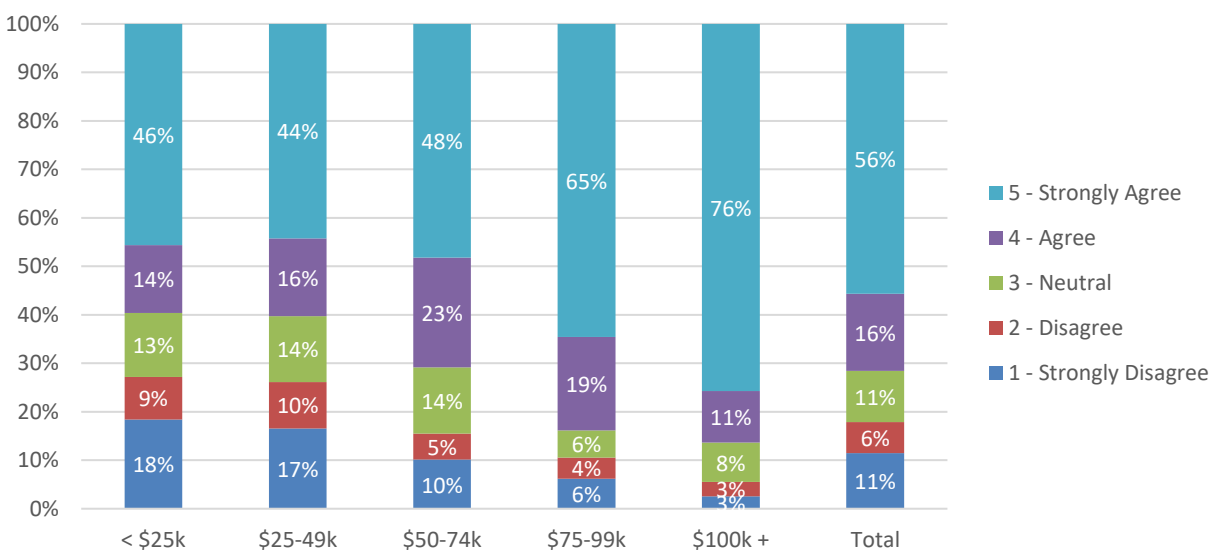
Respondents earning under \$75,000 per year were less likely than higher-income households to agree or strongly agree that they are confident in their ability to troubleshoot issues with technology when they arise. More than four in 10 respondents earning under \$25,000 per year disagreed or strongly disagreed with this statement (see Figure 58).

Figure 58: Know How to Troubleshoot Technology Issues by Household Income



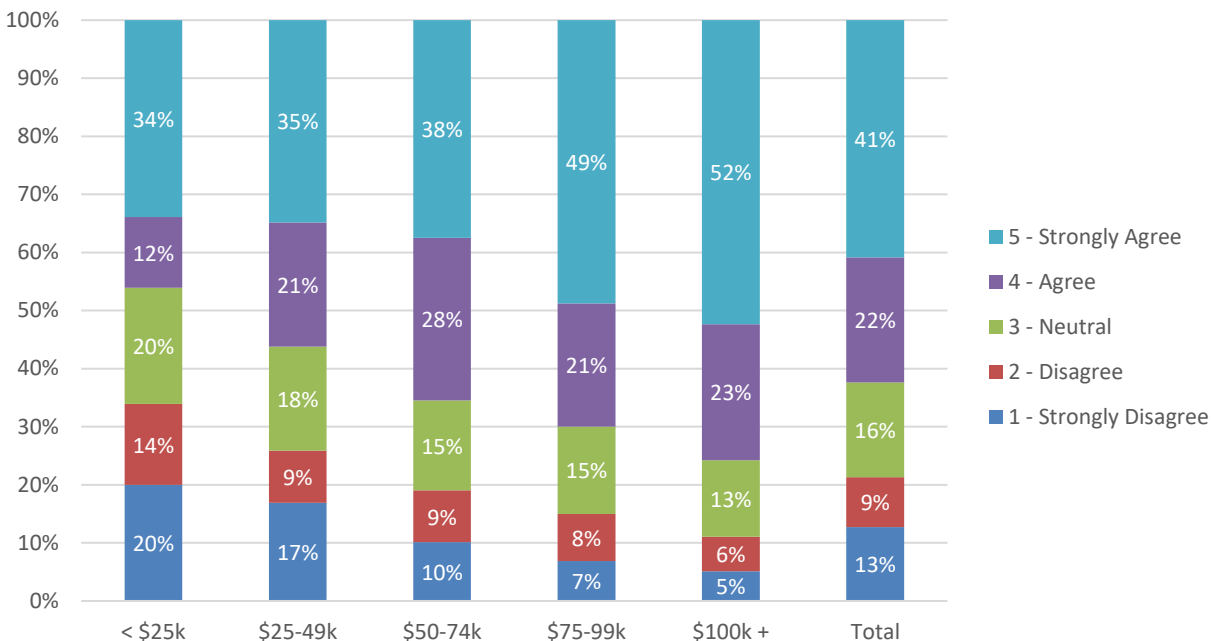
Although most respondents agreed or strongly agreed that they know how purchase groceries and food online, more than one-fourth of those earning less than \$50,000 disagreed or strongly disagreed with this statement (see Figure 59).

Figure 59: Know How to Purchase Groceries and Food Online by Household Income



Respondents earning under \$50,000 per year were less likely than higher-income households to agree or strongly agree that they know how to connect to their doctor or other medical support online. More than one-third of respondents earning under \$25,000 per year disagreed or strongly disagreed with this statement (see Figure 60).

Figure 60: Know How to Connect with My Doctor/Medical Support by Household Income



4.2.1.11 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 61, while Figure 62 shows detailed responses.

Overall, there is only slight interest in learning about or in attending a class about how computers work or about writing software/code. 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 less interest in attending a free or inexpensive class about these topics.

Specifically, four in 10 respondents agreed or strongly agreed that they would like to become more confident in using computers and related technology, but just 27 percent agreed or strongly agreed they would like to attend training.

Similarly, 34 percent of respondents agreed or strongly agreed about wanting to know how to better use online resources to find trustworthy information, but just 27 percent agreed or strongly agreed they are interested in training while 36 percent strongly disagreed.

Figure 61: Agreement with Statements About Training Related to Computers and the Internet (Mean Ratings)

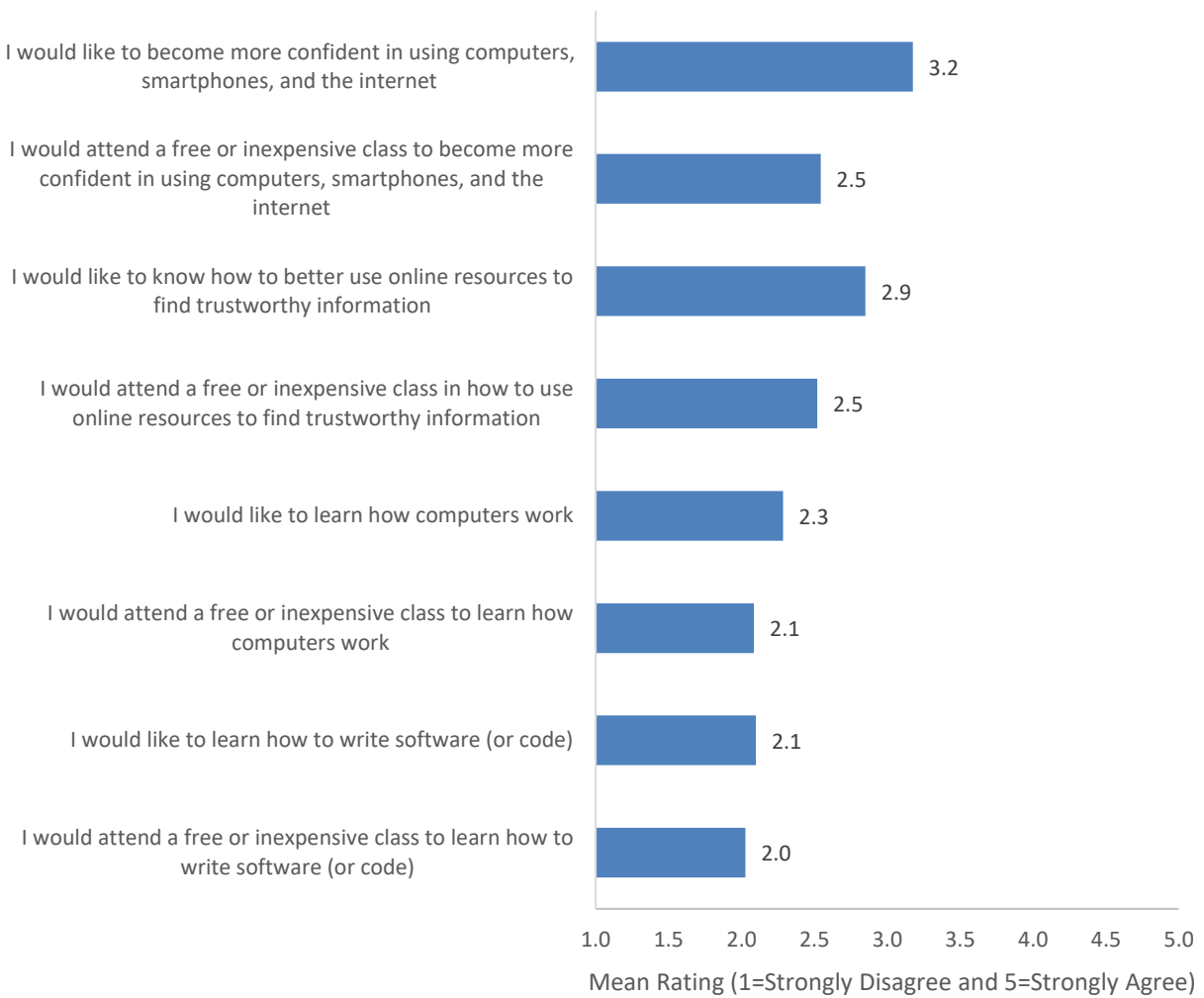
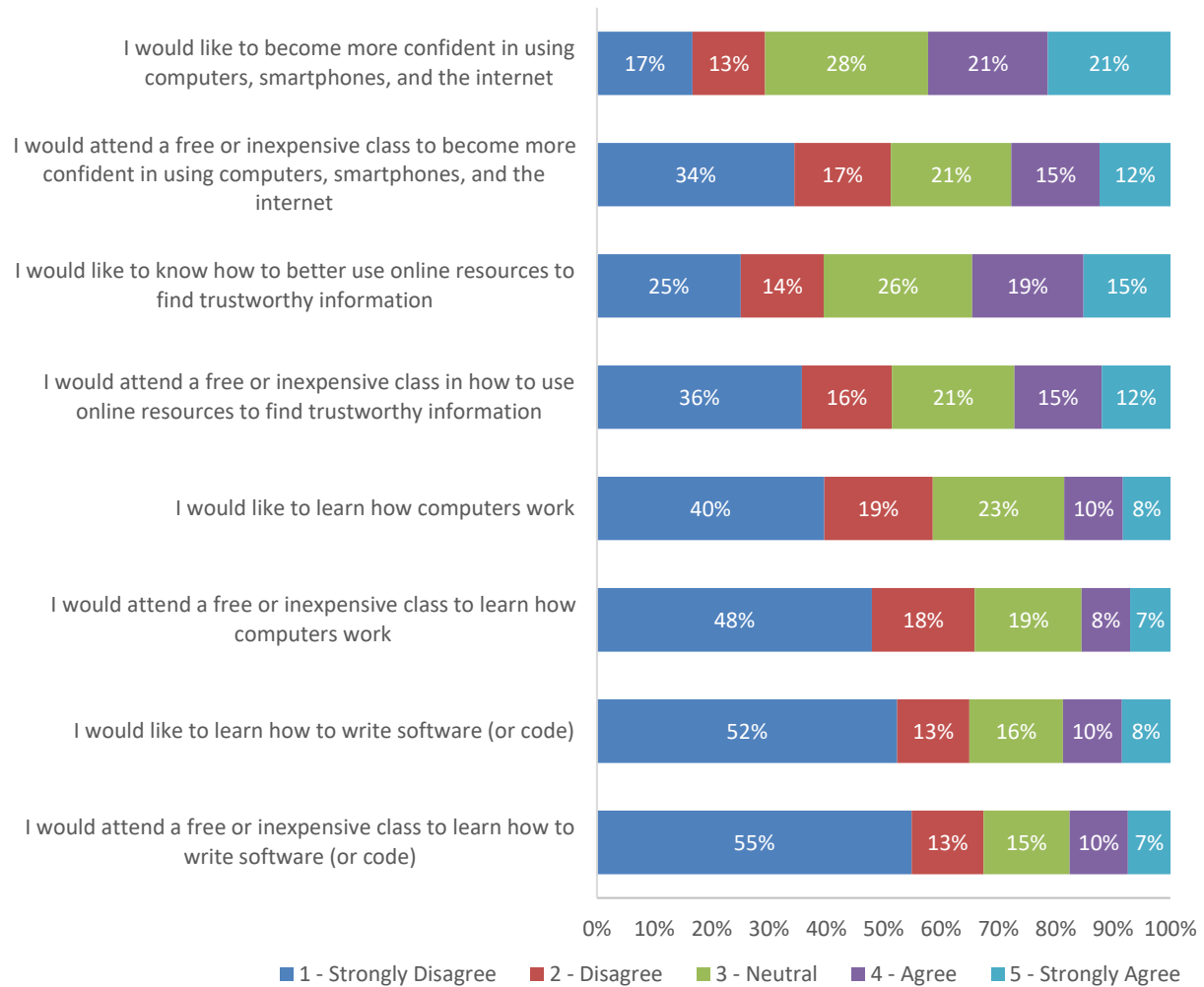
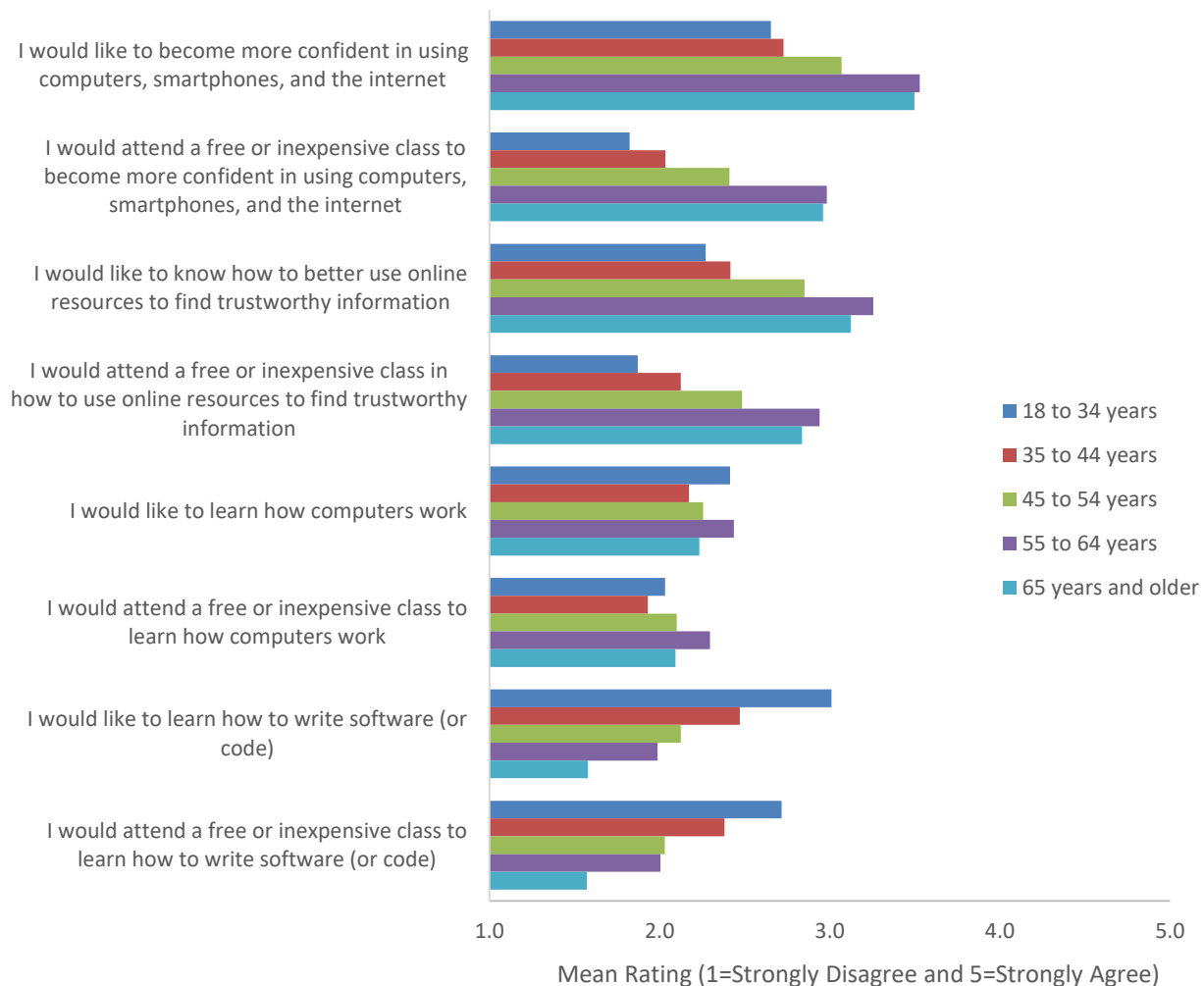


Figure 62: Agreement with Statements About Training Related to Computers and the Internet



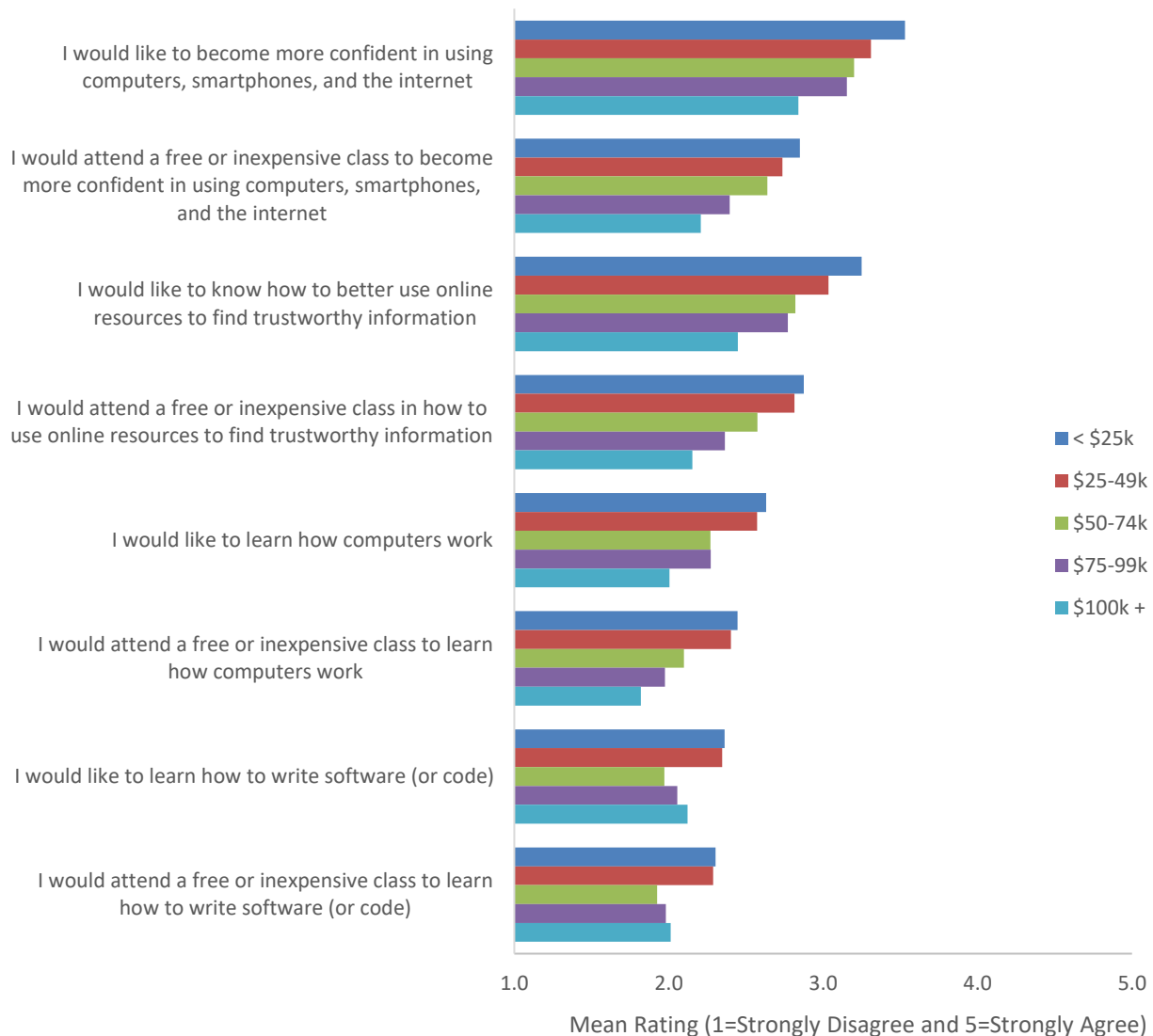
Interest in training varies significantly by age of respondent and by household income, among other demographics. As illustrated in Figure 63, those ages 55+ expressed more interest in learning about/attending classes about using computers, smartphones, and the internet or about using online resources to find trustworthy information, compared with younger respondents. Younger respondents expressed greater interest in learning how to write software/code and in attending a free or inexpensive class about learning how to write software/code.

Figure 63: Agreement with Statements About Training by Respondent Age



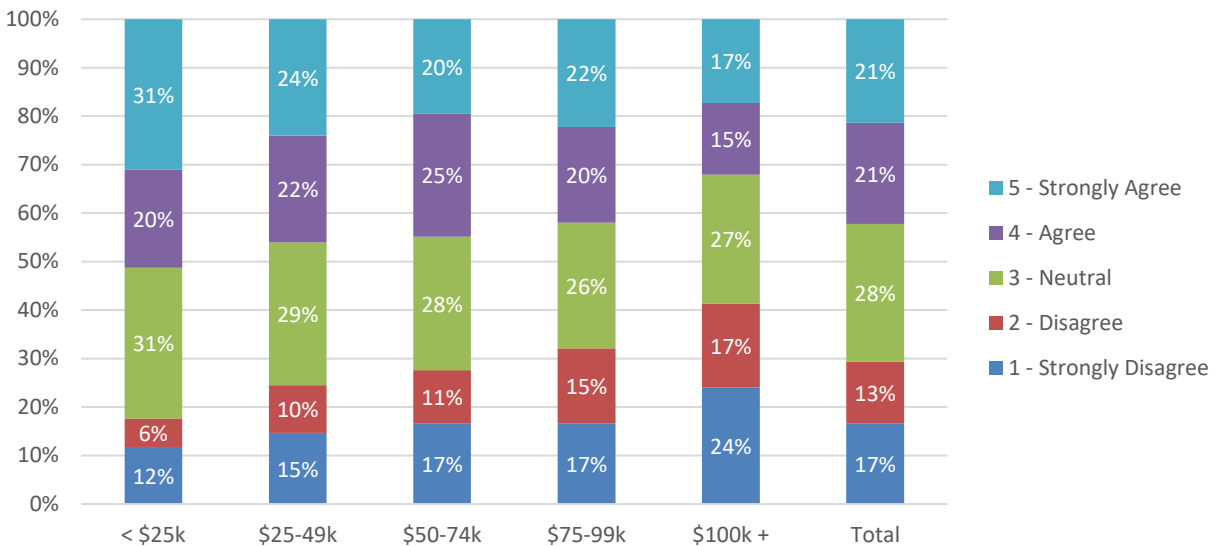
As illustrated in Figure 64, agreement with the various statements about computer and internet training are correlated with household income. Those in lower-income households were more likely to agree that they would like to learn more or would attend training.

Figure 64: Agreement with Statements About Training by Household Income



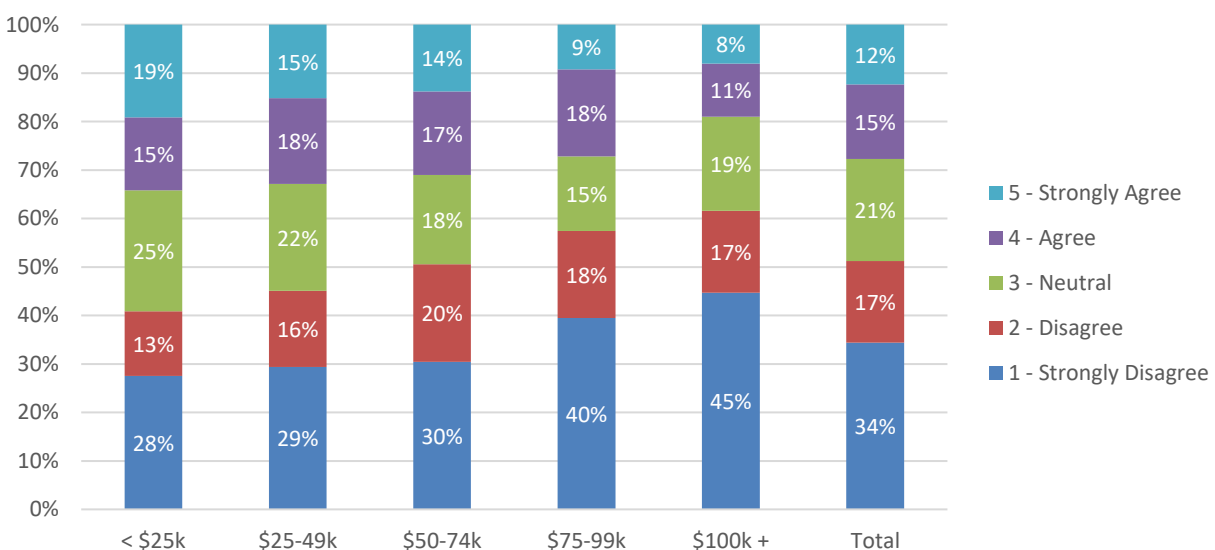
Respondents earning under \$100,000 per year were more likely to agree or strongly agree that they would like to become more confident in using computers, smartphones, and the internet. One-half of those in low-income households agreed or strongly agreed (see Figure 65).

