Alameda County Older Adult Digital Needs Assessment Survey: Gaps in Equitable Access to Digital Resources

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Executive Summary

The COVID-19 pandemic has exposed and exacerbated existing problems faced by older adults and people with disabilities, including inequitable access to digital resources. During the pandemic, many resources for older adults were moved online. Currently, older adults are increasingly asked to use telehealth to access medical care as well as resources for caregivers and isolated seniors.

The <u>Alameda County Council for Age-Friendly Communities</u> (Age-Friendly Council) Digital Inclusion Workgroup was established in August 2020 to discuss growing concerns about inequitable access to digital resources and identify and consider best practices to address gaps. To collect information specific to Alameda County, the workgroup conducted a countywide needs assessment of adults ages 50 and older. The group developed a survey that was translated into the County's nine most common languages, including Arabic, Farsi, Korean, Simplified and Traditional Chinese, Spanish, Tagalog, and Vietnamese. It focused on three areas related to digital resources, including:

- Internet access;
- Access to digital devices including smartphones, tablets, laptops, and desktop computers; and
- Training and technical assistance needed to use digital devices.

The survey also asked questions about respondent demographics; special needs that would affect the type of device respondents could use; preferred learning methods; and provided space for comments.

The workgroup disseminated the survey from April to October 2021 via an online platform (SurveyMonkey) and paper copies with business reply envelopes to increase access and responses. With a focus on reaching residents with the lowest incomes and minimal internet access, the workgroup disseminated over 72,000 surveys county-wide through County and community partners that serve older adults. Recipients of the surveys likely passed them along to their contacts.

There were 1,413 survey responses from people ages 50 and older. Key findings include:

- Forty-five percent stated that their income was \$2,000 per month or lower, and 55% of all surveys returned were paper copies.
- Comfort using telehealth was significantly lower among respondents ages 75 and older than among younger groups.
- Across all the findings, income level had more of an impact than any other variable. There were significant differences between respondents reporting incomes below \$2,000 per month and those with higher monthly incomes.

- While 90% of older adults with incomes over \$2,000 per month had internet access at least once a week, only 68% of those with monthly incomes below \$2,000 per month had access.
- Across all digital devices, respondents with incomes under \$2,000 per month had less access than those with monthly incomes over \$2,000. Smartphones were the most-used device for respondents of all income levels.
- Race/Ethnicity was associated with digital access, and some of those differences remained within groups of the same income level. For respondents with incomes under \$2,000