Figure 65: Would Like to Be More Confident in Using Computers, Etc. by Household Income



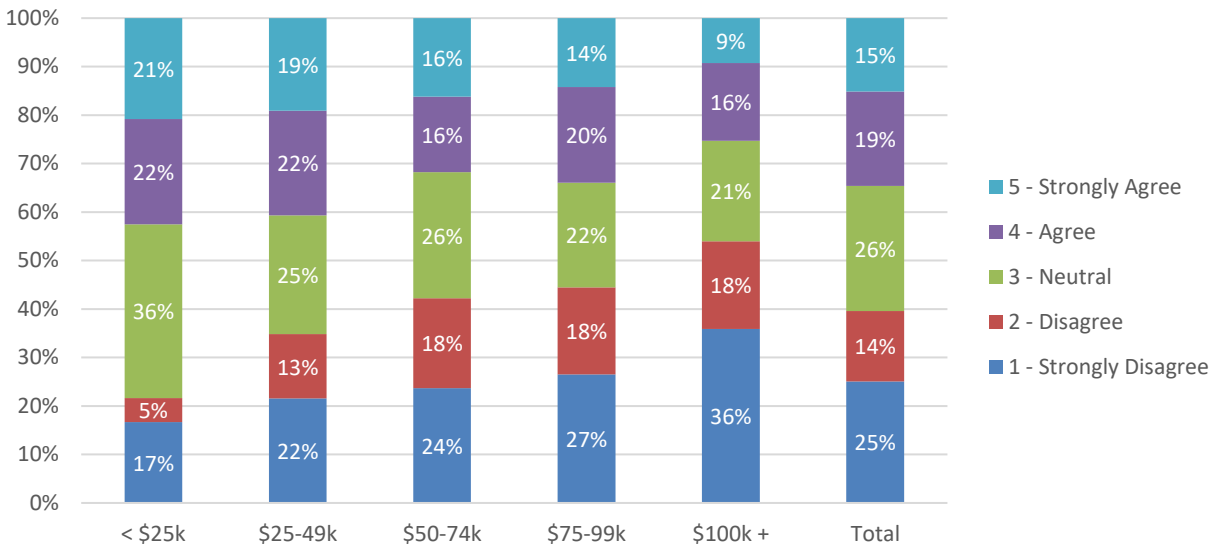
Overall, agreement about attending a free or inexpensive class to become more confident using computers, smartphones, and the internet was higher among those earning under \$75,000 per year. Approximately one-third of those in low-income households agreed or strongly agreed (see Figure 66).

Figure 66: Would Attend Class About Using Computers, Etc. by Household Income



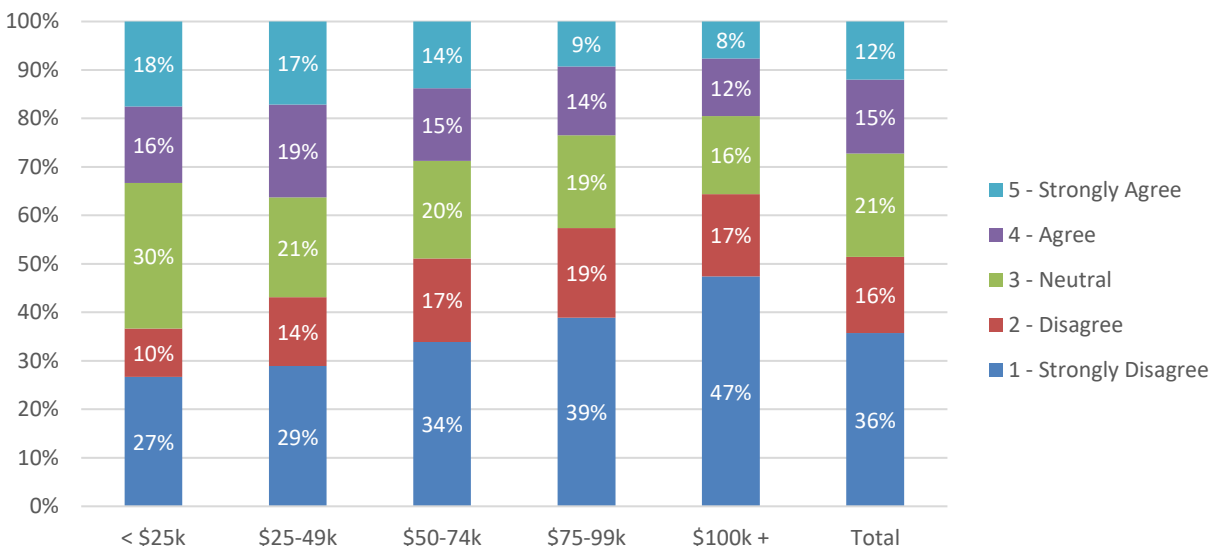
More than four in 10 of those earning under \$25,000 per year agreed or strongly agreed that they would like to know how to better use online resources to find trustworthy information. Overall agreement was lower for those earning \$100,000 or more, with 36 percent saying they strongly disagree (see Figure 67).

Figure 67: Would Like to Know How to Better Use Online Resources by Household Income



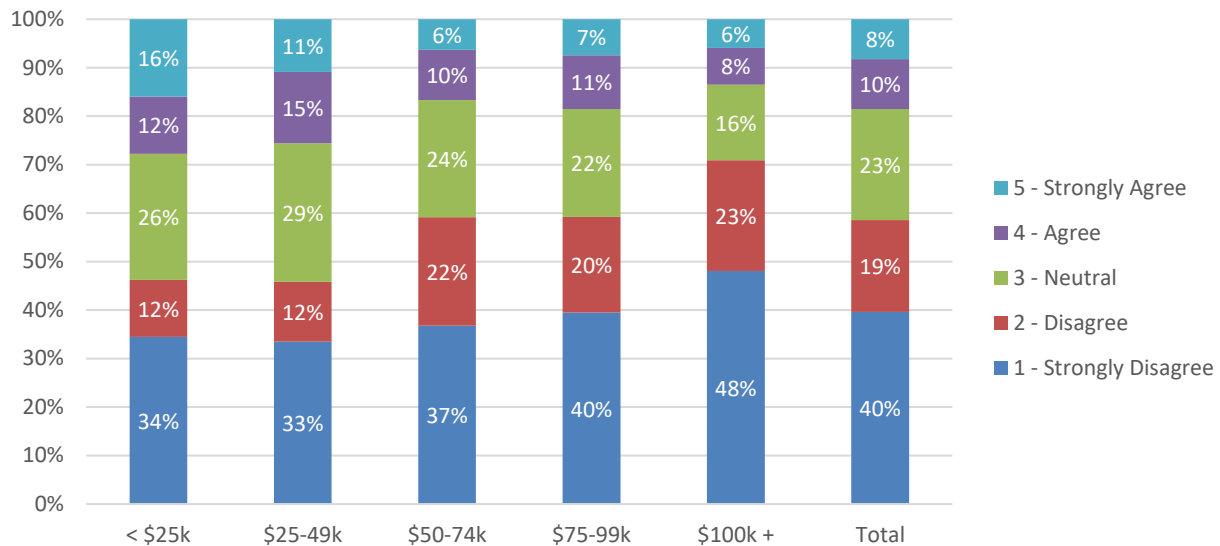
Overall agreement with attending a class about how to better use online resources decreases as household income increases. Approximately one-third of those earning under \$50,000 per year agreed or strongly agreed, while 47 percent of those earning over \$100,000 strongly disagreed (see Figure 68).

Figure 68: Would Like to Attend Class About Using Online Resources by Household Income



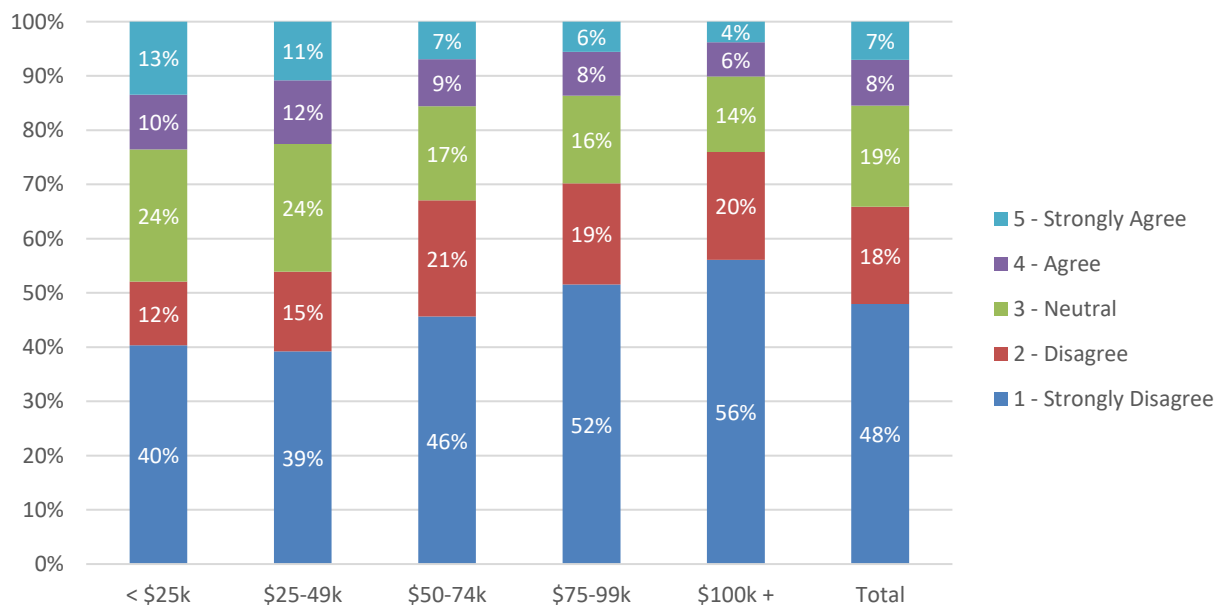
More than one-fourth of those earning under \$50,000 per year agreed or strongly agreed that they would like to learn how computers work. Nearly one-half of respondents earning \$100,000 or more per year strongly disagreed with this statement (see Figure 69).

Figure 69: Would Like to Learn How Computers Work by Household Income



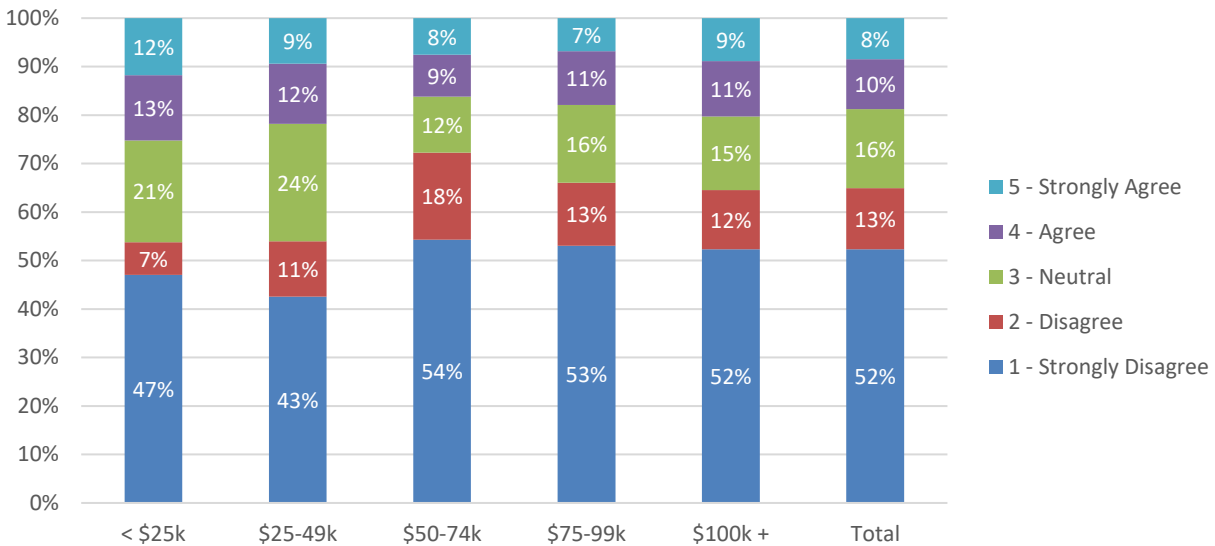
Nearly one-fourth of those earning under \$50,000 per year agreed or strongly agreed that they would like to attend a class to learn how computers work. Higher income households were more likely to strongly disagree with this statement (see Figure 70).

Figure 70: Would Like to Attend Class to Learn How Computers Work by Household Income



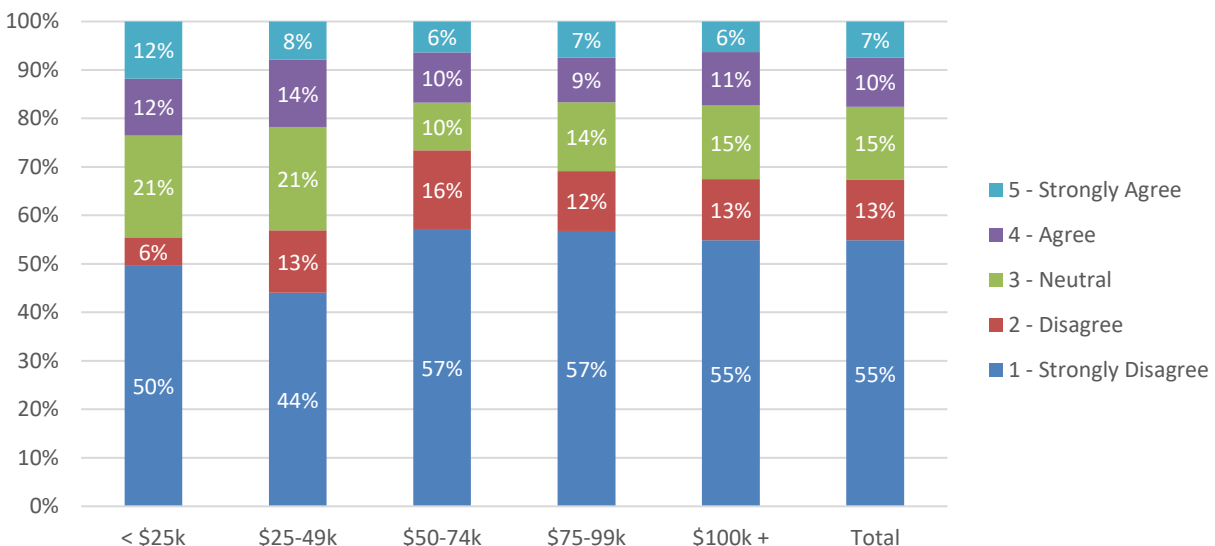
Those in households earning \$50,000 or more per year were more likely than those in lower-income households to disagree or strongly disagree that they would like to learn how to write software or code. One-fourth of those earning under \$25,000 said they agree or strongly agree (see Figure 71).

Figure 71: Would Like to Learn How to Write Software by Household Income



Nearly one-fourth of those earning under \$50,000 said they agree or strongly agree that they would attend a free or inexpensive class to learn how to write software. Those in households earning \$50,000 or more per year were more likely than those in lower-income households to disagree or strongly disagree with this statement (see Figure 72).

Figure 72: Would Attend Class to Learn How to Write Software by Household Income



4.2.2 Technology for Minor Children

4.2.2.1 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 73, while Figure 74 shows detailed responses. Few statistically significant differences in opinion by demographics were found; those differences are highlighted in this section.

**Figure 73: Agreement with Statements About Minor Children's Use of Technology
(Mean Ratings)**

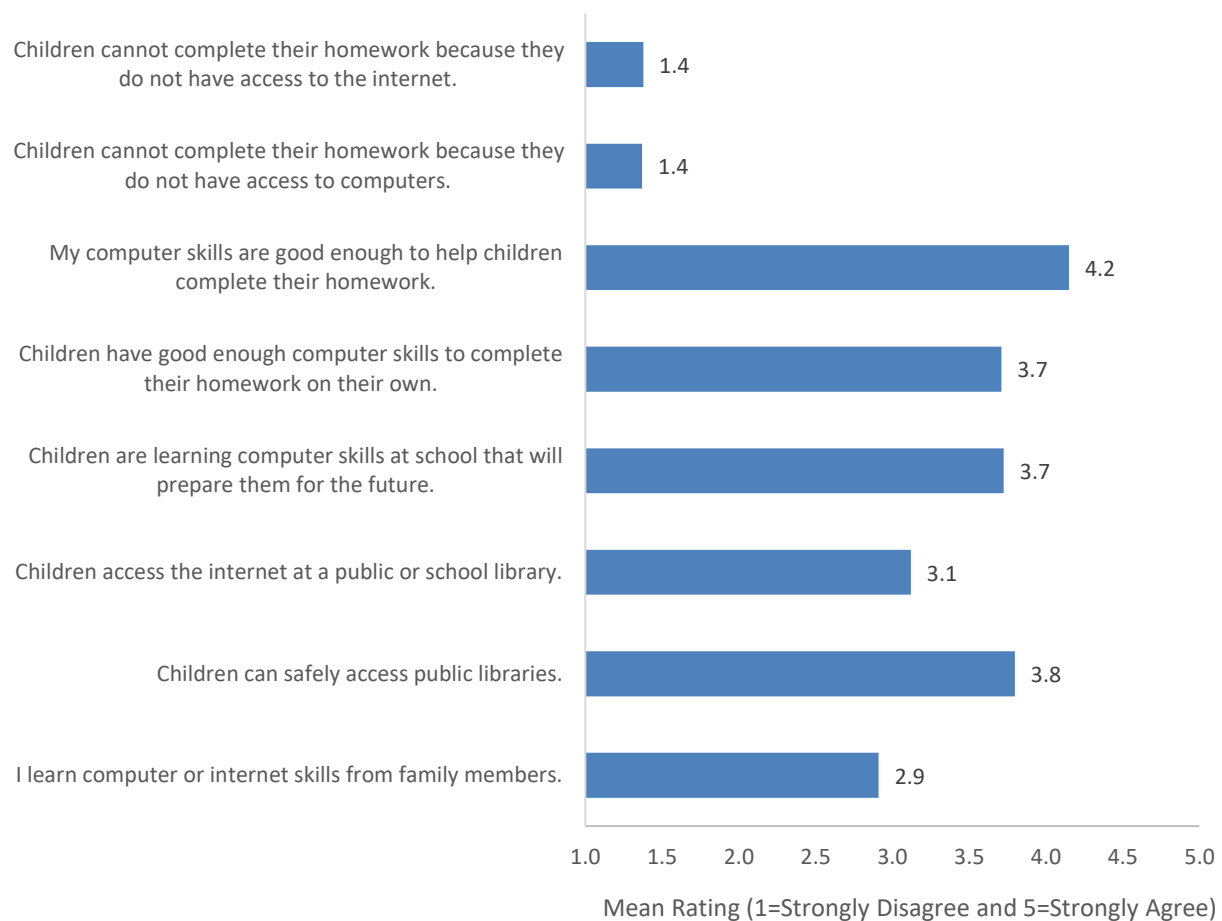
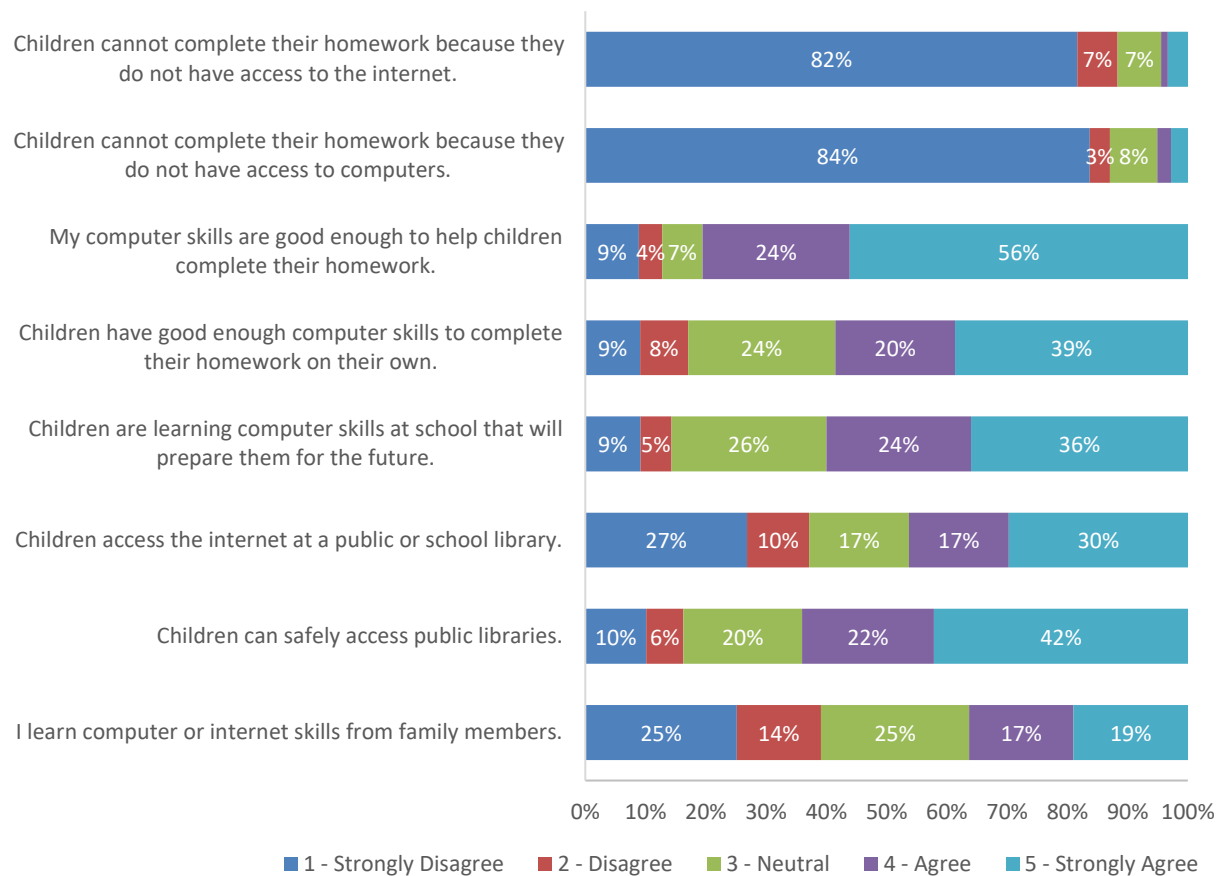


Figure 74: Agreement with Statements About Minor Children's Use of Technology

Most respondents strongly disagreed that their minor children cannot complete their homework because they do not have access to the internet (82%) or computers (84%). Eight in 10 respondents agreed or strongly agreed that their skills are good enough to help their children complete their homework, and six in 10 said their children have good enough computer skills for this task. More than one-third of respondents agreed or strongly agreed they learn computer or internet skills from family members.

Respondents were neutral overall on whether children can access the internet at a public or school library; 30 percent strongly agreed and 27 percent strongly disagreed. Nearly two-thirds agreed or strongly agreed that their minor children can safely access public libraries.

As illustrated in Figure 75, internet users with a connection below the minimum criteria (cellular/mobile, satellite, dial-up) were more likely than those with faster internet to agree that their minor children cannot complete their homework because they do not have access to the internet or to computers. One-fourth of those with a connection below the minimum criteria strongly agreed with these statements. Additionally, renters were more likely than home owners

to agree or strongly agree that access to computers or the internet is a barrier for completing homework (see Figure 76).

Figure 75: Minor Children Cannot Complete Homework Because They Do Not Have Access to Internet or Computers by Connectivity Group

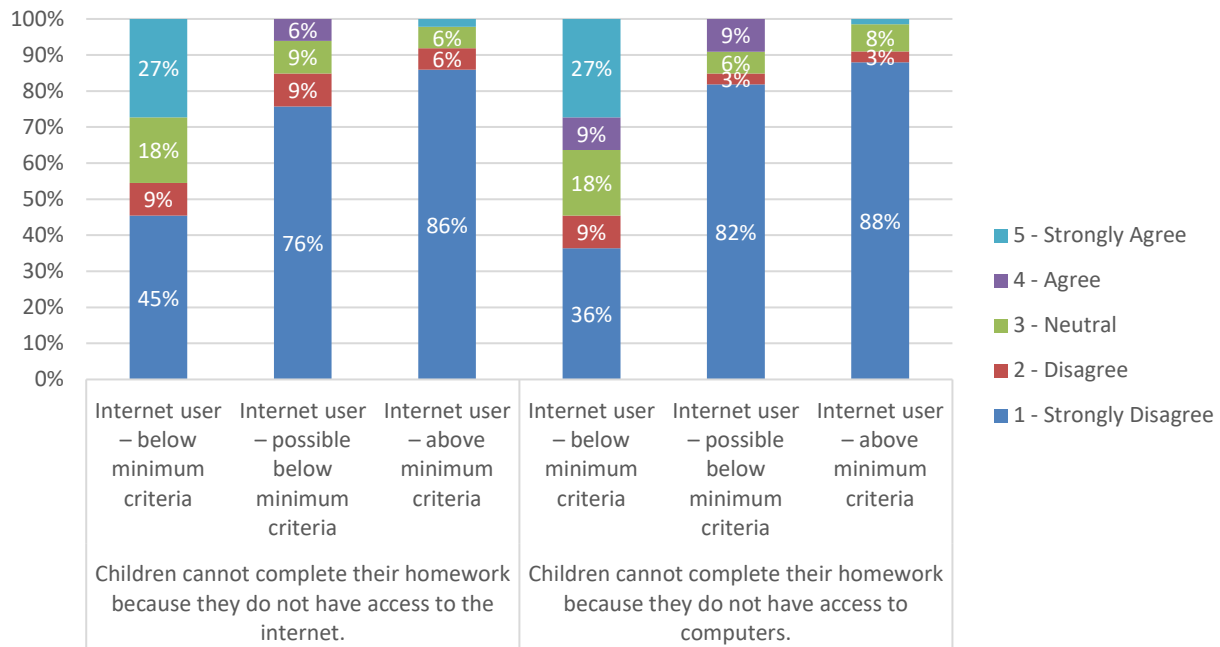
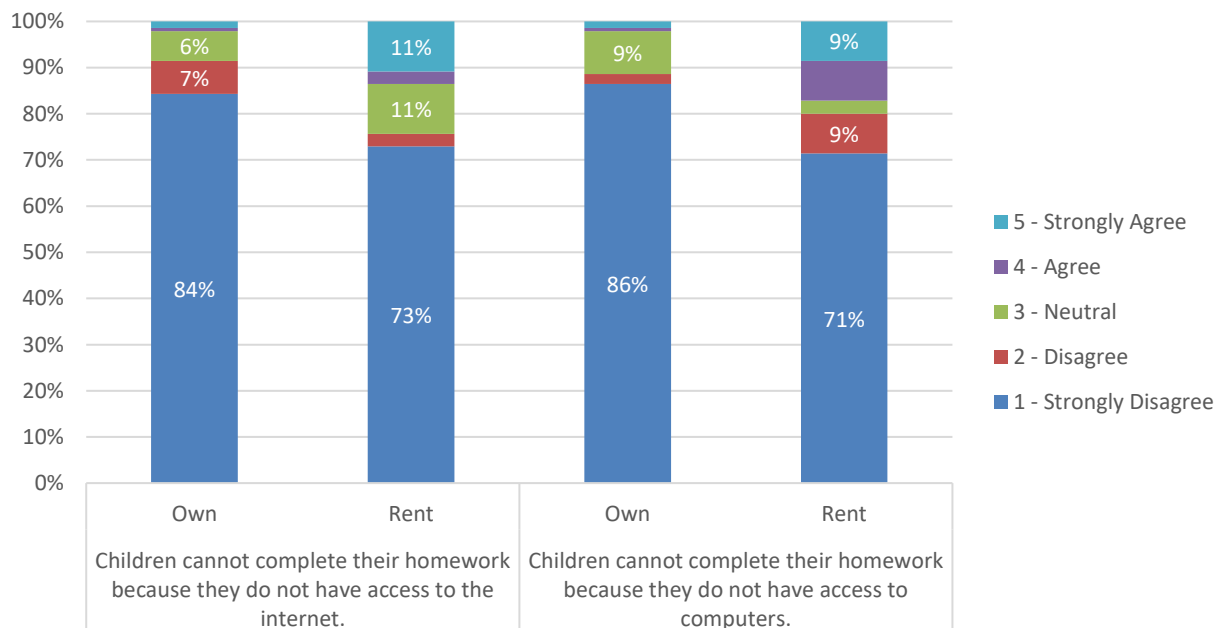
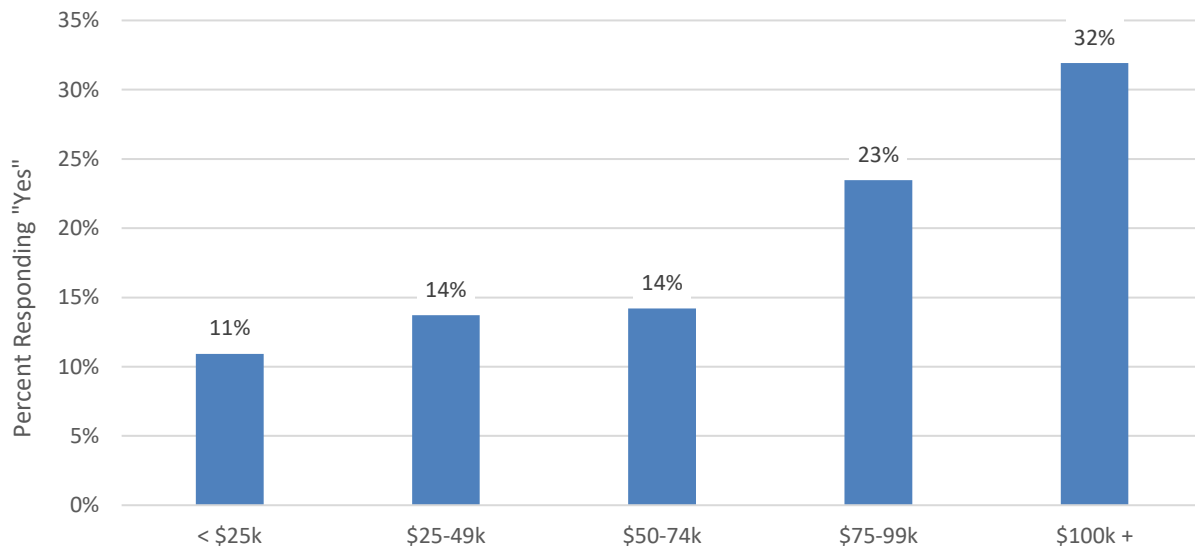


Figure 76: Minor Children Cannot Complete Homework Because They Do Not Have Access to Internet or Computers by Home Ownership



Most statements do not vary significantly by household income, as few low-income households have minor children in the home and were asked this set of questions (see Figure 77). In total, 13 individuals who earn less than \$25,000 per year have minor children under their care. Just two out of 11 responding low-income individuals strongly agreed their computer skills are good enough to help their minor children complete their homework.

Figure 77: Parent, Legal Guardian, or Caregiver For Any Child/Grandchild Under Age 18



4.2.2.2 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 78, while Figure 79 shows detailed responses. Few statistically significant differences in opinion by demographics were found; those differences are highlighted in this section.

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, respondents were neutral or somewhat disagreed that their children can avoid or minimize risks, but they agreed that they have the time and skills to protect their children or grandchildren from risks.

Nearly one-half of respondents strongly disagreed or disagreed that children have the skills to detect and avoid false or misleading information online or that they can effectively detect and avoid online financial scams or predators. Less than one-fourth of respondents agreed or strongly agreed with these statements.

Overall, respondents were split on whether children are able to avoid online bullying and if they are able to get help if it does occur. There is a segment of respondents who feel their children

cannot avoid online bullying by peers, with 38 percent disagreeing or strongly disagreeing with this statement. One-fourth of respondents disagreed or strongly disagreed that their children are able to get help with bullying.

Almost one-half of respondents strongly disagreed or disagreed that their children are able to avoid exposure to graphic violence or pornography online, and one-fourth were neutral. Only three in 10 respondents agreed or strongly agreed with this statement. More than one-half of respondents agreed or strongly agreed that their children are able to get help if exposed to graphic or sexual content, but one-fifth disagreed with this statement.

Although most respondents agreed (32%) or strongly agreed (26%) they are aware of the extent their children are exposed to online risks or harmful content, 27 percent disagreed or strongly disagreed. Also, 18 percent disagreed or strongly disagreed that they have the time and skills to protect their children from these risks, while 63 percent agreed or strongly agreed.

Figure 78: Agreement with Statements About Minimizing Online Risks (Mean Ratings)

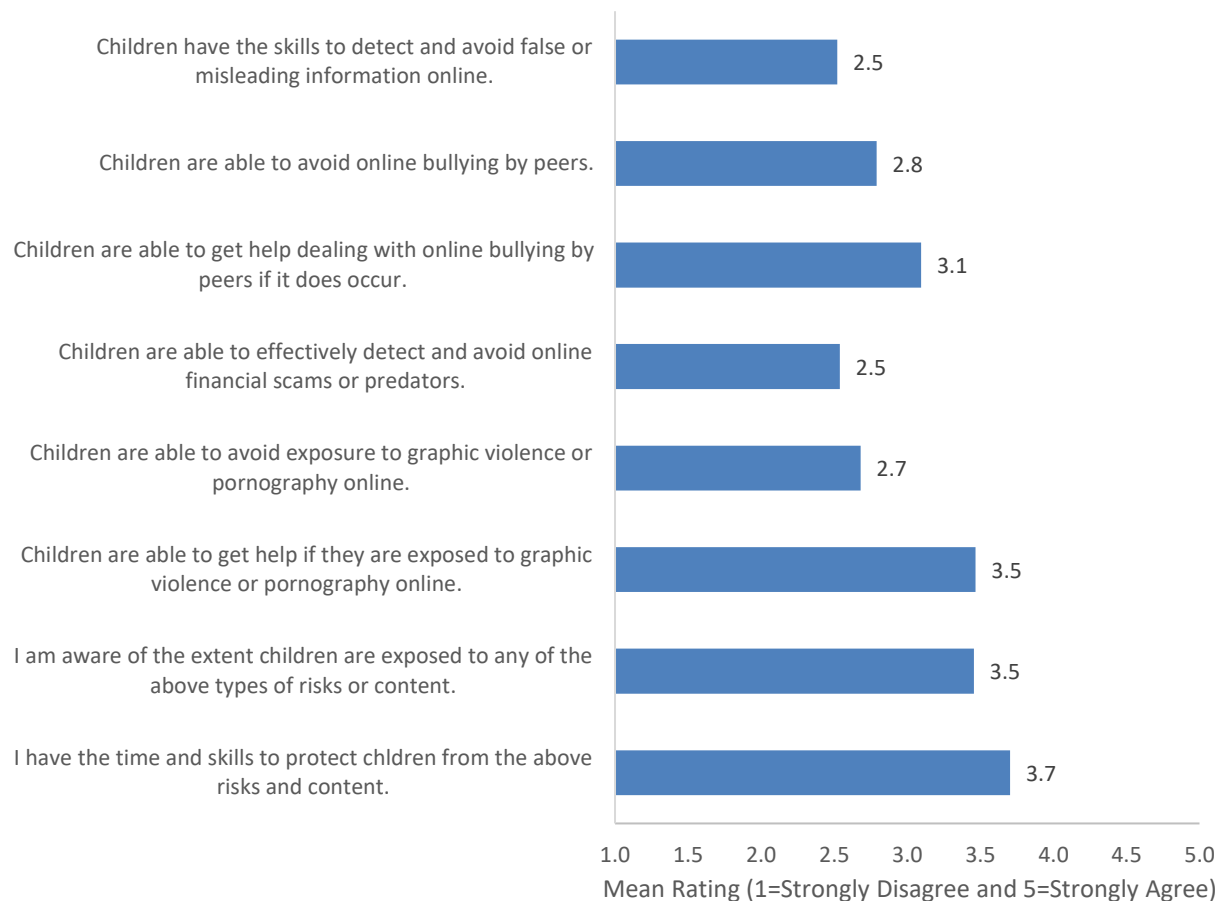
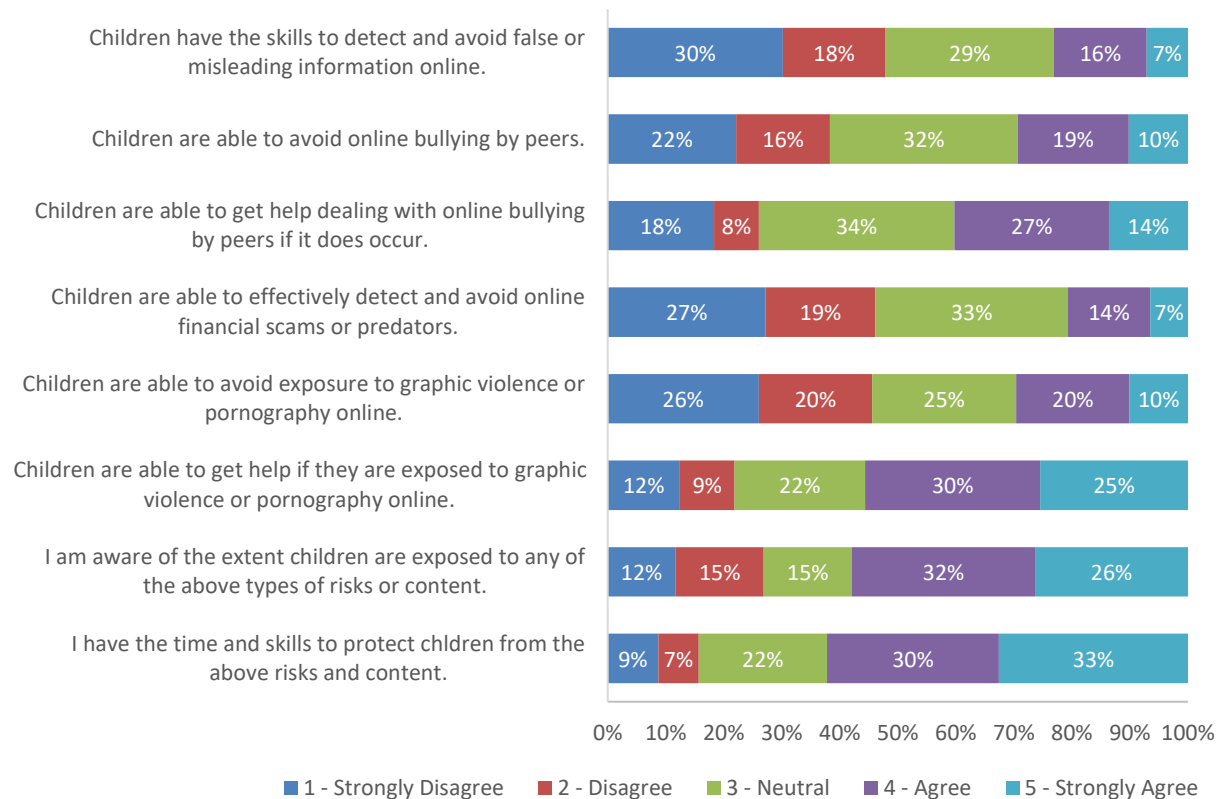
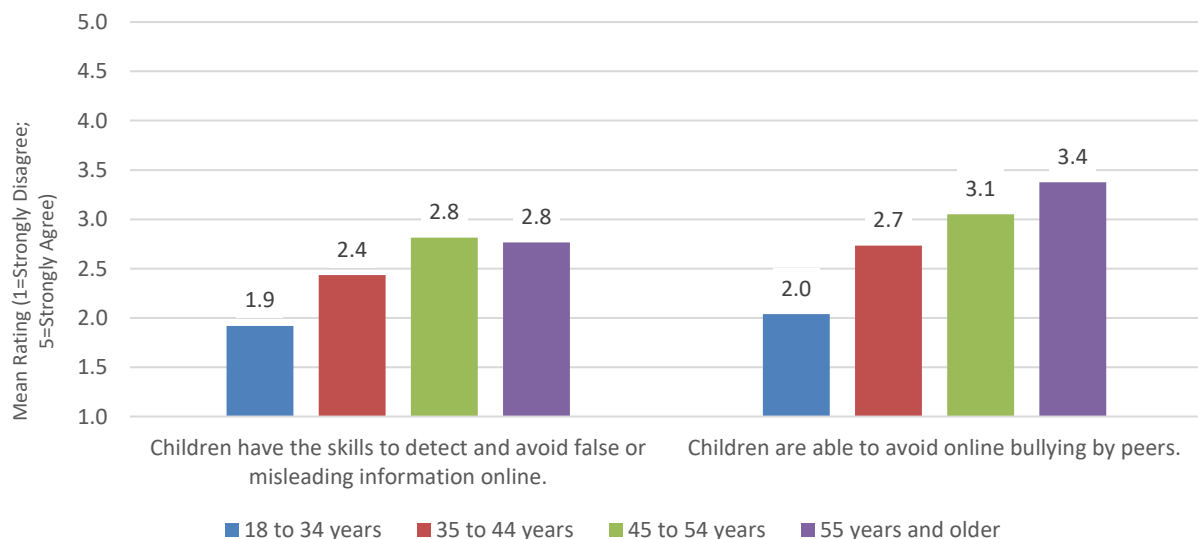


Figure 79: Agreement with Statements About Minimizing Online Risks



As illustrated in Figure 80, respondents ages 18 to 34 were less likely than older respondents to agree that their children have the skills to detect and avoid false or misleading information online and their children are able to avoid online bullying, possibly because of having younger children.

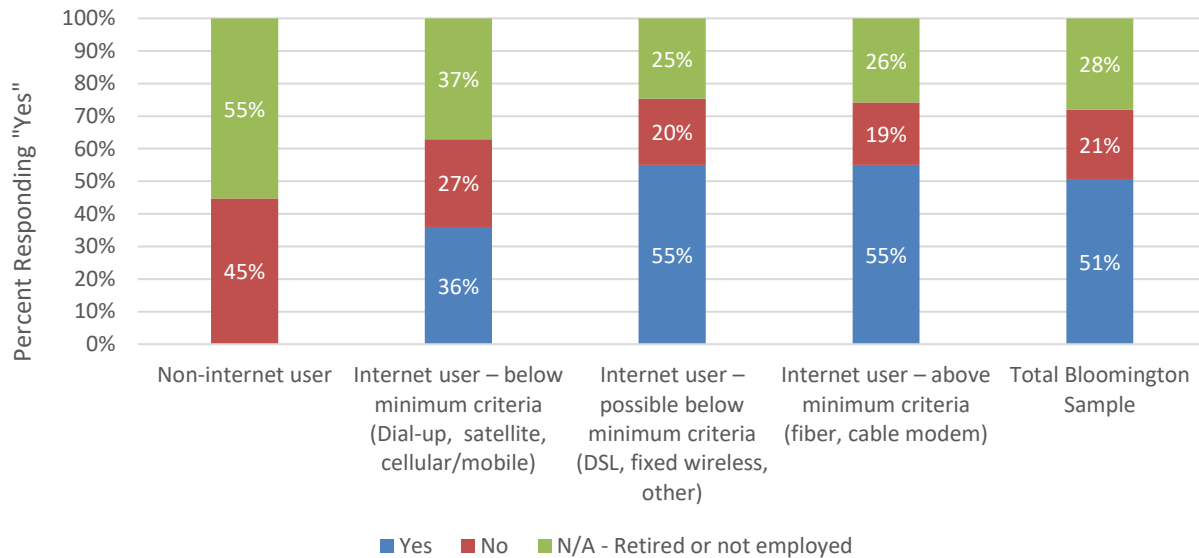
Figure 80: Agreement with Statements About Minimizing Online Risks by Respondent Age



4.2.3 Internet Use for Jobs/Careers

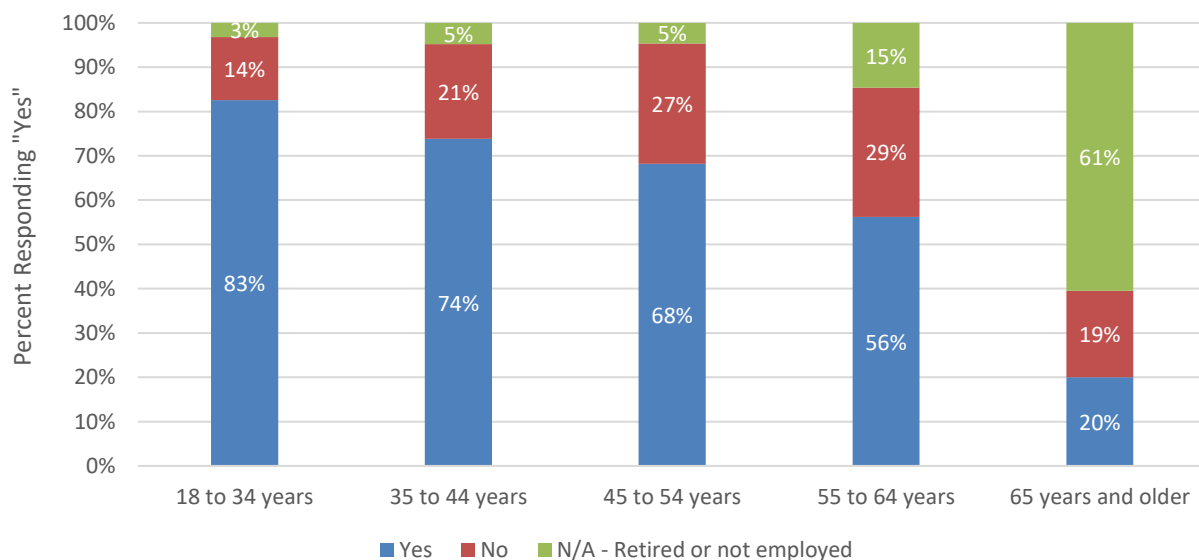
One-half of respondents said their job requires them to have internet access at home. More than one-third (36%) of internet users with below minimum criteria service said they need home internet for a job (see Figure 81).

Figure 81: Job Requires Homes Internet Access by Connectivity



Need for internet access for a job is highly associated with respondent age, as may be expected, with the majority of those ages 65+ retired or not employed (see Figure 82).

Figure 82: Job Requires Homes Internet Access by Respondent Age



Need for home internet access for a job is also correlated with education and household income. Less educated and lower-income respondents are less likely to have a need, although these groups are somewhat older than their counterparts (see Figure 83 and Figure 84). Six in 10 of those with at least a four-year college degree, and two-thirds of those earning \$100,000 or more, need home internet access for a job (see Figure 84).

Figure 83: Job Requires Homes Internet Access by Education Level

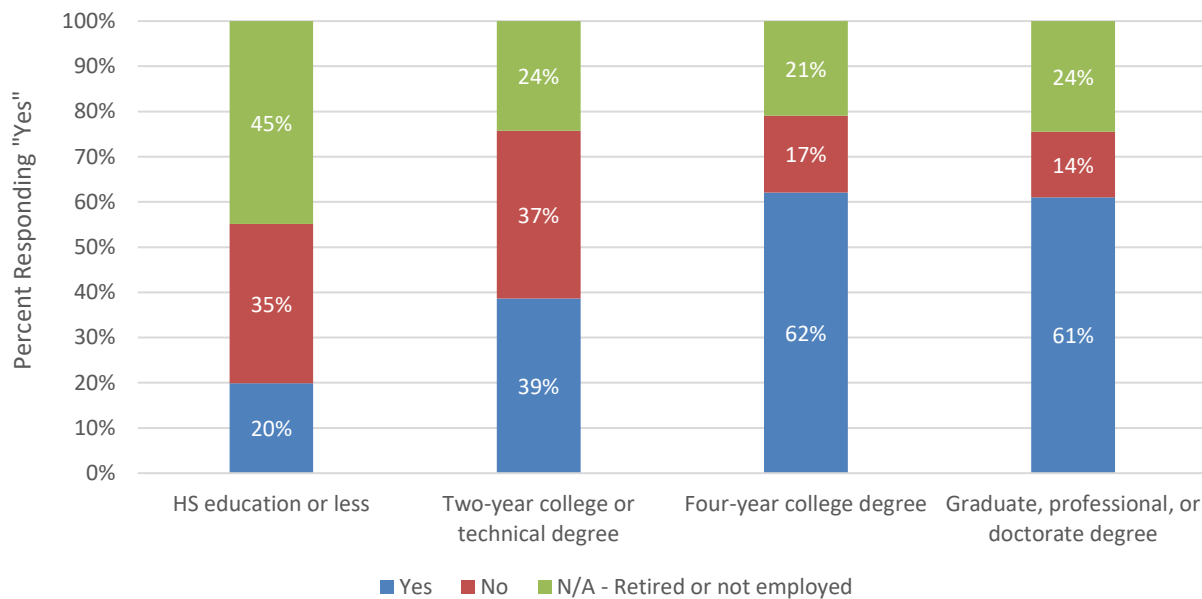
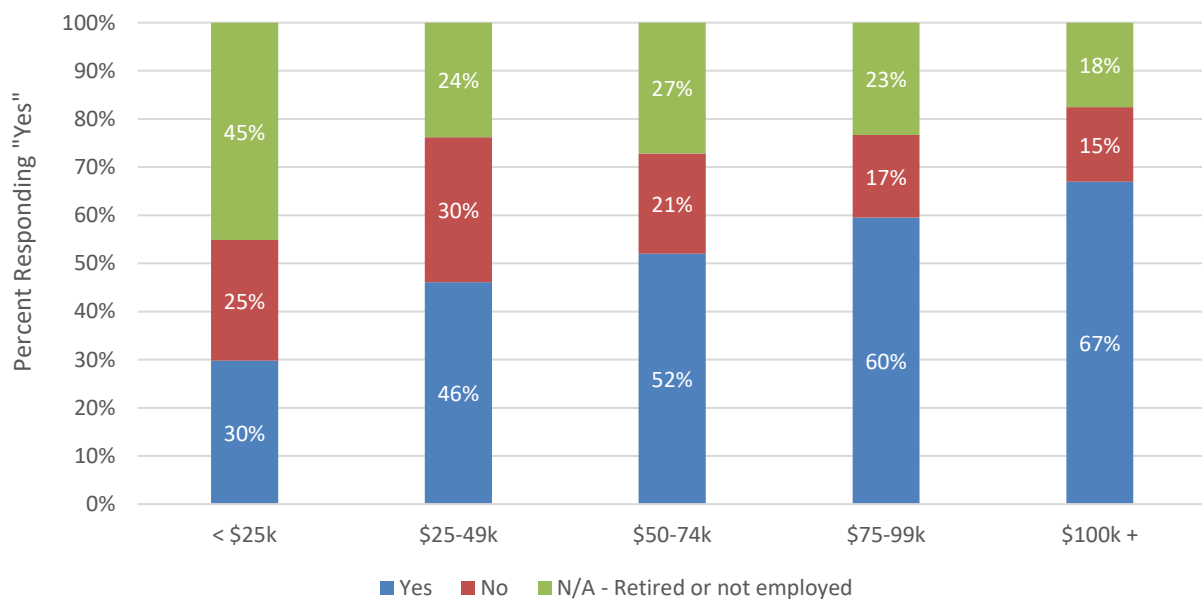
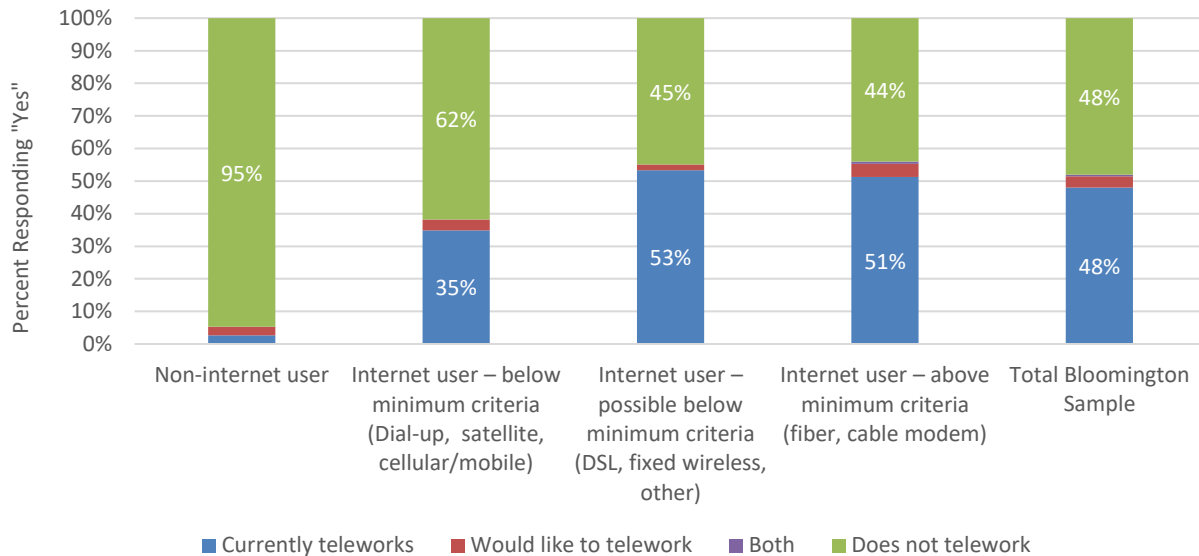


Figure 84: Job Requires Homes Internet Access by Household Income



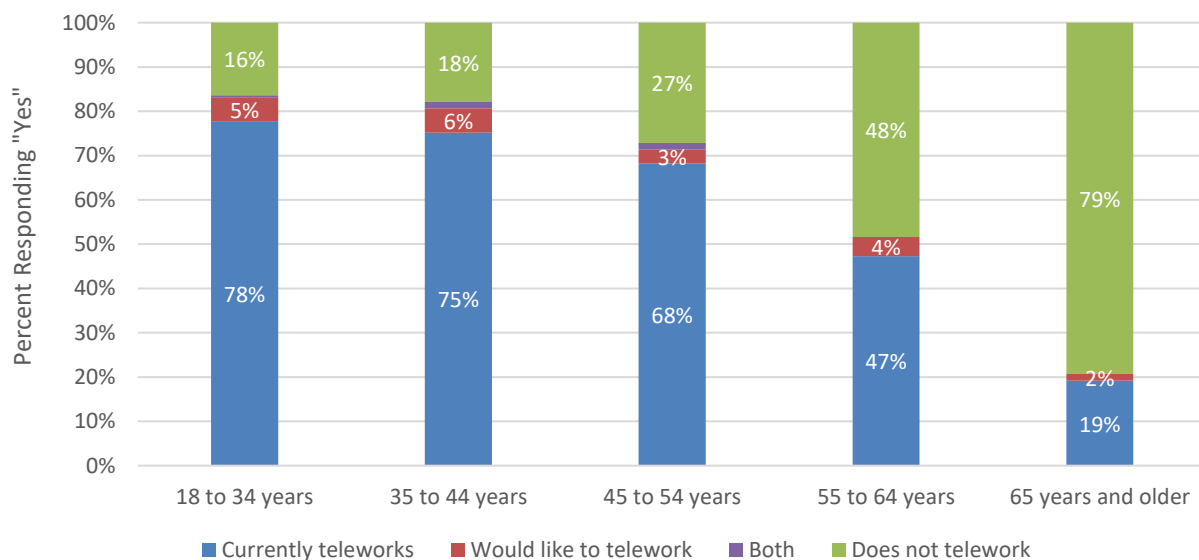
As shown in Figure 85 below, 48 percent of respondents indicated that someone in their household already teleworks from home, and another three percent would like to telework. More than one-third (35%) of respondents with an internet connection below minimum criteria currently teleworks/has a household member who teleworks.

Figure 85: Household Member Teleworking



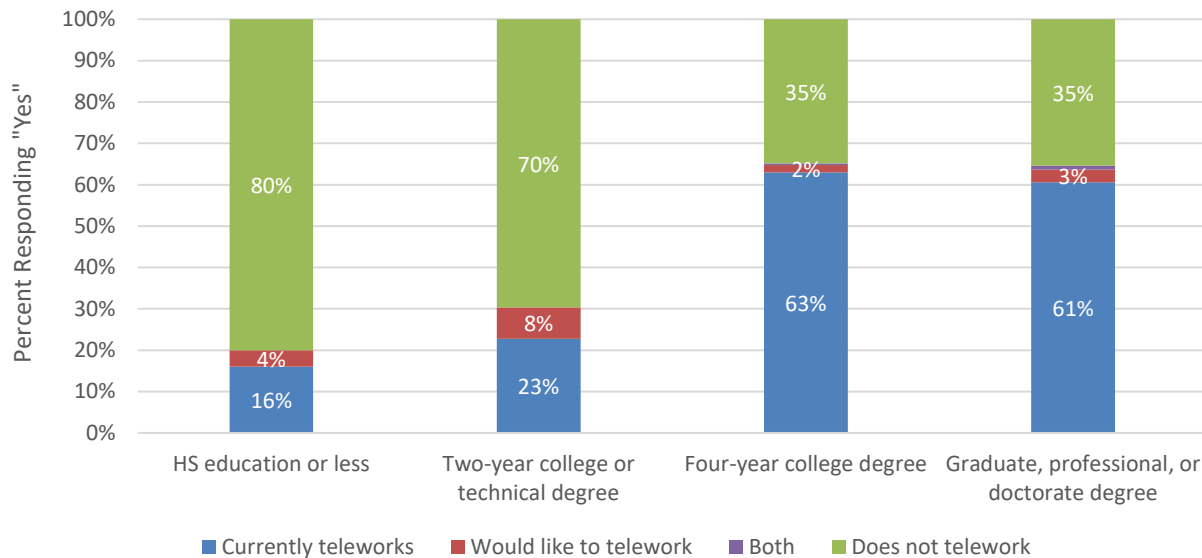
Respondents under age 55 are more likely than older respondents to telework or have a household member who would like to telework (see Figure 86).

Figure 86: Teleworking Status by Respondent Age



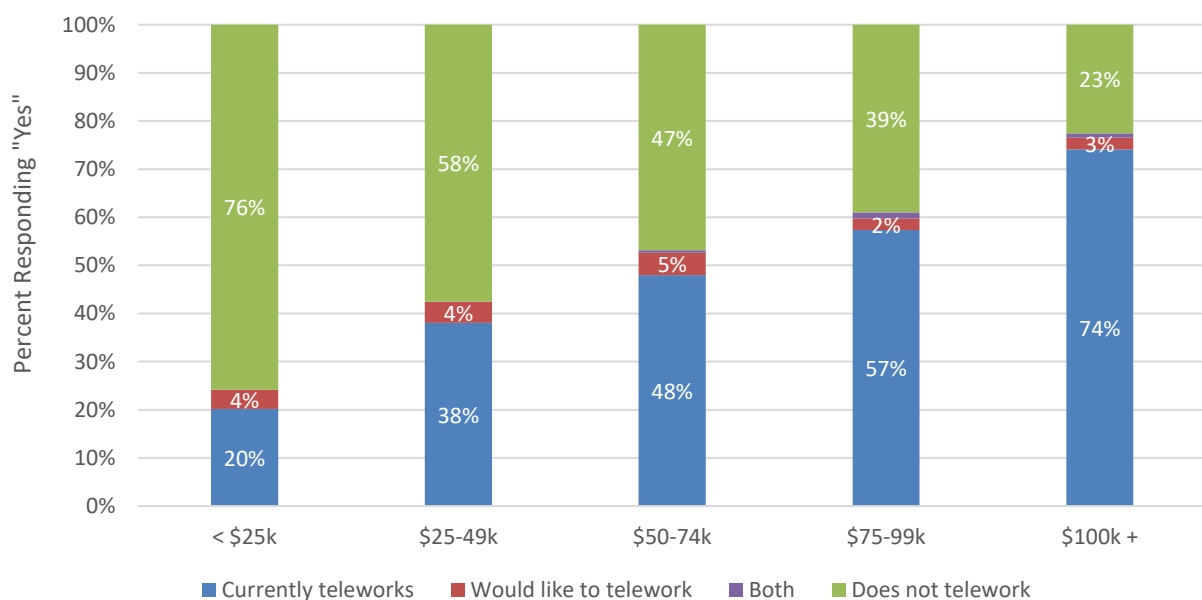
Respondents with at least a four-year college degree are more likely than those with a lower level of education to currently telework or to have a household member who teleworks (see Figure 87).

Figure 87: Teleworking Status by Education



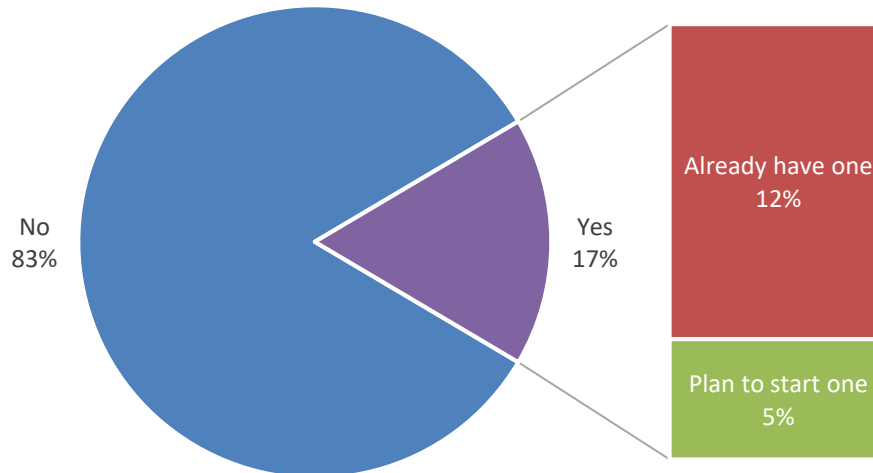
Additionally, the proportion of households with a member who currently teleworks increases as household income increases, going from 20 percent of those earning less than \$25,000 to 74 percent of those earning \$100,000 or more (see Figure 88).

Figure 88: Teleworking Status by Household Income



Almost one-fifth of respondents either have a home-based business or are planning to start one within the next three years, as illustrated in Figure 89.

Figure 89: Own or Plan to Start a Home-Based Business



A high-speed data or internet connection is extremely important for most of those who telework or would like to telework (90 percent) and for those with a planned or existing home-based business (78 percent), as shown in Figure 90 and Figure 91. Intuitively, those who do not telework or have a planned/existing home-based business find the need for high-speed internet for these aspects to be less important.

Figure 90: Importance of High-Speed Internet for Teleworking

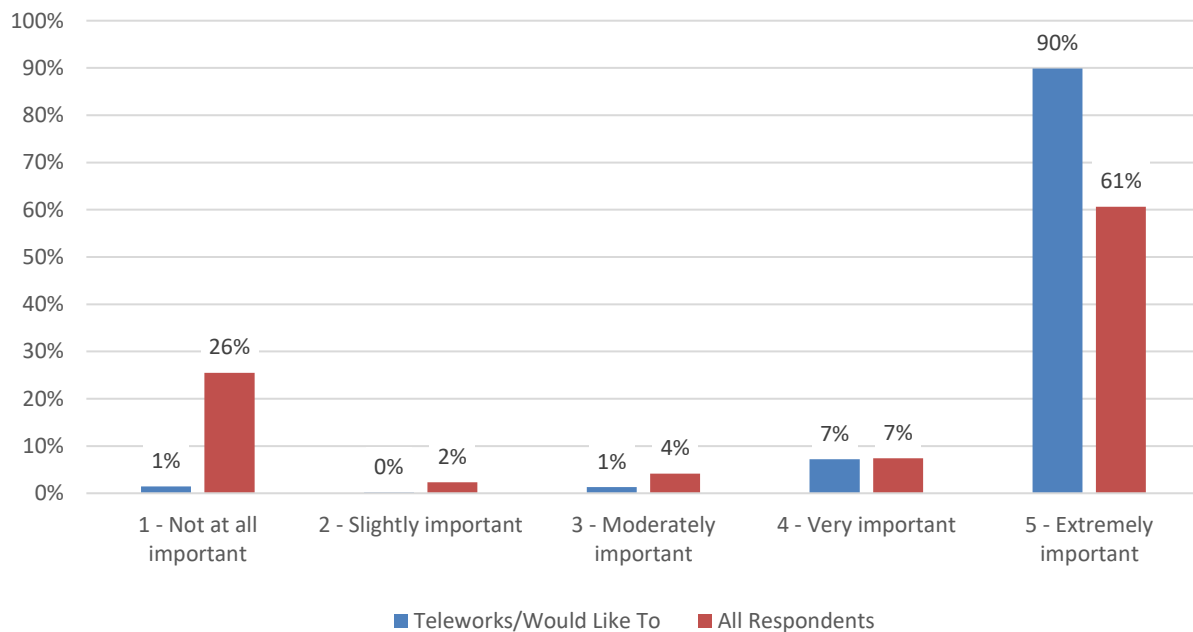
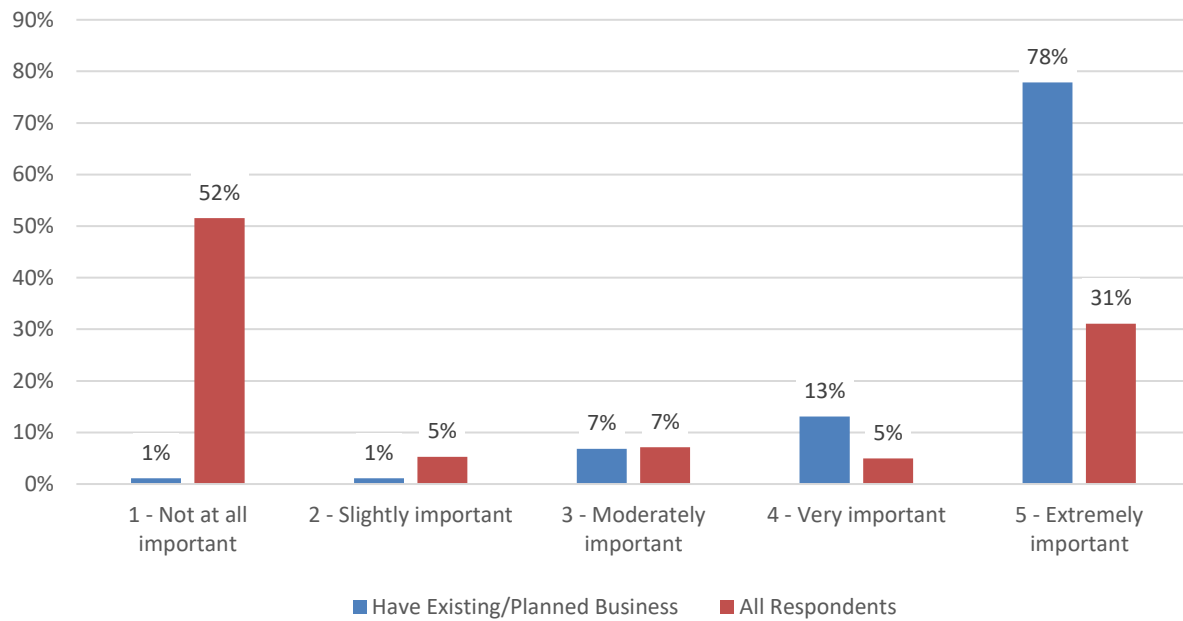


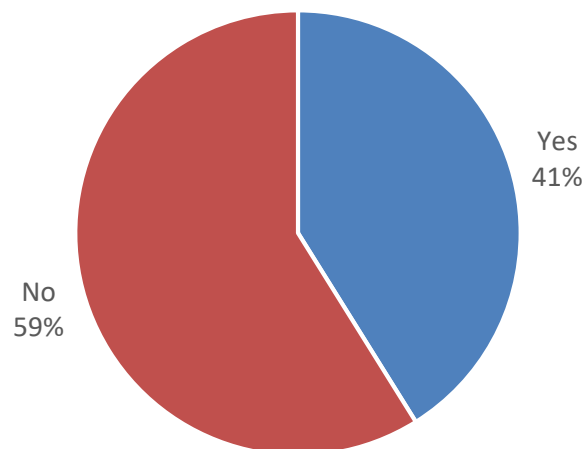
Figure 91: Importance of High-Speed Internet for Home-Based Business



4.2.4 Internet Use for Education

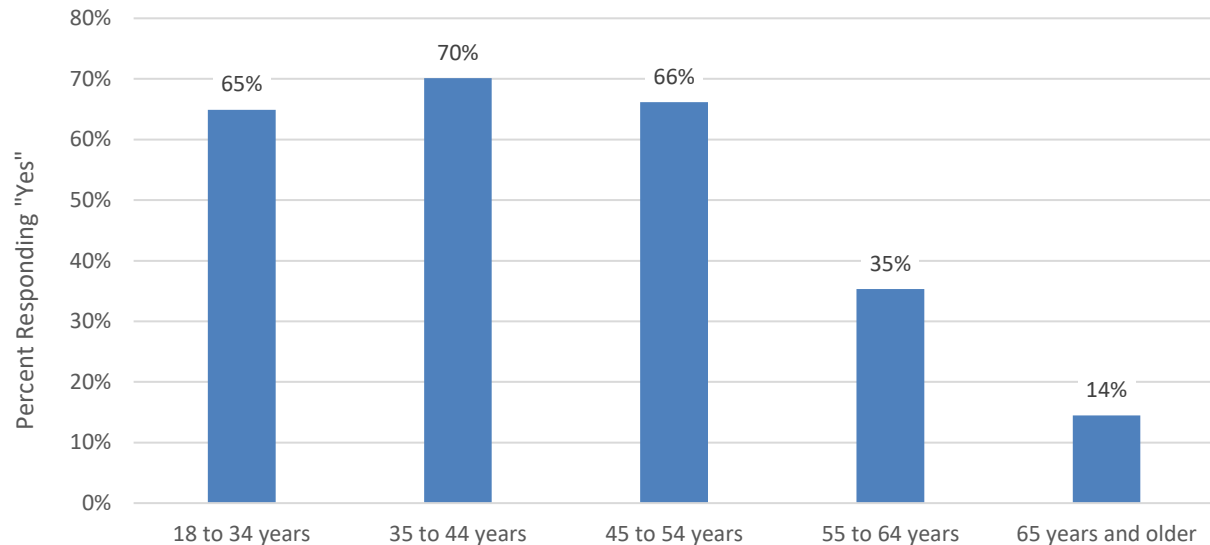
Respondents were asked if they or a household member use an internet connection for educational purposes, such as completing assignments, research, or study related to coursework or formal education. Overall, 41 percent of respondents reported using the internet for educational reasons (see Figure 92). Just nine percent of all respondents use the internet for homeschooling.

Figure 92: Use of Internet for Educational Purposes



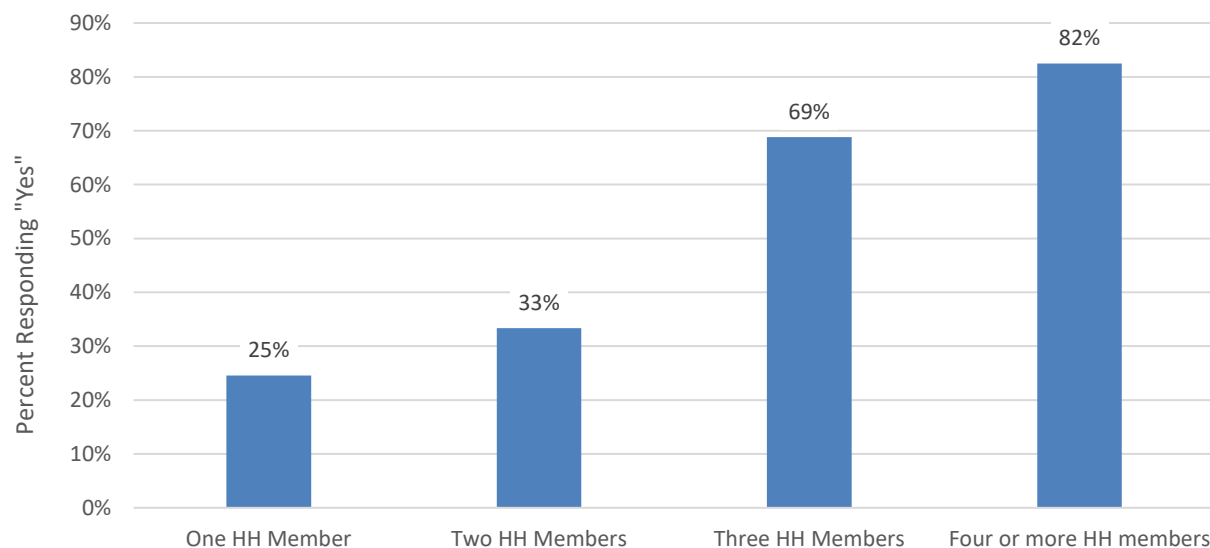
Use of the internet for educational purposes is lower for respondents ages 55 and older. Nearly two-thirds of those ages 18 to 34 years use the internet for educational purposes (see Figure 93).

Figure 93: Use of Internet for Educational Purposes by Respondent Age



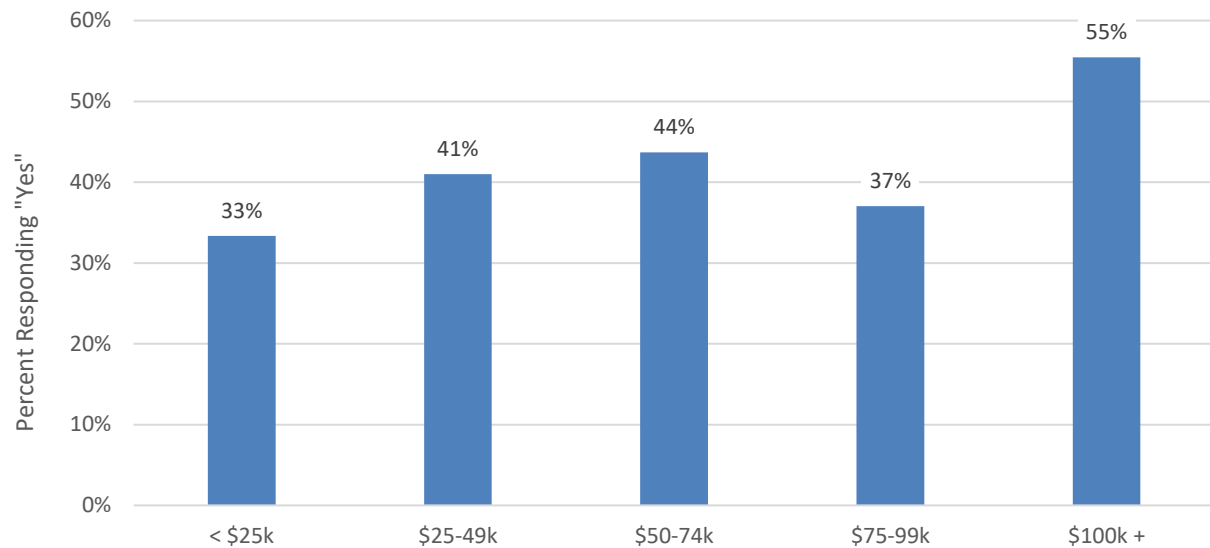
Use of the internet for educational purposes is also correlated with the number of people residing in the household (see Figure 94). Just 25 percent of those who live alone use the internet for educational purposes, compared with 82 percent of respondents in households with four or more people. Households with multiple family members are also more likely to have children in them.

Figure 94: Use of Internet for Educational Purposes by Household Size



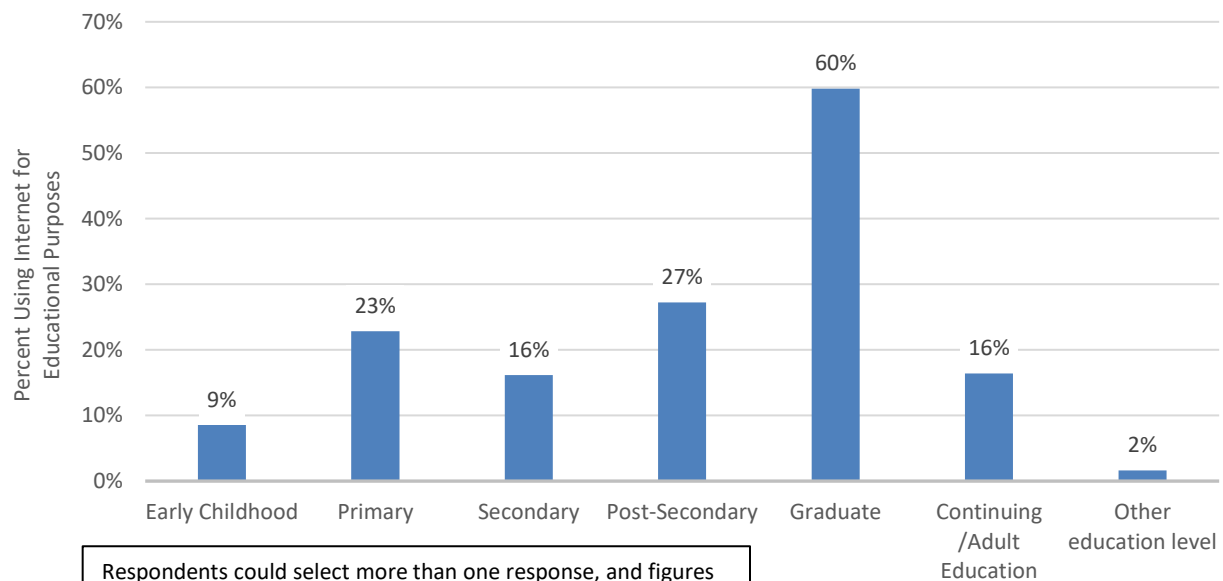
Respondents with a household income of \$100,000 or more are the most likely to use the internet for educational purposes, as shown in Figure 95. One-third of low-income households use the internet for educational purposes.

Figure 95: Use of Internet for Educational Purposes by Household Income



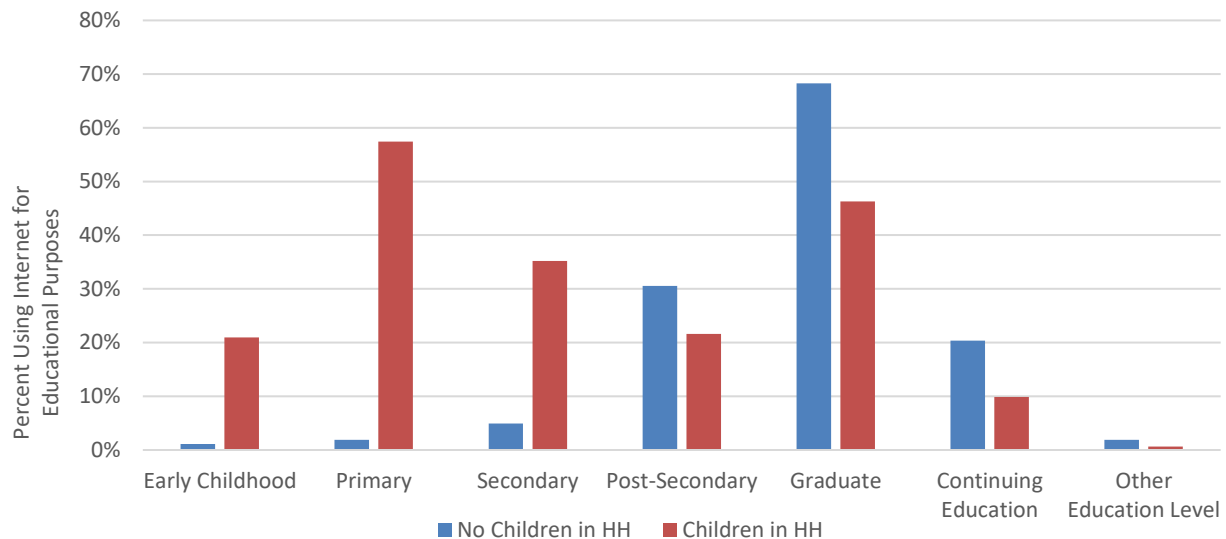
Respondents use the internet across a range of education levels. Among those who use the internet for educational purposes, 60 percent use it for graduate level education (see Figure 96).

Figure 96: Education Level for Which Internet Connection Is Used



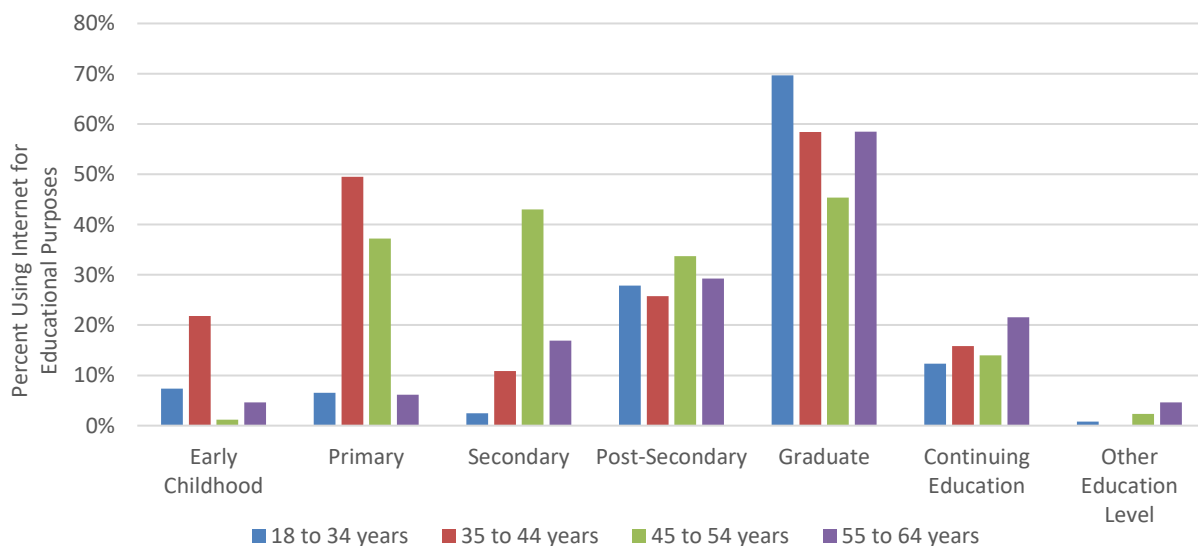
Use of the internet for educational purposes is related to presence of children in the household, as might be expected, particularly for early childhood, primary, and secondary education needs. Those without children in the home are more likely to use the internet for post-secondary or graduate education (see Figure 97).

Figure 97: Education Level for Which Internet Connection Is Used by Children in Household



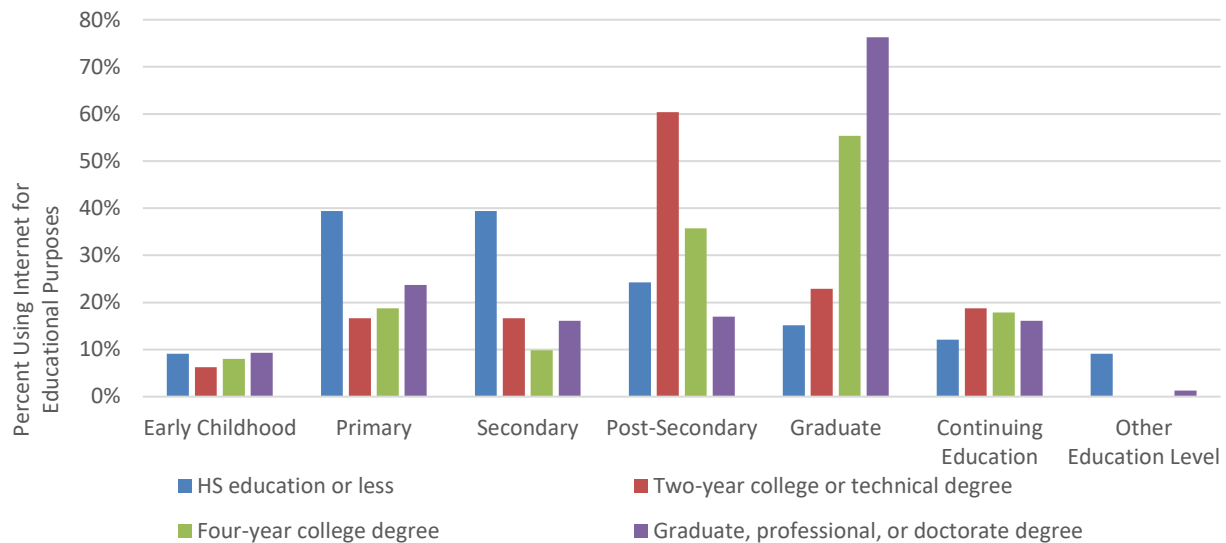
Similarly, use of the internet for educational purposes is correlated with respondent age, as illustrated in Figure 98. Respondents between ages 35 to 54 are more likely than older and younger respondents to use the internet for early childhood and primary education. Use of the internet for graduate education is highest among those ages 18 to 34 years.

Figure 98: Education Level for Which Internet Connection Is Used by Respondent Age



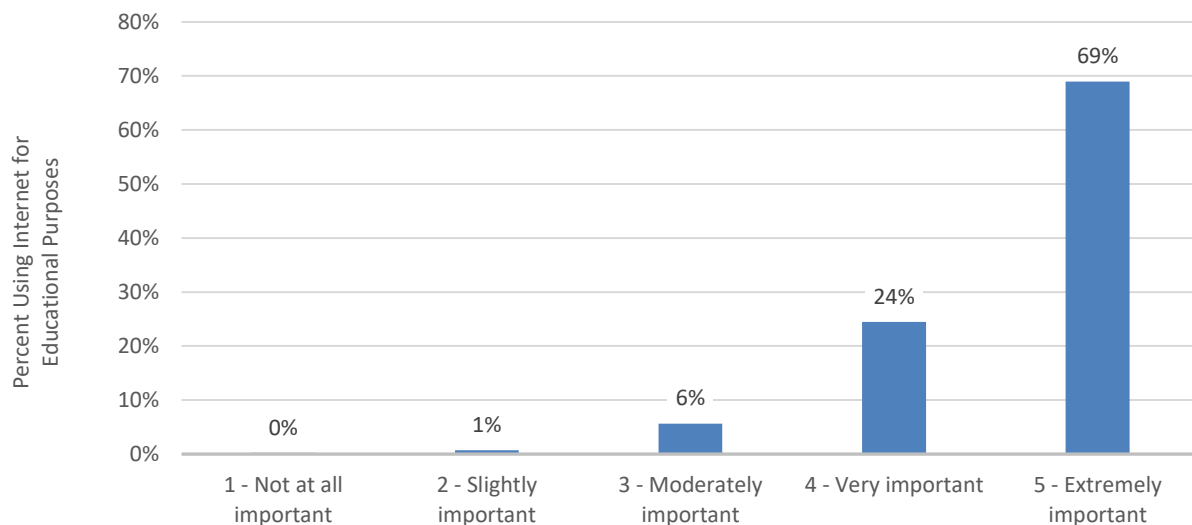
The education for which an internet connection is being used in the household is also correlated with the respondent's education level (see Figure 99). Those with a high school education or less are more likely than others to use the internet for primary and secondary education. Those with a four-year college degree or a graduate, professional, or doctorate degree are more likely than others to use the internet for graduate education.

Figure 99: Education Level for Which Internet Connection Is Used by Household Income



Among those who use the internet for educational purposes, 69 percent said a high-speed internet connection is extremely important and 24 percent said it is very important for their education needs (see Figure 100).

Figure 100: Importance of High-Speed Internet for Education Needs



4.2.5 Respondent Opinions

Respondents were asked their opinions about the City’s role in providing or promoting broadband communications services within the area. Figure 101 illustrates the mean ratings, while Figure 102 provides detailed responses to each portion of the question.

Figure 101: Opinions About the Role(s) for City of Bloomington (Mean Ratings)

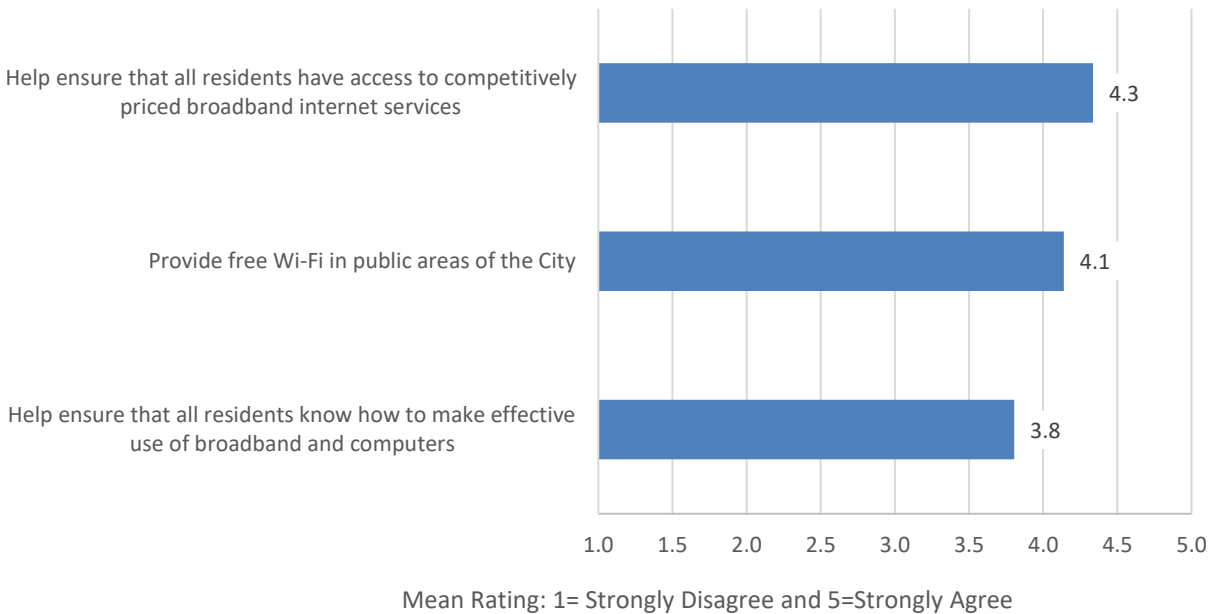
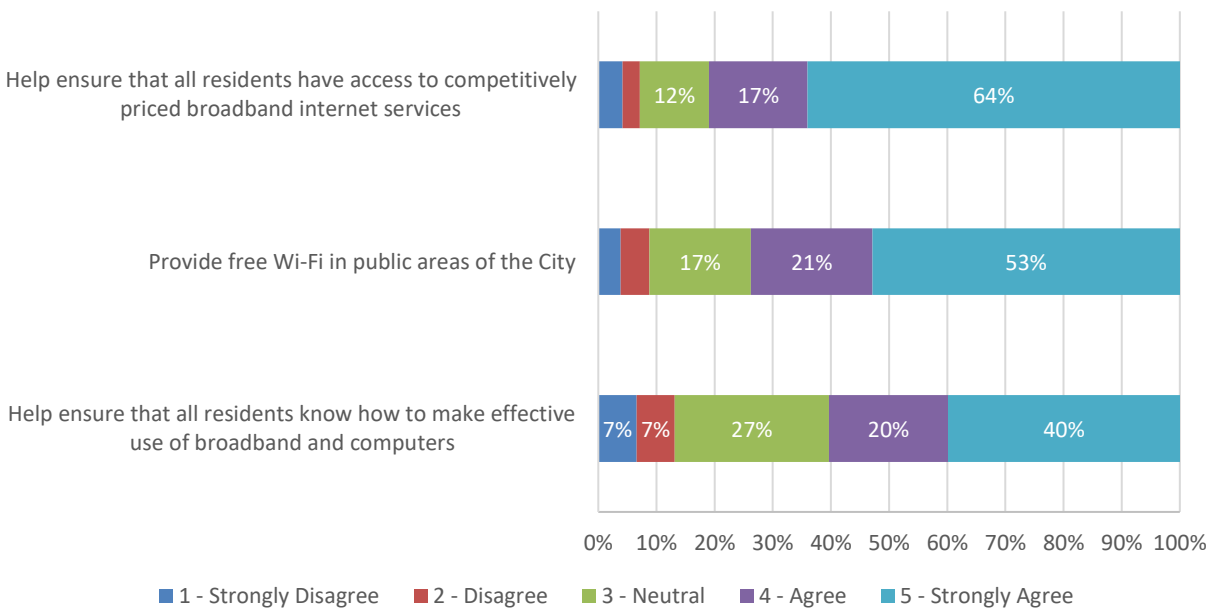


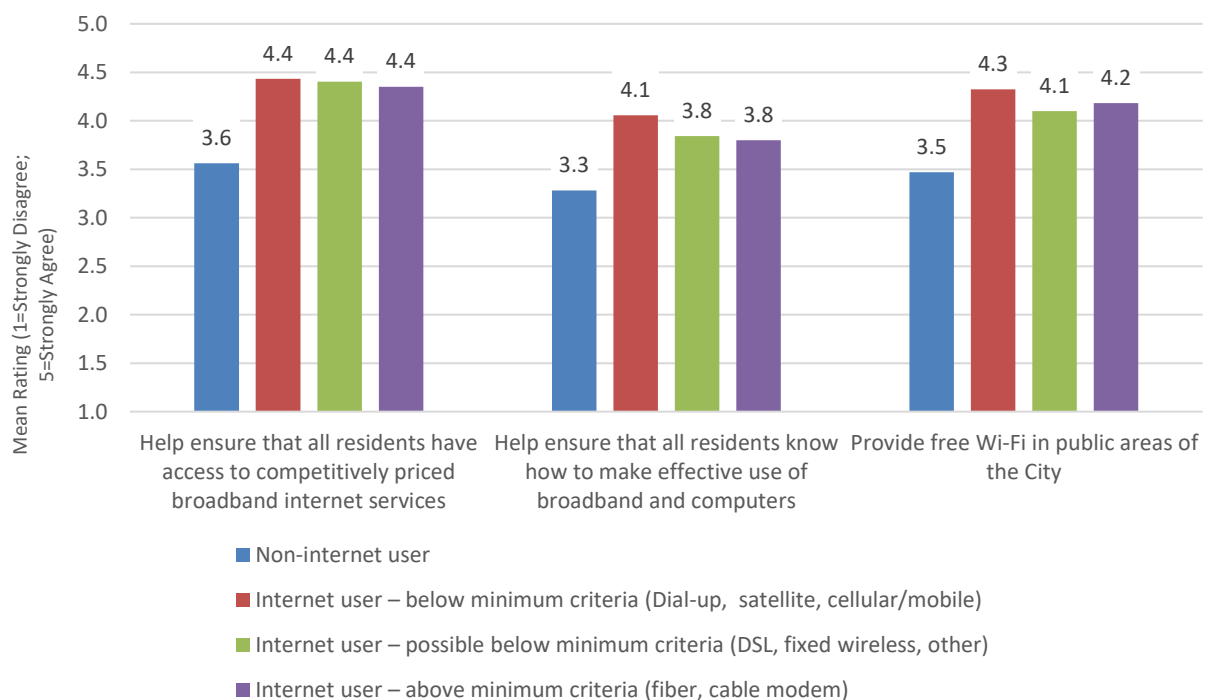
Figure 102: Opinions About the Role(s) for City of Bloomington



Overall there is support for ensuring access to competitively priced broadband services, with 64 percent of respondents strongly agreeing. More than one-half (53%) of respondents strongly agreed the City should provide free Wi-Fi in public areas, and 21 percent agreed. Overall, there is some support for helping to ensure all residents know how to make effective use of broadband and computers; 40 percent strongly agreed with this statement and 20 percent agreed.

Internet non-subscribers were less likely than subscribers to agree that the City should have some role in making the internet accessible to City residents, although this is based on a relatively small number of individuals who do not already have internet service (see Figure 103).

Figure 103: Opinions About the Role(s) for City of Bloomington by Connectivity



Respondents were also asked their opinion of the current broadband market. The average agreement with broadband availability statements are shown Figure 104, while detailed responses are shown in Figure 105.

Overall, respondents moderately to strongly agreed with most statements. Agreement was somewhat lower for the market offering high-speed internet at prices they can afford, receiving high-quality customer service from ISP, and willingness to pay a premium for access to high-speed internet.

Two-thirds of respondents agreed or strongly agreed that the availability of high-speed internet is factor they would consider when choosing where to live or when determining to start a home-based business.

Six in 10 respondents agreed or strongly agreed that high-speed internet is important for their work/job, and 55 percent agreed or strongly agreed that high-speed internet service is important for their family's educational opportunities.

More than four in 10 respondents agreed or strongly agreed that the market currently provides high-speed internet at prices they can afford, while one-fourth disagreed or strongly disagreed, suggesting some need for affordable broadband internet among a segment of respondents. Four in 10 respondents are willing to pay a premium for access to high-speed internet.

Figure 104: Opinions About the Broadband Internet Market (Mean Ratings)

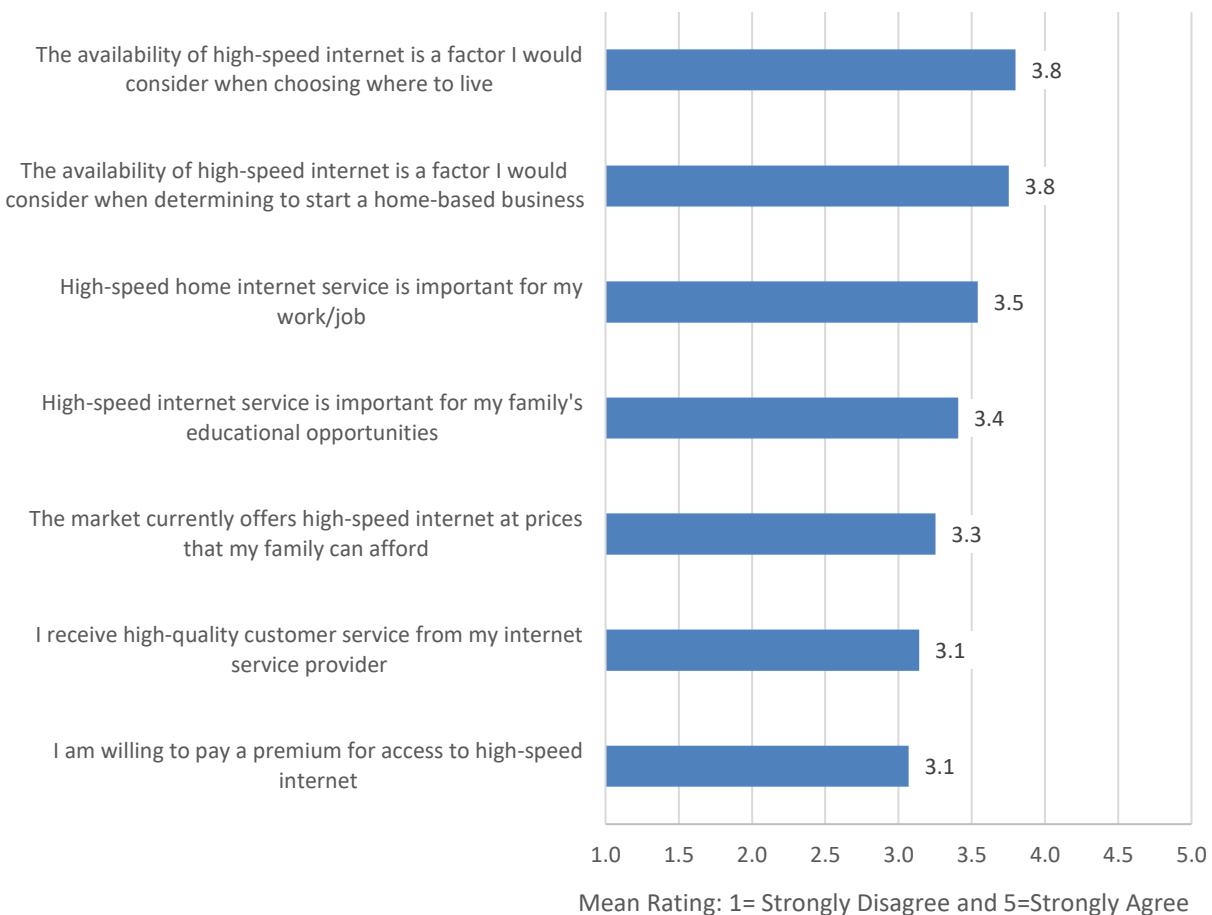
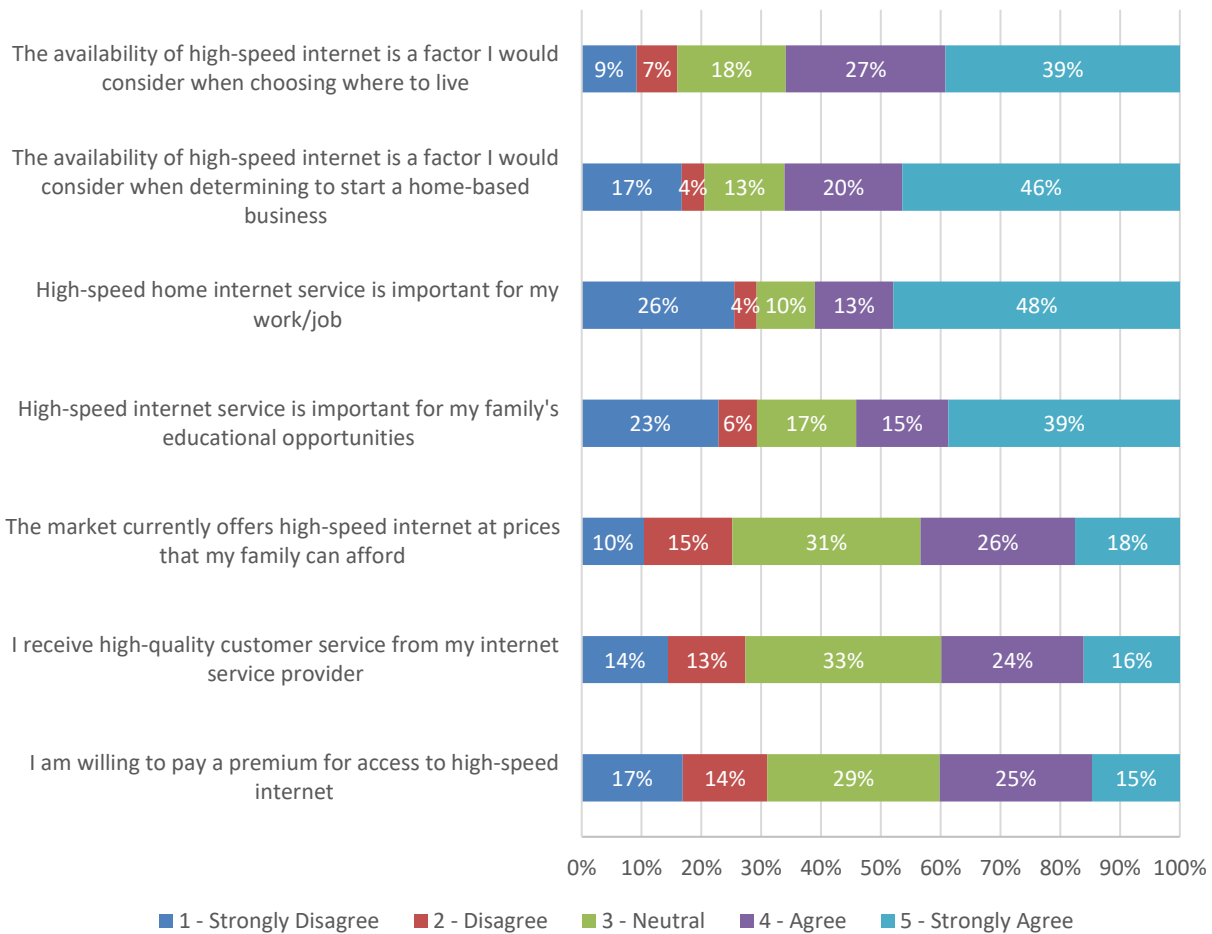


Figure 105: Opinions About the Broadband Internet Market



As illustrated in Figure 106, respondents ages 55 and older were less likely to agree with statements about the importance of broadband internet service and the willingness to pay a premium for access to high-speed internet.

Agreement with the availability of affordable high-speed internet and the willingness to pay a premium for access to high-speed internet is correlated with household income. Those in lower income households were less likely to agree with these statements (see Figure 107).

Figure 106: Opinions About Broadband Internet by Respondent Age

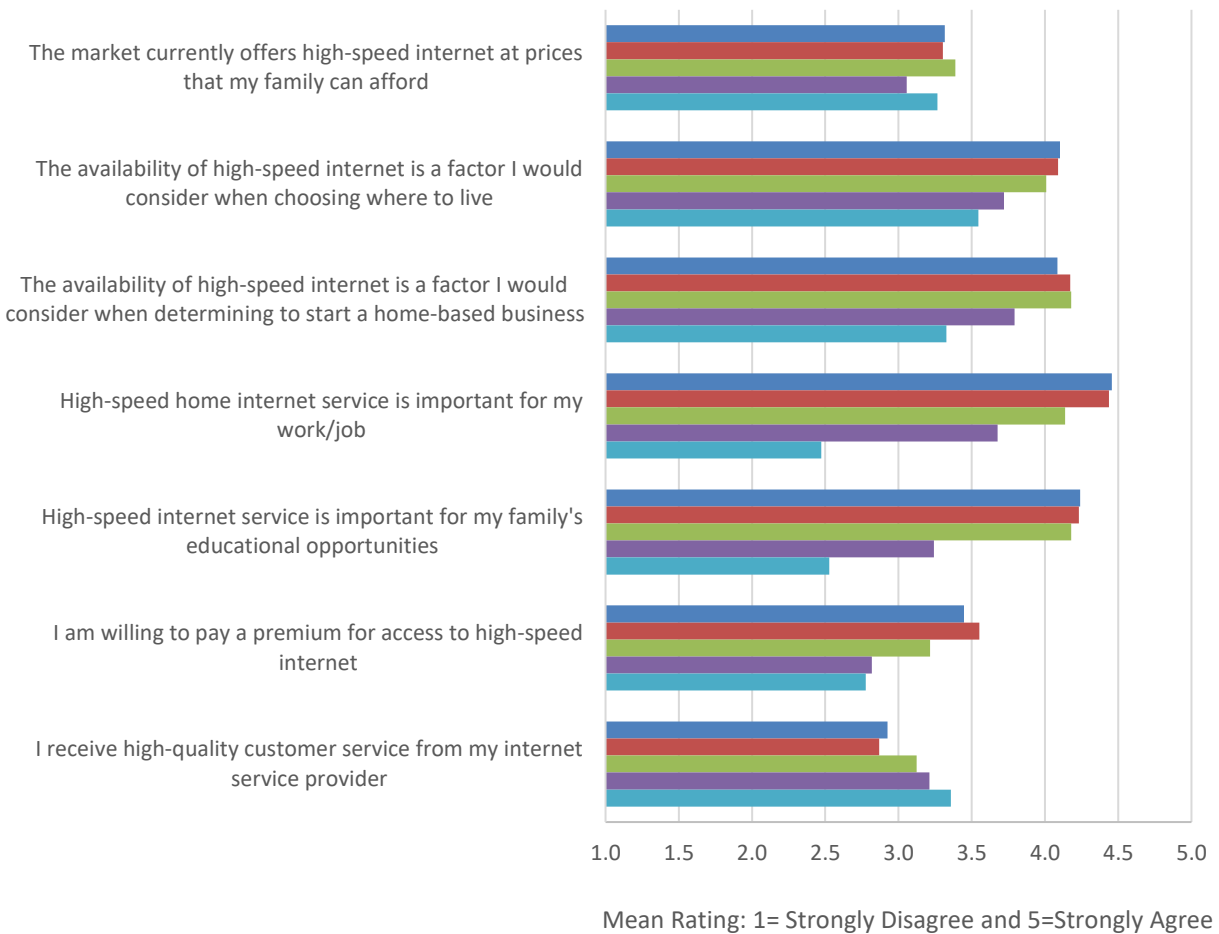
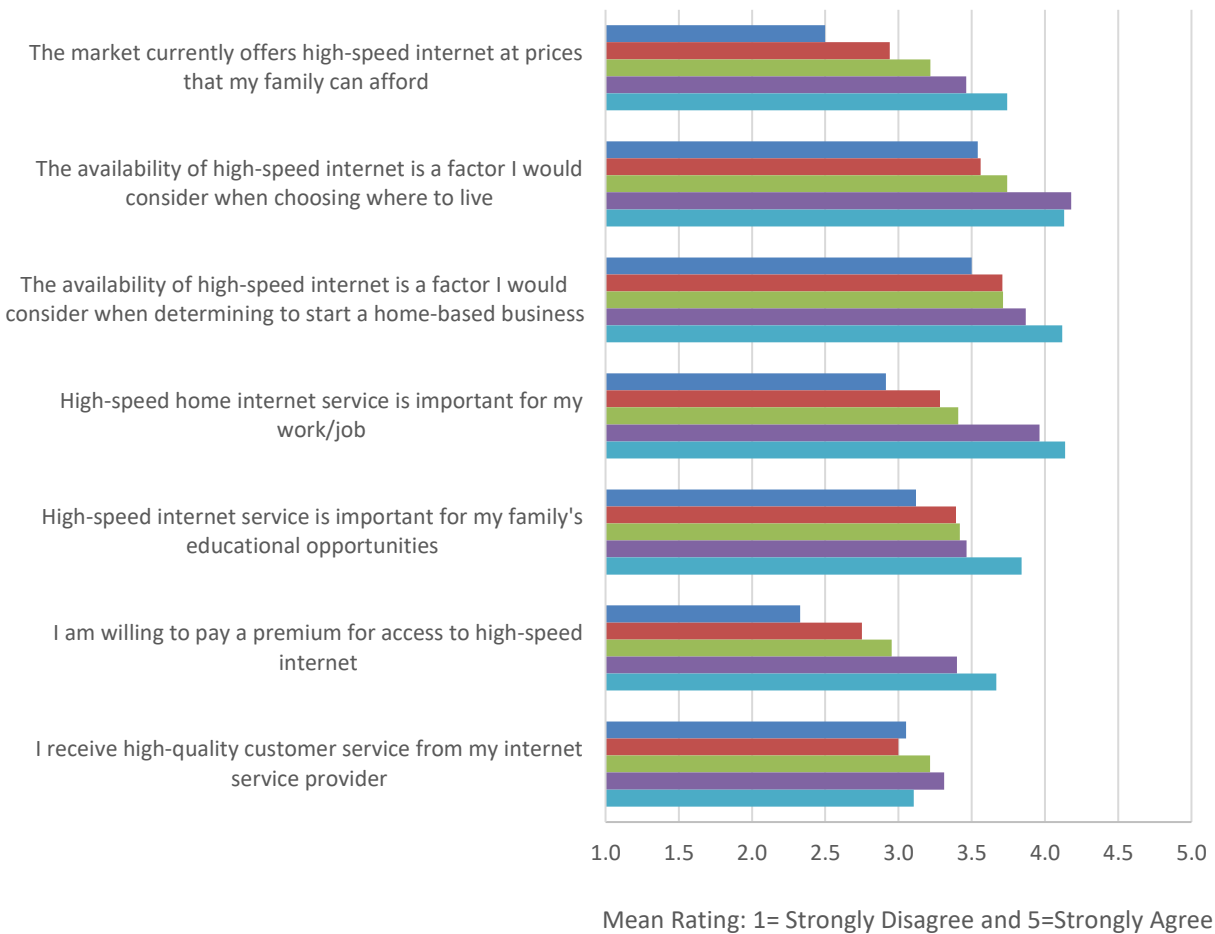


Figure 107: Opinions About Broadband Internet by Household Income



Specifically, just 16 percent of those in low-income households agreed or strongly disagreed that the market currently offers high-speed internet at prices their family can afford. One-third of respondents in low-income households strongly disagreed that they would be willing to pay a premium for access to high-speed internet; just 16 percent agreed or strongly agreed.

4.2.5.1 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 108, while detailed responses are illustrated in Figure 109.

Figure 108: Willingness to Purchase 1 Gbps Internet at Price Levels (Mean Ratings)

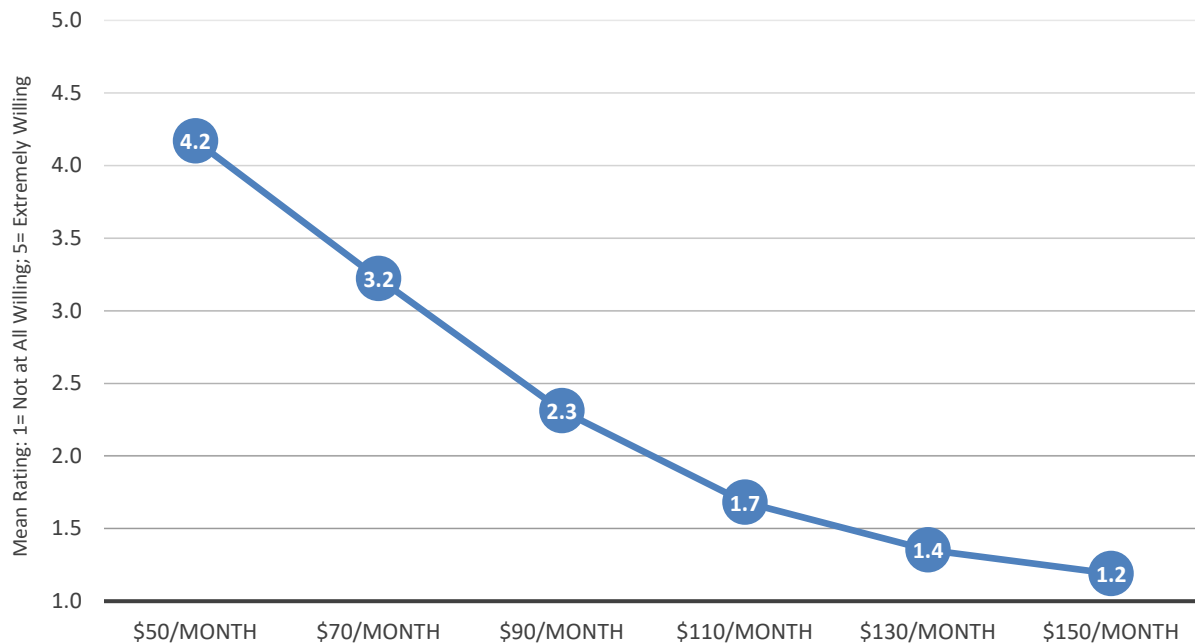
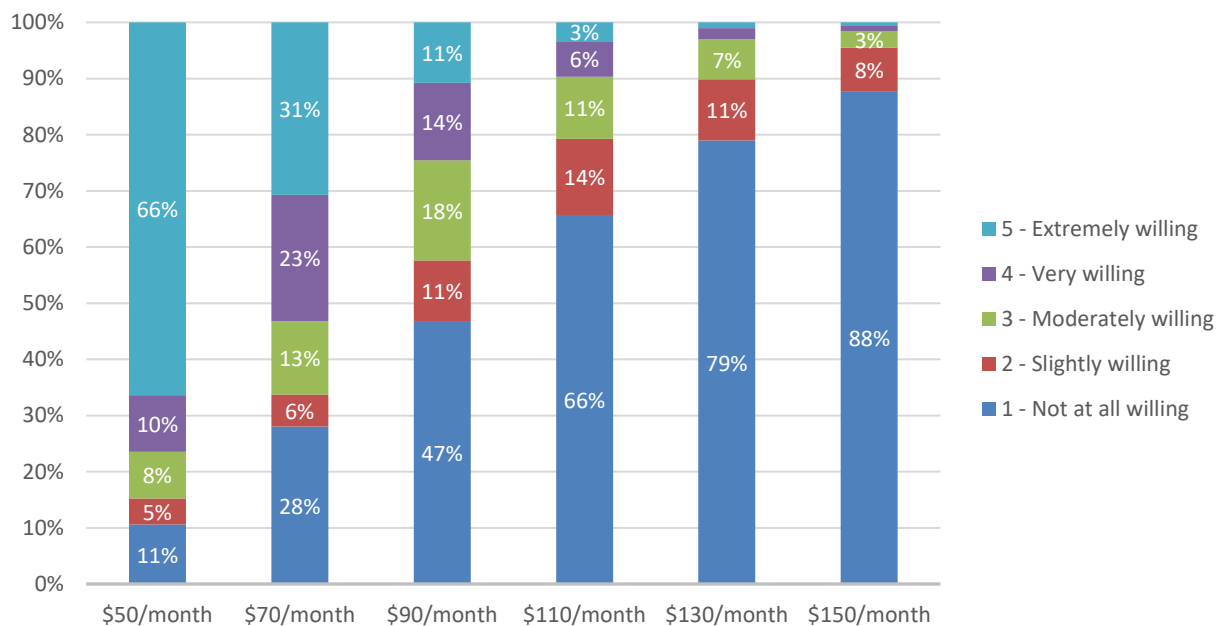


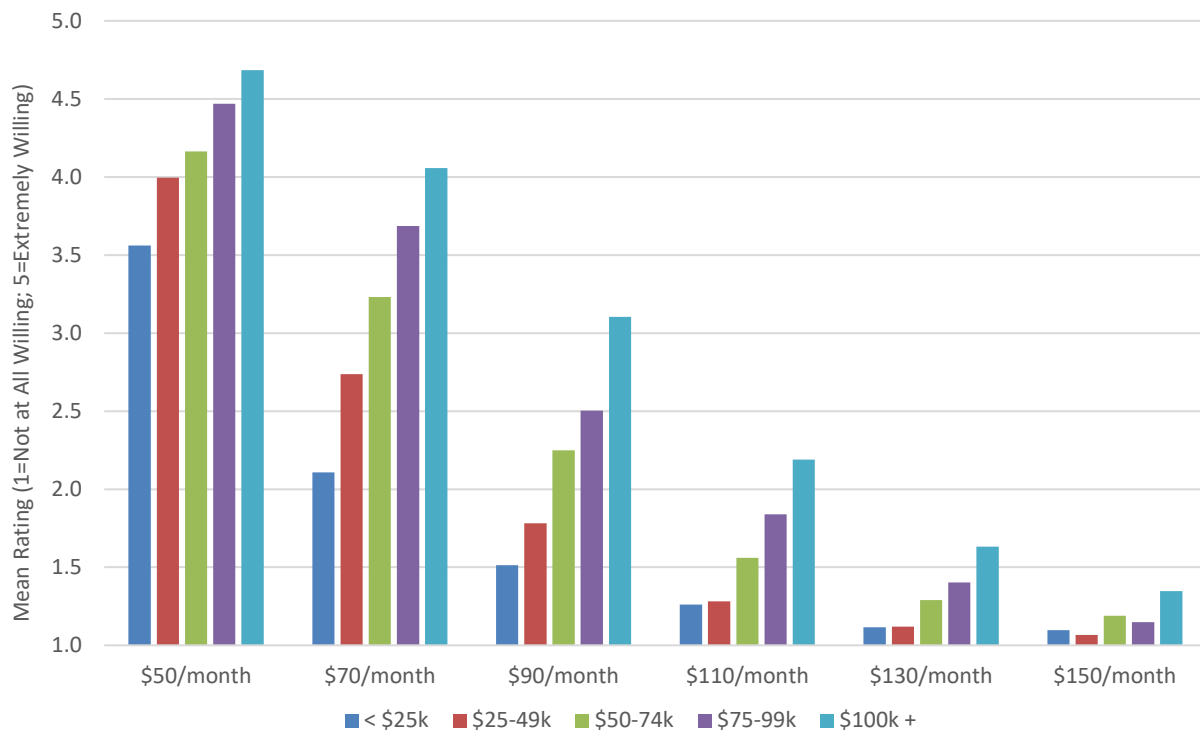
Figure 109: Willingness to Purchase 1 Gbps Internet at Various Price Levels



Respondents' willingness to purchase 1 Gbps internet service is high at \$50 per month (4.2 mean), but it drops considerably as the price increases. The mean rating falls to 3.2 at a price point of \$70 per month and 2.3 at a price point of \$90 per month (slightly to moderately willing). From another perspective, 66 percent of respondents are extremely willing to purchase 1 Gbps internet for \$50 per month, dropping to 31 percent at \$70 per month and 11 percent at \$90 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 110). The likelihood of purchasing high-speed internet tends to increase as household income increases.

Figure 110: Willingness to Purchase 100 Mbps Internet Service by Household Income



4.2.5.2 Importance of Home Internet Features

Respondents were asked to evaluate the importance of various features of home internet. The mean importance ratings are shown in Figure 111, while detailed responses are shown in Figure 112.

Figure 111: Importance of Home Internet Features (Mean Ratings)

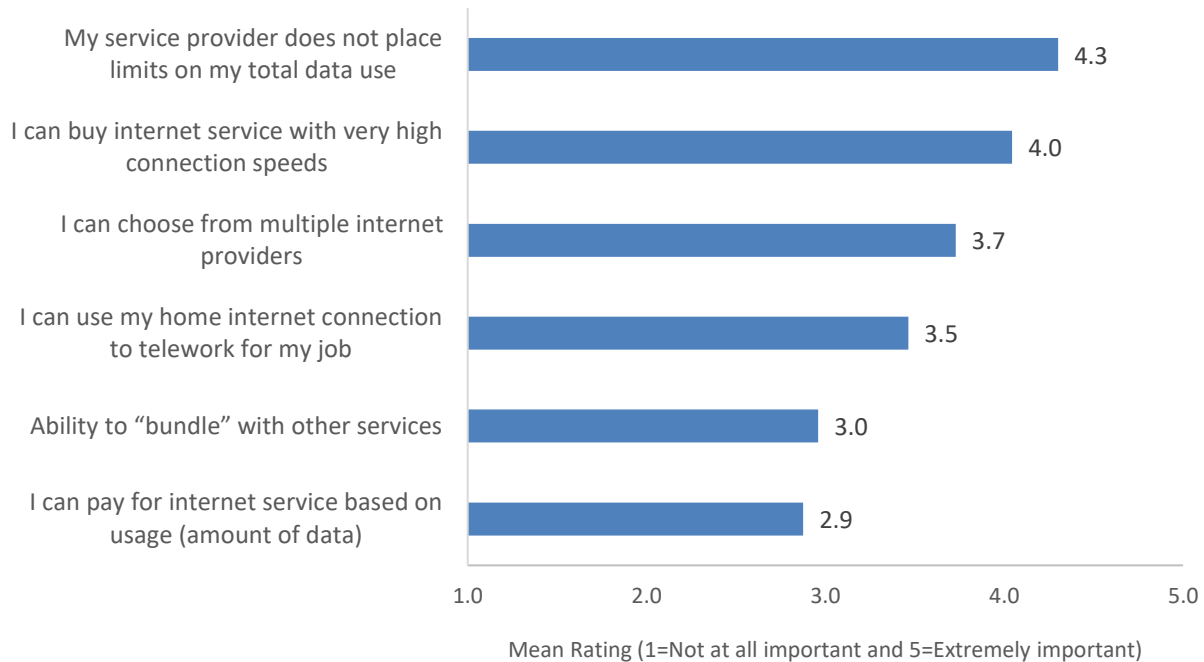
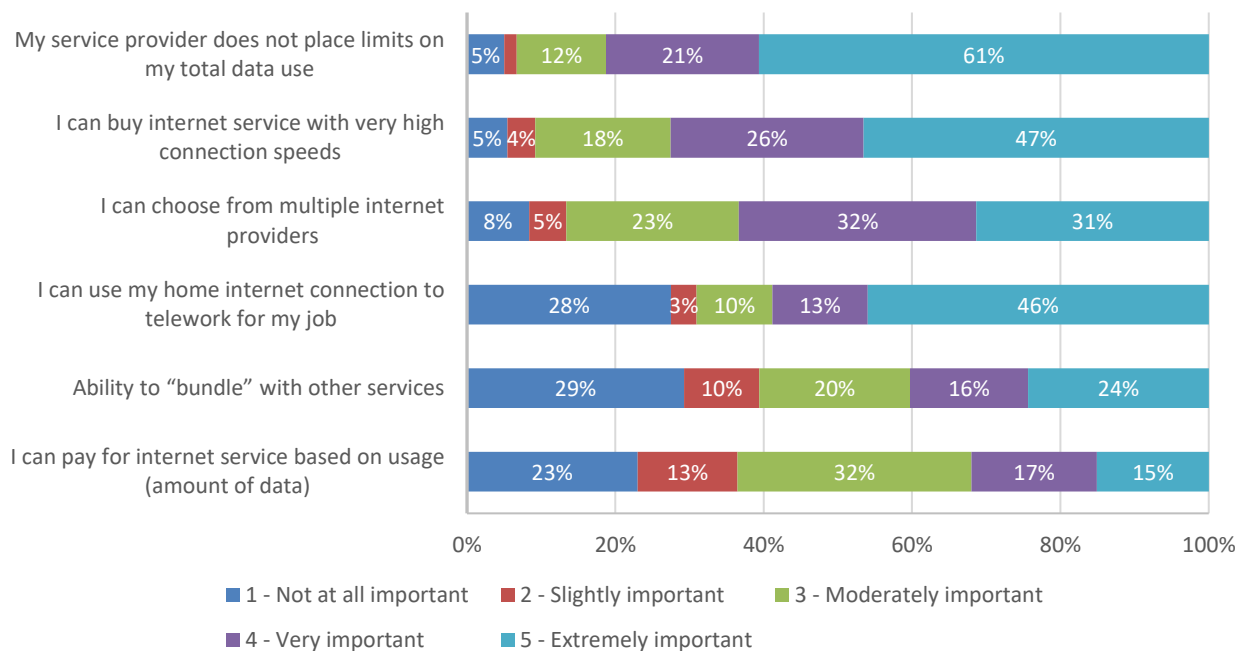


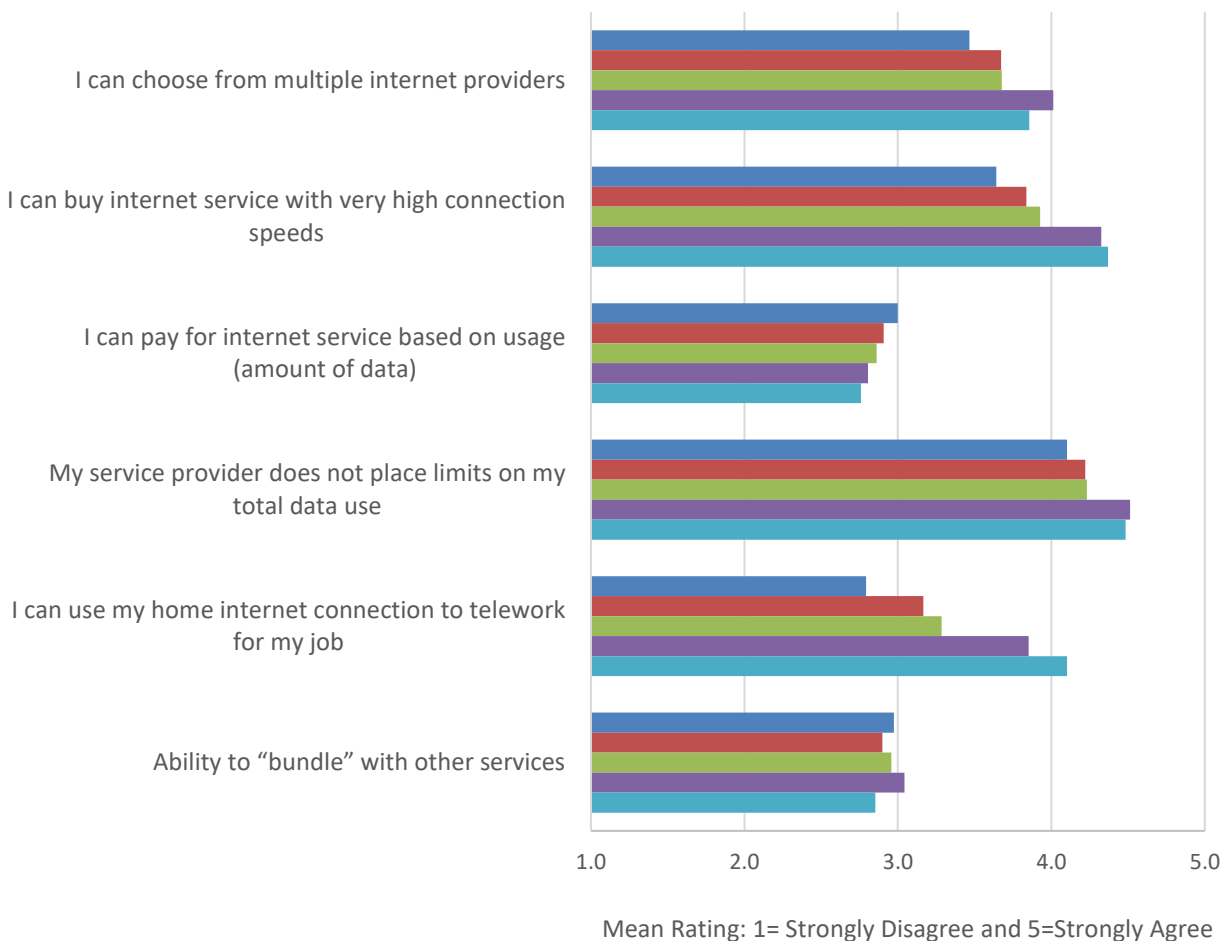
Figure 112: Importance of Home Internet Features



The most important home internet feature among those evaluated is unlimited data use, with 61 percent saying this feature is extremely important. Nearly one-half of respondents said buying internet service with very high connection speeds is extremely important. Nearly one-half of respondents also said using their home internet connection to telework is extremely important, but 28 percent said it is not at all important. Just 15 percent said paying for data based on usage is extremely important, and 24 percent said the ability to bundle with other services is extremely important.

Respondents in higher-income households placed more importance on choosing from multiple internet service providers, buying internet service with very high connection speeds, not having limits on data use, and using a home internet connection to telework, compared with those in lower-income households (see Figure 113).

Figure 113: Important of Home Internet Features by Income



4.2.6 Programs for Low-Income Subscribers

Respondents were asked if they are enrolled in Comcast's Internet Essentials program or AT&T's Access program for low-income households. Program participants represent a small share of the Bloomington market, as illustrated in Figure 114 and Figure 115.

Figure 114: Participate in Comcast's Internet Essentials Program

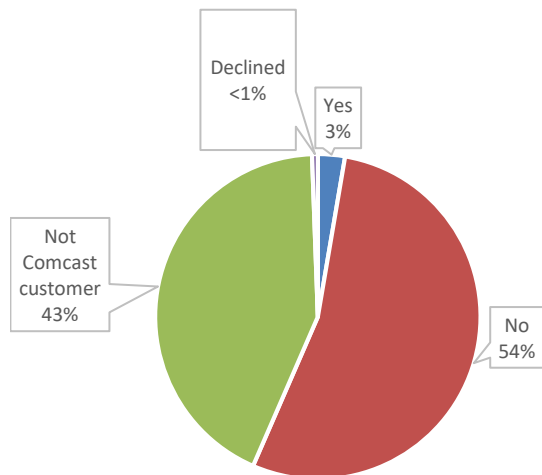
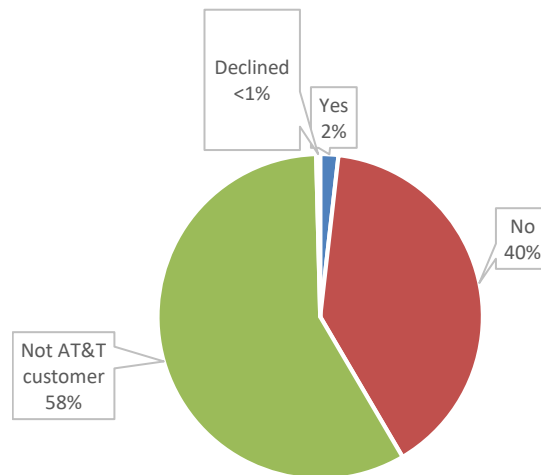


Figure 115: Participate in AT&T's Access Program



Among all low-income households earning under 25,000 per year, seven percent participate in Comcast's Internet Essential's program, and two percent participate in AT&T's Access program (see Figure 116 and Figure 117).

Figure 116: Participate in Comcast's Internet Essentials Program by Household Income

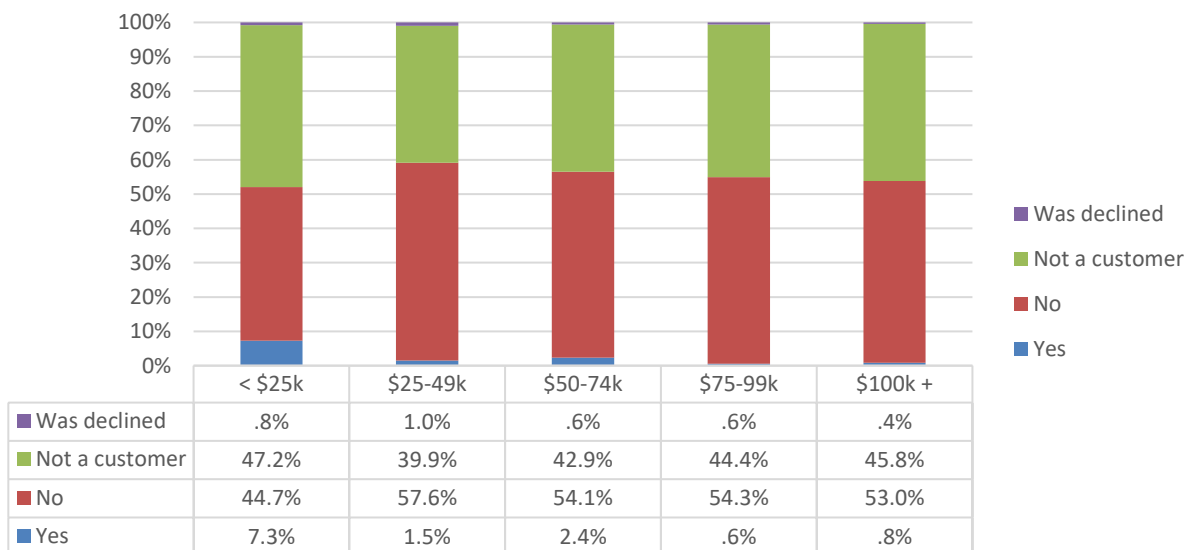
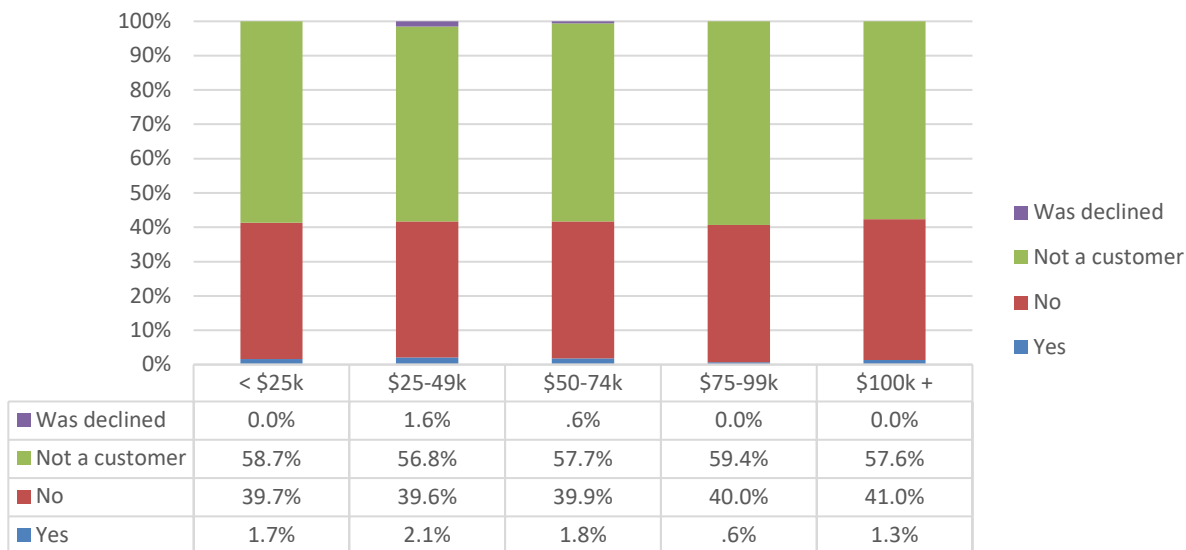


Figure 117: Participate in AT&T's Access Program by Household Income



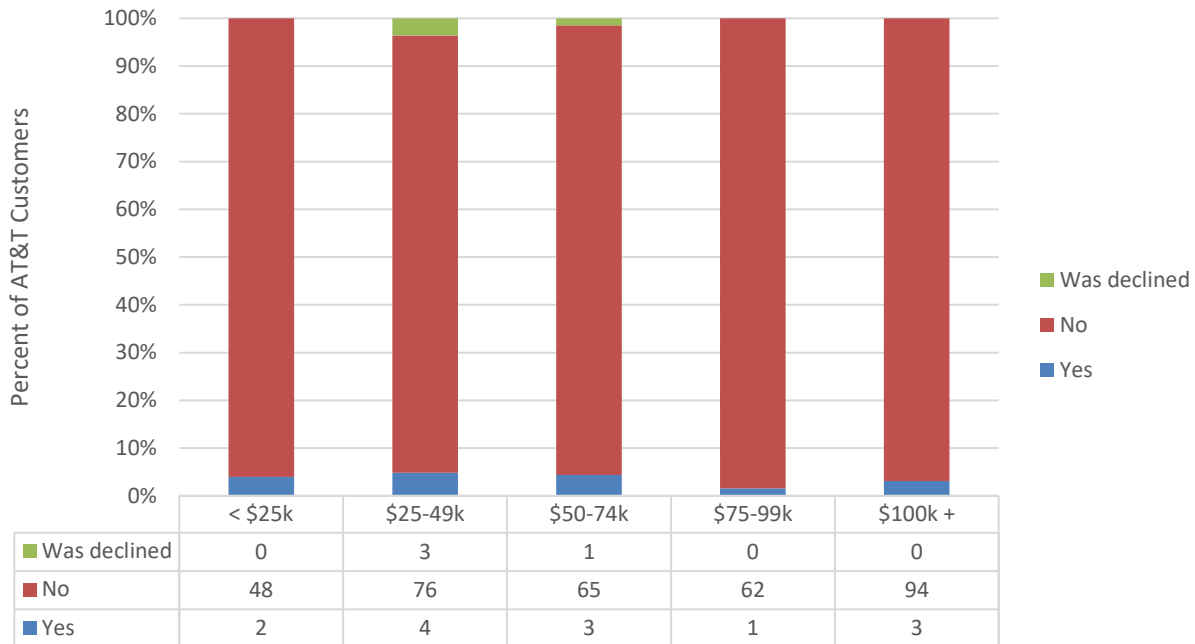
Among those who said they are customers, nine out of 65 (14%) low-income households participate in Comcast's Internet Essentials program (see Figure 118).

Figure 118: Customer Participation in Comcast's Internet Essentials Program



Among those who said they are customers, two out of 50 (2%) low-income households participate in AT&T's Access program (see Figure 119).

Figure 119: Customer Participation in AT&T's Access Program



Two percent of households earning under \$25,000 per year receive the \$9.25 subsidy under the FCC's Lifeline program, and 15 percent are unsure if they receive the subsidy. Most low-income households are not receiving the subsidy (see Figure 120).

Figure 120: Receive \$9.25 Subsidy Under FCC's Lifeline Program



4.2.7 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. Table 6 highlights the demographic characteristics of survey respondents, broken out by respondent age. Table 7 highlights the demographic characteristics of survey respondents, broken out by household income.

Table 6: Demographic Profile by Respondent Age

	Age Cohort	18-34	35-44	45-54	55-64	65+	Total
Highest Level of Education	HS education or less	5%	11%	13%	22%	25%	17%
	Two-year college/tech	8%	10%	12%	19%	13%	13%
	Four-year college degree	46%	31%	31%	18%	19%	27%
	Graduate degree, etc.	41%	48%	44%	41%	43%	43%
	<i>Total</i>	<i>189</i>	<i>145</i>	<i>132</i>	<i>185</i>	<i>393</i>	<i>1045</i>
Household Income	Less than \$25,000	16%	8%	9%	15%	17%	14%
	\$25,000 to \$49,999	29%	17%	15%	21%	25%	23%
	\$50,000 to \$74,999	15%	17%	18%	21%	22%	19%
	\$75,000 to \$99,999	16%	20%	22%	15%	18%	18%
	\$100,000 or more	23%	38%	36%	28%	18%	26%
	<i>Total</i>	<i>183</i>	<i>137</i>	<i>119</i>	<i>155</i>	<i>319</i>	<i>913</i>
Race/Ethnicity	White/Caucasian only	90%	88%	86%	90%	94%	91%
	Other race/ethnicity	10%	12%	14%	10%	6%	9%
	<i>Total</i>	<i>188</i>	<i>144</i>	<i>129</i>	<i>177</i>	<i>385</i>	<i>1024</i>
Gender	Woman	56%	60%	62%	55%	51%	55%
	Man	43%	39%	35%	44%	47%	43%
	Other	1%	1%	3%	1%	2%	2%
	<i>Total</i>	<i>189</i>	<i>142</i>	<i>130</i>	<i>181</i>	<i>391</i>	<i>1034</i>
Household Size	One HH member	24%	17%	20%	28%	42%	30%
	Two HH members	47%	32%	26%	50%	52%	45%
	Three HH members	15%	18%	21%	14%	4%	12%
	Four + HH members	14%	33%	33%	8%	2%	13%
	<i>Total</i>	<i>189</i>	<i>145</i>	<i>132</i>	<i>183</i>	<i>394</i>	<i>1044</i>
Children in Household	No Children in HH	81%	49%	53%	91%	98%	82%
	Children in HH	19%	51%	47%	9%	2%	18%
	<i>Total</i>	<i>189</i>	<i>145</i>	<i>132</i>	<i>183</i>	<i>394</i>	<i>1044</i>
Own/Rent Residence	Own	35%	75%	77%	84%	86%	74%
	Rent	64%	24%	22%	15%	13%	25%
	Live with family	1%	1%	0%	0%	0%	0%
	Other	0%	0%	2%	1%	1%	1%
	<i>Total</i>	<i>189</i>	<i>144</i>	<i>132</i>	<i>184</i>	<i>387</i>	<i>1065</i>
Years at Current Residence	Less than 1 year	35%	13%	7%	8%	4%	12%
	1 to 2 years	37%	22%	19%	7%	7%	16%
	3 to 4 years	19%	26%	16%	11%	7%	14%
	5 or more years	10%	40%	58%	74%	82%	59%
	<i>Total</i>	<i>189</i>	<i>144</i>	<i>132</i>	<i>184</i>	<i>388</i>	<i>1065</i>

Table 7: Demographic Profile by Household Income

	Age Cohort	<\$25	\$25-49	\$50-74	\$75-99	\$100+	Total
Respondent Age	18-34 years	23%	26%	16%	18%	18%	18%
	35-44 years	9%	11%	13%	17%	22%	14%
	45-54 years	9%	9%	12%	16%	18%	13%
	55-64 years	18%	15%	19%	14%	18%	18%
	65+ years	41%	39%	40%	35%	24%	38%
	<i>Total</i>	<i>128</i>	<i>207</i>	<i>174</i>	<i>164</i>	<i>240</i>	<i>1045</i>
Highest Level of Education	HS education or less	41%	28%	10%	9%	4%	17%
	Two-year college/tech	24%	19%	15%	9%	5%	13%
	Four-year college degree	19%	27%	30%	38%	25%	27%
	Graduate degree, etc.	17%	27%	45%	45%	66%	43%
	<i>Total</i>	<i>127</i>	<i>207</i>	<i>174</i>	<i>164</i>	<i>240</i>	<i>1045</i>
Race/Ethnicity	White/Caucasian only	90%	88%	94%	89%	90%	91%
	Other race/ethnicity	10%	12%	6%	11%	10%	9%
	<i>Total</i>	<i>126</i>	<i>206</i>	<i>171</i>	<i>161</i>	<i>235</i>	<i>1024</i>
Gender	Woman	67%	54%	56%	52%	50%	55%
	Man	33%	44%	43%	45%	49%	43%
	Other	0%	2%	1%	2%	1%	2%
	<i>Total</i>	<i>128</i>	<i>207</i>	<i>172</i>	<i>164</i>	<i>237</i>	<i>1034</i>
Household Size	One HH member	62%	39%	32%	21%	8%	30%
	Two HH members	22%	41%	49%	51%	50%	45%
	Three HH members	9%	14%	10%	11%	15%	12%
	Four + HH members	8%	6%	9%	17%	27%	13%
	<i>Total</i>	<i>128</i>	<i>207</i>	<i>173</i>	<i>164</i>	<i>240</i>	<i>1044</i>
Children in Household	No Children in HH	90%	89%	86%	76%	65%	82%
	Children in HH	10%	11%	14%	24%	35%	18%
	<i>Total</i>	<i>128</i>	<i>207</i>	<i>173</i>	<i>164</i>	<i>240</i>	<i>1044</i>
Own/Rent Residence	Own	46%	60%	74%	86%	87%	74%
	Rent	49%	40%	26%	14%	13%	25%
	Live with family	2%	0%	0%	0%	0%	0%
	Other	3%	0%	1%	0%	0%	1%
	<i>Total</i>	<i>126</i>	<i>205</i>	<i>172</i>	<i>164</i>	<i>240</i>	<i>1065</i>
Years at Current Residence	Less than 1 year	17%	15%	13%	8%	11%	12%
	1 to 2 years	17%	18%	16%	14%	18%	16%
	3 to 4 years	13%	17%	8%	15%	16%	14%
	5 or more years	54%	51%	63%	63%	56%	59%
	<i>Total</i>	<i>126</i>	<i>205</i>	<i>172</i>	<i>164</i>	<i>240</i>	<i>1065</i>

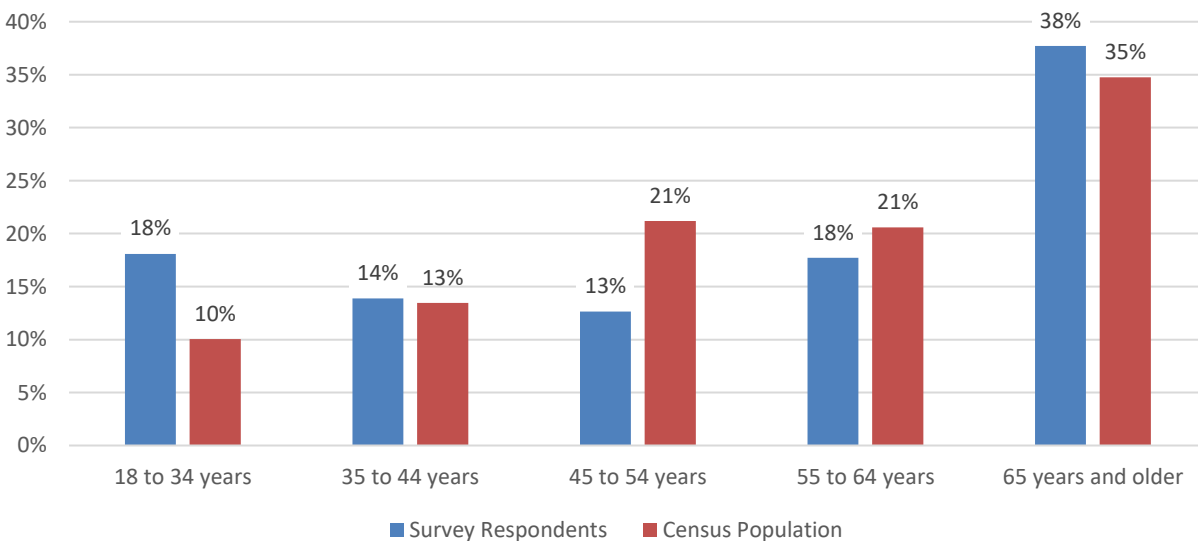
Respondents ages 35 to 54 years are more likely than older and younger respondents to have children in the household. One-third of respondents ages 35 to 54 years have four or more household members. Respondents ages 35 to 54 years also have a somewhat higher household

income than do older and younger respondents. As may be expected, respondent age is correlated with years lived at residence. Respondents ages 18 to 34 years are more likely than older respondents to rent their residence. Respondents ages 65+ are more likely than younger respondents to live alone.

Similarly, those in higher income households are somewhat more likely to be middle-age and more educated compared with those in lower income households. They are more likely to have multiple household members, including children in the home. Low-income households are less likely to have children; most have just one (62%) household member. Four in 10 low-income household members have a high school education or less, and one-half are renters.

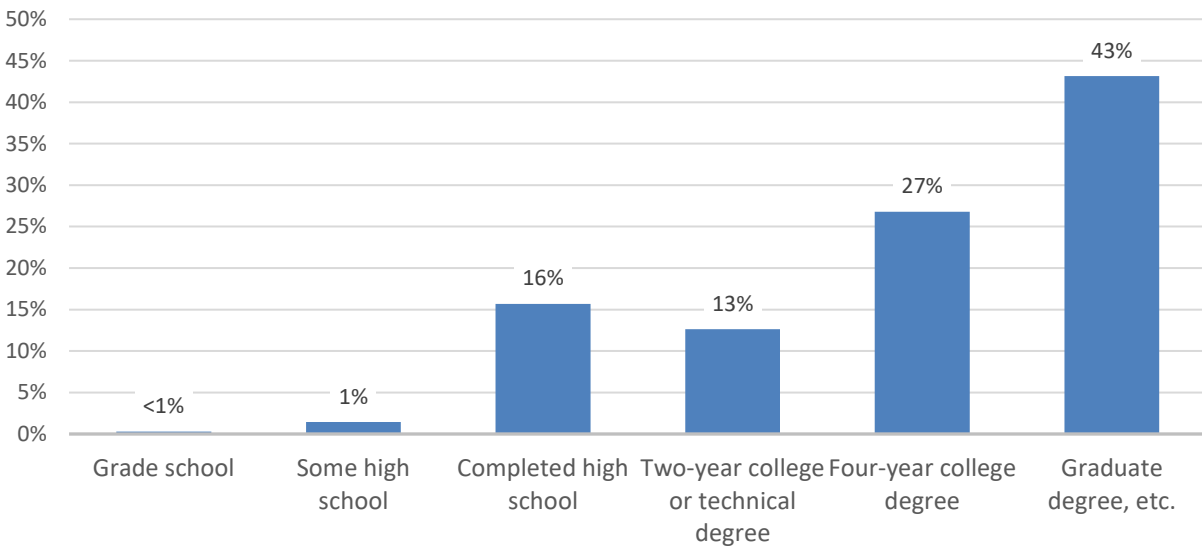
Figure 121 illustrates the age distribution of the respondent and compares it to Census information. The survey sample contains a higher proportion of older adults and homeowners compared with general Census data (that includes University students). The following chart compares the survey age to the age distribution of those in owner-occupied homes in the population, as a proxy for the population represented in this survey.

Figure 121: Respondent Age



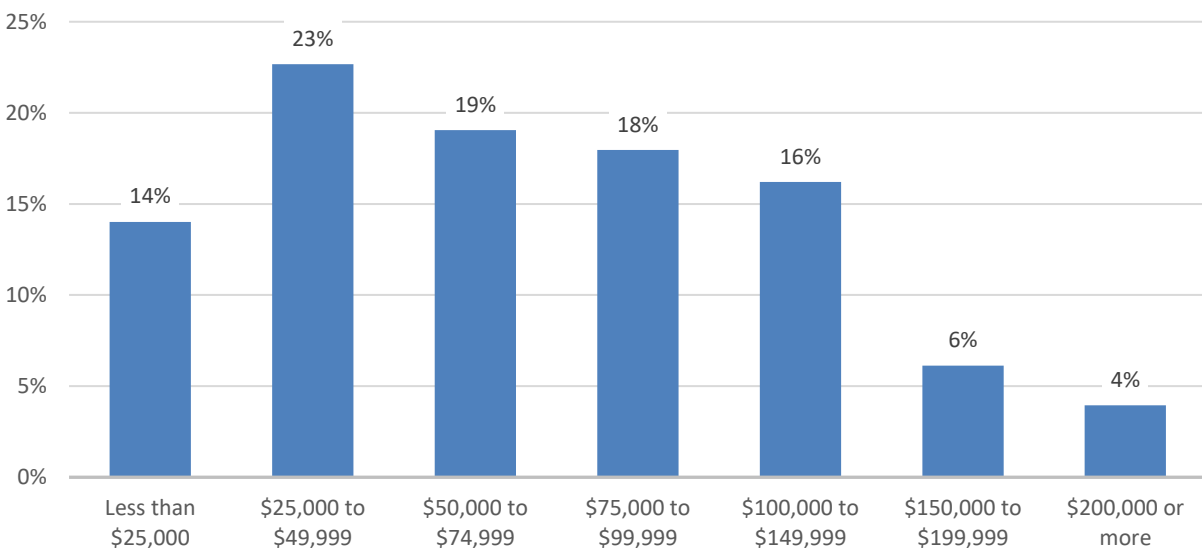
The respondents' highest level of education attained is summarized in Figure 122. More than one-fourth (27%) of respondents have a four-year college degree, and 43 percent have a graduate, professional, or doctorate degree.

Figure 122: Education of Respondent



More than one-fourth of respondents have a household income of \$100,000 or more. Fourteen percent of respondents have a household income under \$25,000, as shown in Figure 123.

Figure 123: Annual Household Income



Nine in 10 survey respondents said the race/ethnicity to which they most strongly identify is white/European American, as illustrated in Figure 124. More than one-half (55%) of respondents identify as a woman, and 43 percent identify as a man (see Figure 125).

Figure 124: Race/Ethnicity

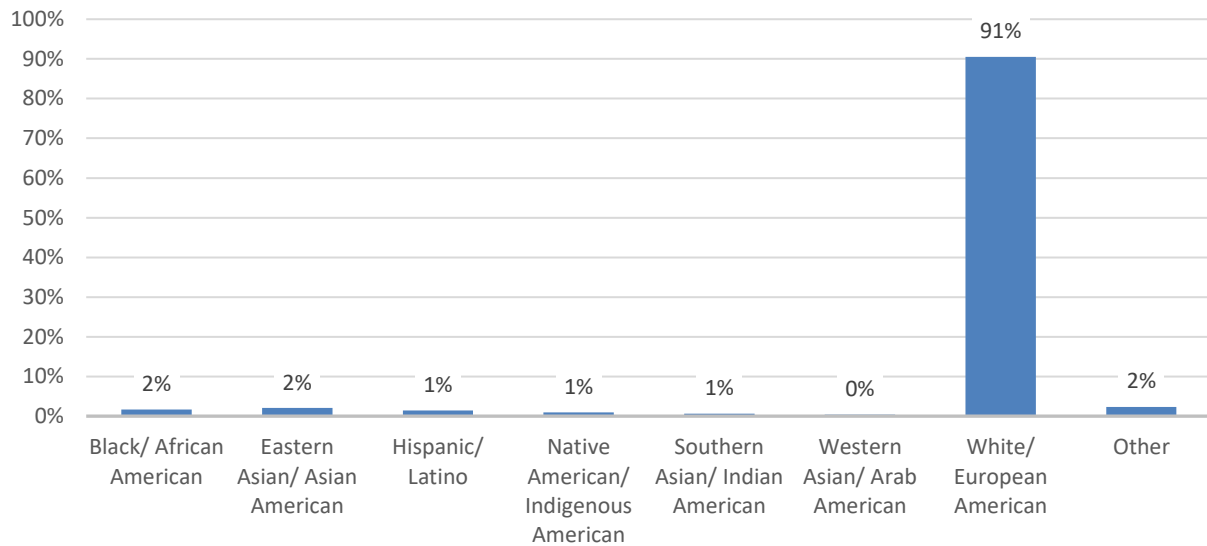


Figure 125: Gender Identity

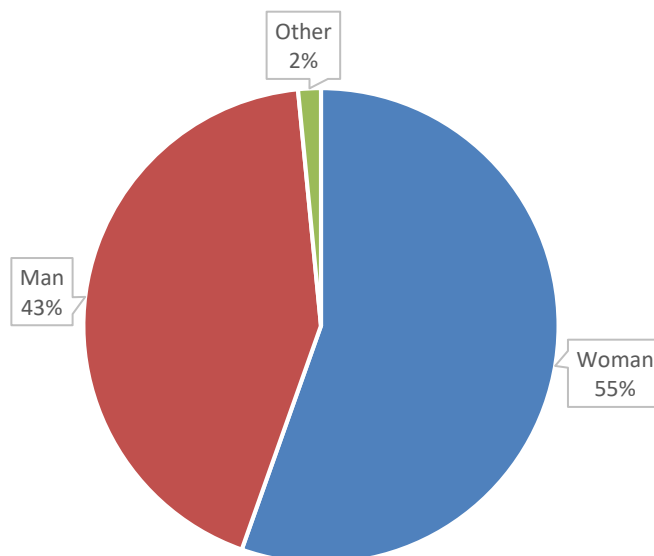
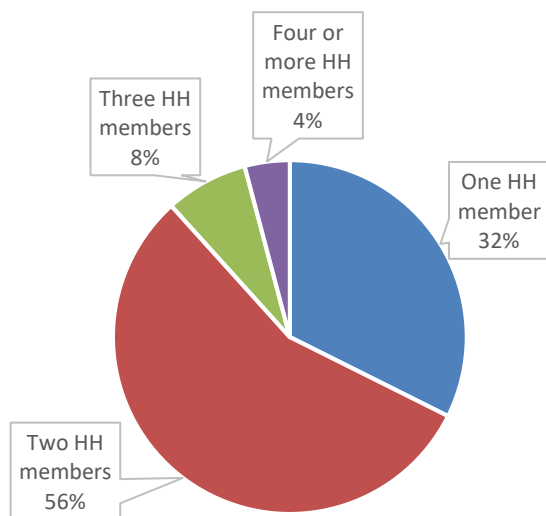


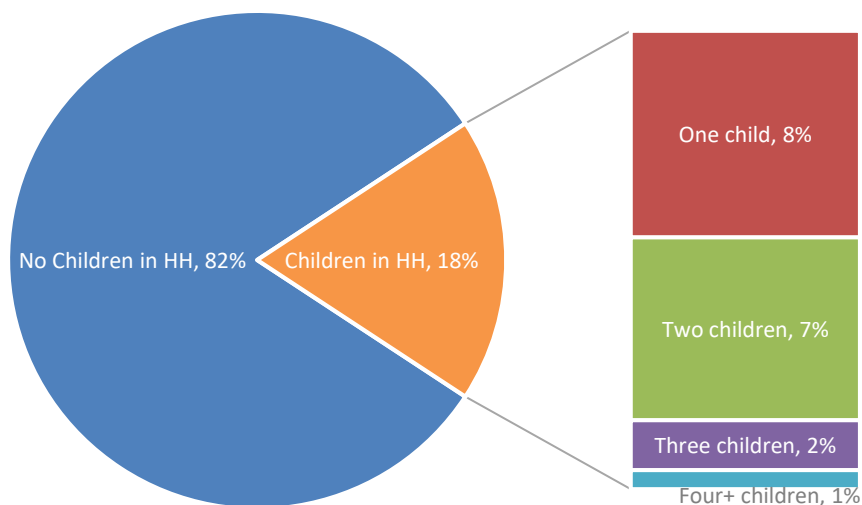
Figure 126: Total Household Size



Respondents were asked to indicate the number of adults and children in their household. One-third of respondents have just one person living in the household, and 56 percent have two household members (including both adults and children). Another 12 percent have three or more household members (see Figure 126).

About 18 percent of respondents have at least one child under age 18 living at home, as shown in Figure 127.

Figure 127: Number of Children in the Household



The majority of respondents own their home (see Figure 128). Eighty-six percent of respondents have lived at their residence for five or more years, as shown in Figure 129.

Figure 128: Own or Rent Residence

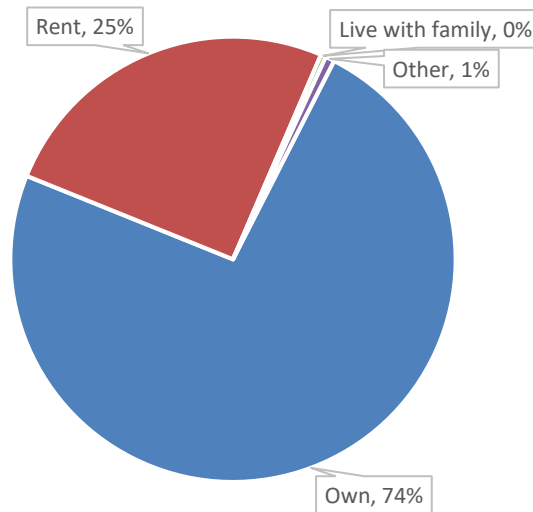
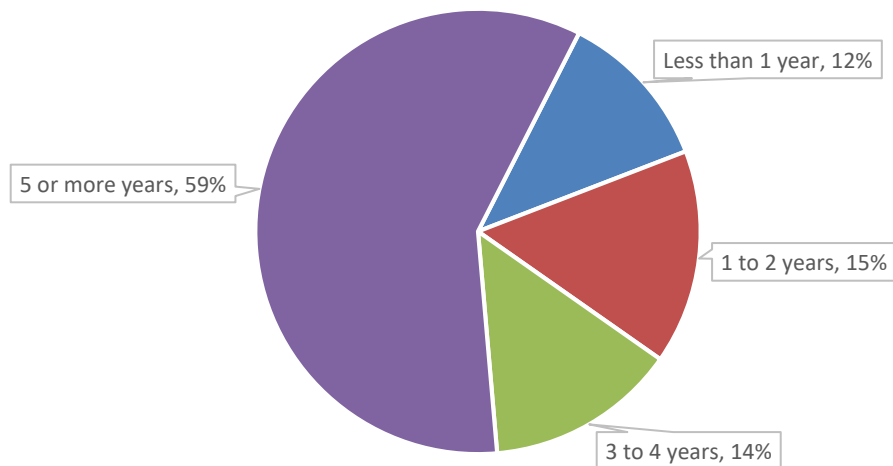


Figure 129: Length of Residence at Current Address



5 Stakeholder Meetings Report

To better understand digital challenges facing the Bloomington community and solicit ideas for solutions, CTC participated in seven City-convened stakeholder meetings attended by a total of 32 participants. The meetings included City of Bloomington, Indiana University, Monroe County Public Library, Monroe County Community School Corporation, the Bloomington Housing Authority, Greater Bloomington Chamber of Commerce, and other organizations and individuals.

Summaries of what was discussed in the meetings—including policy and strategy suggestions in some cases—and a list of participants are presented below. Attendees had an opportunity to review and line-edit these meeting summaries to elaborate on their suggestions. Prior to the interviews, CTC sent the City and stakeholders a list of questions. In some cases, participants sent back responses or other supplementary information. Where this occurred, we have included any additional relevant information in the narratives below.

5.1 Bloomington City Staff

Participants:

- Mayor John Hamilton
- Deputy Mayor Mick Renneisen
- Philippa Guthrie, Corporation Counsel
- Devta Kidd, Director of Innovation
- Beverly Calender-Anderson, Director, Community and Family Resources Department
- Alex Crowley, Director of Economic and Sustainable Development
- Shatoyia Moss, Safe & Civil City Director, Department of Family and Community Resources
- Rick Dietz, Director, Information and Technology Services Department

In the initial stakeholder meeting, Mayor John Hamilton affirmed that the internet is in effect an essential utility and that the city should be “a full partner” at the table to help fulfill the community’s needs. Deputy Mayor Mick Renneisen pointed out that the pandemic exposed existing vulnerabilities in the community that would not disappear when the pandemic ends. He added that the light shed on the challenges will better prepare the city to meet current and future needs.

Participants said that the shift to remote learning required by the pandemic revealed that many students in the Bloomington area lack adequate access to broadband service, particularly in the more rural areas. While students’ equipment needs have been mostly fulfilled by schools, there

is still room for more resources, including for teachers and families with two or more children. But the workload associated with issuing many devices has put a strain on school staff members.

Participants note that there is also a need to ensure that students outside of the Monroe County Community School Corporation, including those in private and charter schools, are not left behind. Participants said some private schools have not provided devices to students. Participants noted a need for digital skills training, especially among older individuals, and noted that libraries could play a role in increasing efforts at digital skills trainings.

Participants shared that the United Way of Monroe County's Innovation and Technology Fund, which assists nonprofit agencies in capacity building, could assist nonprofits with this challenge.

Participants identified one potential future challenge: Ensuring all residents have access to city services as Bloomington begins to migrate core services online and eliminate paper-based or in-person options. For example, the city's Parks and Recreation department has a waiver process for eligible families to be able to use the pools for free. Submitting the waiver involves scanning documents into a computer to submit online, and this process has historically been a high barrier to entry for many families. As other processes move online, city staff acknowledged a need to ensure resources remain accessible.

Despite challenges, the city has also seen compelling success stories when it comes to internet serving residents through the pandemic. For example, remote healthcare has been an extremely successful means of engaging people who are homeless. While appointment no-shows are common for in-person healthcare appointments for people who are homeless, there have been almost zero no-shows when appointments have shifted to remote healthcare.

City leaders agreed that programs should meet people where they are. For example, while people might not all travel to the library for a digital literacy training, they may engage with a training hosted by the library or at their place of worship. The City offers free public Wi-Fi at several indoor and outdoor locations.

Shatoyia Moss, Safe & Civil City Director, Department of Family and Community Resources, stated for the populations Moss serves, it's important to meet people where they are; to visit communities to host events and initiatives. This has become more difficult. And now that resources are only available online, Moss is seeing a drop-off in engagement by youth and those 60 and older. It's also been harder to disseminate resources to those experiencing homelessness. Moss believes that lack of knowledge about what information is available and where to find it often holds people back from engaging with devices and digital resources.

The Commission on the Status of Black Males has an annual event that brings together black youth. That event has moved online this year, and Moss noted that many of the participating

students are low-income and do not have a device at home or reliable broadband. She is seeing participation numbers drop due to this lack of resources and due to “Zoom fatigue”: when students spend all day on a computer for remote learning, they aren’t motivated to engage in other virtual events.

Alex Crowley, Director of Economic and Sustainable Development, City of Bloomington said that a choice needs to be made between pursuing a “big” solution or starting small and addressing what can be done in manageable increments. He advocated for the latter. He identified four issues—access to the internet, affordability of internet service, access to devices, and development of digital skills—and said it would be helpful to make a decision about which to tackle first.

Crowley explained that there’s a larger structural problem that fundamentally, the community’s dependency on digital access is dependent on profit-driven internet service providers. If the community wants to solve the problem on a structural level, he said, a public-private partnership that addresses how entities can be motivated to act would be a helpful approach. Public and/or philanthropic funds would be necessary to leverage in order to incentivize service providers to build their networks in places that they otherwise would not.

5.2 Indiana University

Participants:

- Laurie McRobbie, First Lady, Indiana University
- Dan Calarco, Chief of Staff to the Vice President for Information Technology and CIO
- Jessica Calarco, Associate Professor of Sociology
- Chris Robb, Senior Manager, Network Partner Engineering
- Marianne Chitwood, Director of Operations, GlobalNOC, Operations Manager, I-Light

Indiana University staff affirmed that the pandemic has highlighted the issue of access to the internet and devices in Bloomington. Staff noted that the University’s mobile hotspot program—which makes available about 180 hotspots available to students, faculty, and staff—has been fully used. The university has also seen high demand for the outdoor Wi-Fi in the school’s stadium parking lot.

Dan Calarco said that the school’s hotspot program could be expanded quite easily, because the relevant contracts and processes are already in place. He also noted that any initiative to expand internet access should ensure that the same level of access is provided to low-income families as

to others. Laurie McRobbie similarly highlighted the need to provide access that can support needs in a meaningful way—especially when there might be multiple people using a household connection, and/or a strained local network.

Participants said the university had the potential to play a role in expanding broadband infrastructure in the community. Marianne Chitwood, director of operations for GlobalNOC and operations manager for I-Light, saw potential in the university leveraging additional spectrum, such as TV white space spectrum, to enable connectivity. Chitwood also said that the university had prepared an application for federal funding to enable outdoor wireless access throughout all of the Ivy Tech Community College campuses in Indiana. While the project hasn't been funded, the project planning has been done, so this project is ripe for exploration.

McRobbie suggested that regional foundations might be interested in supporting infrastructure deployment. She specifically noted that there might be alignment with the James Graham Brown Foundation and the Lily Endowment, and suggested further exploration to determine an alignment with foundation goals. McRobbie added that the problem of digital access and literacy has impacts beyond the school, often limiting families' ability to access government programs. She also noted that at the organizational level, the local United Way's nascent Innovation and Technology Fund, which seeks to assist nonprofit agencies in capacity building, might be a natural fit to offer technical support capacity to other entities. McRobbie suggested that there would be an opportunity to collaborate with United Way in regard to strategy for focusing the Tech Fund's resources.

Discussion participants also saw significant barriers to meaningful use of the internet beyond the availability of broadband. Jessica Calarco, associate professor of sociology at Indiana University, said that her research has shown that many people don't have the resources to repair broken devices in a timely manner.

In addition, the participants saw a significant gap in access to skills training and tech support, especially among teachers and parents. Many K-12 schools have a single part-time or full-time staff member to provide tech support to the school; now that many schools have moved to online learning, that staff person cannot handle the needs of an entire school population. Chris Robb said that students, parents, and teachers are experiencing technology "whiplash" as schools change learning platforms. He affirmed the need for additional support helping families navigate online tools.

Participants stressed that it is important not to ask people to jump through hoops in order to receive help. What's important: in-person support from trusted individuals and institutions, with the goal of making access to digital education easy and accessible, without asking people to work to prove eligibility. Trust was highlighted as a key consideration—not everyone feels comfortable

asking for help, and there may be cultural barriers. McRobbie suggested a potential solution of standing up a training corps that is reflective of the population that it serves. She noted that while the process of recruiting, training, and building trust in the community would likely be a long-term effort, the project could potentially benefit from an alignment with IU Corps, the University's program that coordinates student service projects in the community.

5.3 Monroe County Public Library

Participants:

- Marilyn Wood, Library Director
- Grier Carson, Associate Director
- Bethany Turrentine, VITAL Coordinator
- Lisa Champelli, Children's Strategist

The Monroe County Public Library (MCPL) system historically has provided community members with internet and device access and skills training. MCPL staff explained that the pandemic has made the needs of the community more visible and vastly increased demand for online resources.

The pandemic has pushed the library to accelerate its focus on digital resources, explained Marilyn Wood. MCPL eLibrary resources include online databases; downloadable platforms for print, audio and video content; interactive learning platforms; and digital periodicals. eLibrary use has seen a steady increase of between 10 percent and 25 percent each year over the past several years. At the time of meeting, eLibrary use in 2020 was up 12 percent from the 2019 average.

Sharp increases were seen around the beginning of the pandemic: monthly video streaming on the service Kanopy doubled since the library locations closed mid-March, monthly downloads and streaming on Hoopla (a platform that offers access to digital movies, music, and ebooks) increased by roughly 40 percent since closure, and monthly downloads of ebooks and e-audiobooks increased by 19 percent from February to April 2020. The library has also implemented virtual story times and other activities that provide a remote option for families to connect with library programs.

As library locations have closed to the public, MCPL has extended Wi-Fi connections to building parking lots. This option has seen significant use, and the library has even fielded requests to set up picnic tables in parking lots. One student even brought a lawn chair to the parking lot to sit in while he used the Wi-Fi. Lisa Champelli, MCPL's children's strategist, shared concerns about how some people would access this resource through the colder winter months. MCPL has begun scheduling appointments for people to come inside to use library computers on a limited basis.

The demand for internet and computer resources at the library, especially through the pandemic, has underscored the lack of ubiquitous access throughout Monroe County.

The library also offers various adult education programs, including technology skills training, through the Volunteers in Tutoring Adult Learners (VITAL) initiative. The technology skills program offers one-on-one training, and historically has been very popular. Bethany Turrentine, MCPL's VITAL Coordinator, explained that VITAL was a very "high-touch," in-person program prior to the pandemic. With the COVID-19 outbreak, VITAL has shifted entirely to remote. Students with broadband, devices, and technology skills adapted well to online work, but many without those things struggled. Turrentine noted that there are other barriers to being able to access online programs through the pandemic, such as childcare. Overall, VITAL has been unable to get in touch with approximately 10 percent of those that have indicated interest.

One woman has been a student through VITAL for several years. She meets with her tutor every week and is currently at a second-grade reading level. The student doesn't have internet at home or via a smartphone and has health concerns and low mobility. Her tutor is in her 70s. It has been extremely difficult for the student and her tutor to connect throughout the pandemic. Additionally, the social aspect of coming into the library for tutoring had been meaningful to the student, and that has been lost in the pandemic.

Grier Carson, the Associate Director of MCPL, says that looking forward, access to broadband infrastructure is still a concern. The library has 30 hotspots that it makes available for checkout, and the waiting list is consistently 40 to 50 people long. Carson noted that the library is not equipped to provide hundreds of hotspots to the community, but that the pandemic is causing the library to consider if it has more of a role to play in circulating robust technology such as laptops. Cost is the main issue, he explained. Turrentine proposed that a "learn to earn" program model could be considered, in which technology skills students would learn how to use a device, and then keep that device at the end of the course.

MCPL does not expect the increased demand for digital access to resources to be short-lived, and anticipates the need to further fund and support eLibrary collections and services. The Library would be interested in reviewing options for conducting user experience studies in order to determine how best to respond to this demand, as digital access and programming will play an increasingly important role in its strategic planning.

5.4 Monroe County Community School Corporation

Participants:

- Lily Albright, Principal, Unionville Elementary School
- Tim Pritchett, Director of Technology, MCCSC

- Becky Rose, Director of Student Services, MCCSC

The Monroe County Community School Corporation (MCCSC) leadership said that while most students have access to the internet at home, that access is poor for many students. Parental discomfort, lack of skills, or lack of time to troubleshoot e-learning technology may make it difficult for some students to engage in remote learning. Ultimately, while MCCSC leadership stressed the need for schools to ensure that students have the technology necessary to e-learn, they also said that the administrative burden being put on schools as it relates to providing technical support to thousands of homes to manage stopgap solutions is not sustainable.

Tim Pritchett said the responsibility for schools to ensure students have adequate internet in the home has increased since the pandemic moved education online. However, schools can't build new broadband infrastructure to students' homes and do not have the staffing or operations resources to provide wide-scale technology support or hotspot management indefinitely. The emergency response programs that MCCSC has taken on, such as the hotspot program, have created significant administrative burdens and impacted MCCSC staff's ability to do their core jobs. For example, with the onset of the pandemic, MCCSC's tech support staff became responsible for direct communication with approximately 11,000 students and 17,000 parents.

In recent years, MCCSC began administering a Senior Technology Survey to its high school seniors. The survey revealed that approximately 96 percent reported that they have home internet access. Those who report that they do not often say they access the internet from other locations, such as the library or a friend's house. Despite these numbers, the Covid-19 pandemic helped expose that these connections are not meeting many of the students' needs. Lily Albright estimated that when school went online in the spring of 2020, about a third of her students could not connect. MCCSC distributed several hundred hotspots to students starting in August of 2020.

Stopgap solutions come with their own set of challenges. Rick Dietz, director of the City's Information and Technology Services Department, noted that MCCSC has prioritized the distribution of hotspots to students without home internet access. However, the hotspots MCCSC has distributed have data caps that students often hit before the month is over, and hotspots aren't an improvement for students who were relying on a cellular connection to begin with. MCCSC has also implemented several public Wi-Fi access points for families to connect to the internet in school parking lots. Transportation poses a challenge for many families, though, and sitting in a car all day is not conducive to online learning. Finally, Comcast's Internet Essentials program is unavailable to many low-income families, sometimes because of past unpaid debts to Comcast.

Beyond the issue of home internet connections, MCCSC stakeholders did not identify access to internet-enabled devices as a significant problem—the district has been relatively ahead of the

curve in making devices available to students. They did note, however, that parents' and grandparents' unease with technology sometimes hampers troubleshooting processes that naturally come with the introduction of new software and processes. Students, on the other hand, seem to be resilient and able to tackle troubleshooting with new technology.

Because of these constraints, MCCSC stakeholders noted that many long-term solutions to the broadband problem would likely be best managed by a third party, such as a community foundation. This approach would maximize the sustainability of any identified solutions.

Stakeholders agreed that the pandemic has further brought to light the importance of available, high-quality internet for students. While MCCSC is able to provide emergency or stopgap intervention, the stakeholders said that the long-term sustainability of solving this problem is bigger than what can be solved by a public school corporation, and that like access to food, electricity, water, affordable housing, and other basic necessities, the solution must come from a broad-based community initiative.

5.5 Bloomington Tech Sector

5.5.1 Pat East, Executive Director, The Mill

The Mill is a 501(c)(3) coworking and incubator space in downtown Bloomington. Its mission is to launch and accelerate startups. Most people that work at The Mill have home broadband access, and The Mill provides gigabit broadband access on-site from two different internet service providers. The only time the organization has dealt with entrepreneurs not having access to broadband is when they have worked with other communities. For example, The Mill invited the winner of an outside organization's pitch competition to participate in theirs. That person only had a cellphone and did not have the resources needed to submit the PowerPoint for the competition.

5.5.2 Mike Trotzke, Entrepreneur; Founder, Sproutbox & the Combine; Board Member, the Mill

Trotzke has observed that bandwidth requirements for remote work have shifted dramatically due to the pandemic, to the point where there is an equity issue at the middle-class level. He emphasized that digital equity is "not just about access to consume, but also about access to create." Digital access is a barrier for much of the Mill's startup programming; having access to a computer and the internet is often seen as necessary in order to learn to code or start a business. In terms of supporting access to devices in the community at large, Trotzke said it would help if a sponsor organization lent out devices and took charge of maintenance and operations.

5.6 Health and Social Support Services

5.6.1 Dan Handel, Chief Medical Officer, Indiana University Health South Central Region

Indiana University Health (IU Health) recently designated a chief medical officer for digital health and is working to improve its platforms, anticipating that one in five outpatient visits will be digital moving forward. Prior to the pandemic, American Well has been the most popular platform for virtual visits, and IU Health has found that behavioral health lends itself well to telehealth. Given limited behavioral health resources across the state, psychiatric emergency visits that come into IU Health are connected remotely to a behavioral health specialist. This makes psychiatric care more accessible.

With the onset of COVID-19, IU Health deployed an app that uses a decision tree algorithm to ask people about their symptoms. The app helps IU Health keep tabs on patients, so that when symptoms take a turn, there's a mechanism in place to escalate that case to the right person in the medical system.

While IU Health is anticipating a fifth of its outpatient visits to be digital moving forward, logistical and cultural hurdles remain. Adapting technology to suit older generations being served is one of the first challenges. For example, many seniors use flip phones, which makes it more difficult to coordinate a virtual visit. Additionally, the affordability of internet in Bloomington is a barrier. Protections need to be in place so that residents don't lose internet service if they're unable to pay—similar to protections for other utilities. Rick Dietz, director of the City's Information and Technology Services Department, noted that this issue could potentially be addressed by the state legislature.

5.6.2 Nancy Richman, Project Director, HealthNet, Inc., and Shelley Sallee, Clinic Manager, HealthNet Bloomington Health Center

HealthNet has been seeing increasing numbers of patients through virtual visits, and specifically, has been relying strongly on virtual visits for behavioral health needs. The trend toward virtual behavioral health care holds at both the city and national level. Virtual visits have a much lower no-show rate, and providers report better contact and ability to learn about their patients. Patients also seem to like their visits more.

However, virtual visits are limited to those that are able to access them, and access problems are seen across all demographics. In many cases, phone visits are the only remote option available, which is limiting. Federally supported Lifeline program flip phones also have a limited number of minutes. Language and literacy barriers can also make it difficult for people to access online resources.

The application for the Healthy Indiana Medicaid plan is electronic. Virtually all aspects of the enrollment requires the use of the internet or technology. Even if an individual comes into the clinic for help, he still needs to be able to access documents electronically. This is a source of difficulty for individuals and an example of how a lack of access to internet or computers can directly limit one's ability to get healthcare coverage. In addition, not having the skill set needed to navigate the application can add another layer of difficulty.

5.6.3 Chris Myers, CEO, Area 10 Agency on Aging

The pandemic has shown that the population the Area 10 Agency on Aging serves can be split into two groups: those who are physically mobile and will show up at meal sites and other in-person services, and those who are homebound or have limited mobility. Myers finds that the mobile population typically does have access to a computer or smartphone, though not necessarily in their own home. She finds that the homebound population often simply does not have access to the internet or internet enabled devices, usually because of the cost.

Much of Area 10's constituency is affected by social isolation issues on a normal day, and the COVID-19 pandemic has exacerbated this problem. It's also been difficult for individuals that only have access to a phone to receive complete remote care.

Myers identified the affordability of service as the primary barrier, and skills education as a secondary concern. She estimated that about half of those that do have internet access are familiar with software such as Zoom, so there's work to be done to close the skills gap.

Area 10 typically does provide digital skills tutoring, and is in the process of figuring out how to offer this in the midst of the pandemic. The organization is exploring making in-person services available outside of the Area 10 office with the use of personal protective equipment and social distancing guidelines. Area 10 has also been working to develop a "loaner kit" pilot program in which hotspots and devices could be dropped off with individuals to use for an appointment or other need, and then picked up and distributed to another individual in need. Myers noted the limitation that in rural parts of the community, hotspots aren't a reliable choice for connectivity.

5.6.4 Amber Skoby, Executive Director, Bloomington Housing Authority

The Bloomington Housing Authority owns and operates 312 housing units and also facilitates the Section 8 Housing Choice voucher program. The Housing Authority has a physical computer lab location that includes PCs, a printer, and a staff person to help troubleshoot; Wi-Fi access in community buildings; and a dozen PCs donated to the Housing Authority and set up with families with children who are enrolled in virtual learning. Skoby said that there is a desire to develop a more comprehensive strategy and to invest in a streamlined solution, but also a wariness of duplicating existing efforts that a different stakeholder might be addressing already.

Skoby said it would be helpful to have a partner with whom the Housing Authority could work on digital equity issues. Potential partnerships could include working with a low-cost broadband internet provider that has low-barrier eligibility, working with MCCSC to help school-aged children access e-learning tools, or working with IU Serve IT to assist with one-on-one training, tech support, or computer basics workshops. Skoby also suggested that a community hackathon might tackle the issue of making digital tools and services accessible for those with disabilities.

Current concerns include the ability of seniors to be able to access basic preventative care and mental health care services throughout the COVID-19 pandemic, and the more general concern that residents may lack digital skills or have a disability that makes using computers difficult. The eligibility criteria for Comcast's Internet Essentials program is often a barrier to access.

Housing Authority programs are meant to help families become more self-sufficient. Skoby said that using technology for skill building is one way to work toward this, and that strengthening employment connections at the Boys and Girls club and emulating the Mill's coding school programs were two ideas to move toward this goal.

5.6.5 Jenny Donegan, Founder, TechHeroes

TechHeroes is a program Donegan launched in California in 2010 to bridge the digital divide for the elderly population and others with barriers to digital access due to health or economic concerns. Donegan has also served as a City Commissioner with the Commission on Aging since 2018.

In Bloomington, TechHeroes has worked in partnership with high school students to provide tech trainings for seniors. More recently, TechHeroes hosted a virtual poetry reading in partnership with Area 10 Agency on Aging to promote social connection in the time of the COVID-19 pandemic. In addition, TechHeroes was awarded a Smithville grant in partnership with Co-Design Commons with the goal of supporting local seniors to master digital literacy skills to a level that reduces their digital/social isolation and enables them to contribute to the community.

Donegan advocated for the TechHeroes model to be adopted at the city level, in collaboration with the library, the Bloomington Volunteer Network, and Indiana University's Serve IT Nonprofit Technology Clinic, to provide training and technology support for those in need. The library is a great resource, she noted, but there is a need for more capacity in the community.

Donegan proposed that the city implement universally designed standardized computer centers that are available to the public. She also proposed that the city could maintain a community-wide email list in order to better communicate with constituents. She proposed that the city partner with the library to host outreach workshops on topics that support digital equity for all, such as how to sign up for an email address. She suggested that at the end of that workshop, participants' emails be added to the proposed city-wide email list.

Donegan advocated that enabling internet access for everyone in the community and providing training and technological support should both be key priorities for the city. She supported the city becoming an official Broadband Ready Community per the Indiana Office of Community and Rural Affairs' program.

5.7 Economic Development

5.7.1 Erin Predmore, President and CEO, Greater Bloomington Chamber of Commerce

The COVID-19 pandemic has sharpened the need for universal affordable broadband. In terms of economic development, cybersecurity and artificial intelligence are strong industries in the region. Being technologically savvy is key to marketing Bloomington to businesses, and the availability of high-speed broadband is critical to high-tech businesses and to the success of small businesses. Right now, many businesses are pivoting to online mechanisms and encouraging online purchasing.

It's important that there is a mindset shift and internet is considered a utility, like water and heat. The City should prioritize laying more fiber and working with internet service providers to ease the burden of deployment. The City could consider subsidizing the deployment cost for the private sector.

There's also a need to invite internet service providers to the table to have a discussion about what is working and what isn't, to make programs like Comcast's Internet Essentials more known and available to the community.

5.7.2 Tina Peterson, President and CEO, the Community Foundation of Bloomington and Monroe County; CEO, Regional Opportunity Initiatives, Inc.

Within her capacity with the Community Foundation of Bloomington and Monroe County, Peterson noted that the connectivity gaps in the community first became very obvious when they worked to get families in poverty enrolled in pre-K programs. Many of the families had "burner phones," and it was difficult to engage with them. The COVID-19 pandemic has shed light on how to get resources to at-risk populations. In particular, it's been difficult to deliver mental health resources to people who don't have connectivity. She explained an idea to create device packets to drop off at the doors of people who need them to access remote appointments and other digital resources; the devices could later be picked up and delivered to another person in need. Peterson highlighted the Learning Equity and Resource Needs (LEARN) Fund, which provides assistance to those who need help accessing technology and online learning.

Peterson said that the organization's 2014 strategic study identified broadband access as a significant issue for the region. She said that it's difficult to attract people to the region if there isn't fiber access in the neighborhoods, and that various quality of place and workforce attraction

studies done in the region also identified broadband as a need. While some communities have received grants from the state, even big grants don't meet the full need.

5.7.3 Lisa Abbott, Executive Vice President for Economic and Community Development, Regional Opportunity Initiatives, Inc.

Abbott emphasized the need for a regional solution to the digital divide and prioritized the need to create a plan for the whole region, noting that perhaps even the 11-county region encompassed by Regional Opportunity Initiatives, Inc. is too narrow. She suggested that action steps would be to figure out where the gaps in access are and why it's so challenging to fill them. Specifically, the high cost of rural broadband deployment presents a challenge.

Abbott sees the need for broadband access in the wider regional community; she's a special advocate and the foster family she works with lives in an area with no access to the internet. The family has to drive to school parking lots in order to access the internet from their car.

5.8 Other Local Governments/Jurisdictions

5.8.1 Geoff McKim, Monroe County Council Member

Monroe County has a challenge when it comes to addressing gaps in broadband access, because there are significant pockets of the county without broadband service—particularly in the rural and unincorporated areas—but the county is not sufficiently rural to qualify for most federal broadband funding programs. And the county does not have good data about which areas are unserved by broadband, but often hears from residents that can't get any access at their home.

Monroe County has been focusing on infrastructure issues and has explored working with the Center for Regional Development at Purdue University and with Regional Opportunity Initiatives, Inc. Rural electric membership cooperatives present a potential solution, and have taken the lead in building broadband in south central Indiana.

5.8.2 Kim Alexander, Bloomington Township Trustee

Alexander noted that most clients in the Township have access to the internet via their cellphones, though a small percentage don't have internet-enabled devices. A handful of people have computers, and most people don't have printers, scanners, or other devices. The biggest problem is that most clients have Lifeline service and lack money to add additional minutes to their plan. There don't seem to be local agencies with the goal of bolstering these programs. The biggest problem in the community is a lack of a support system.

Appendix A: Survey Instrument (to be attached in final document)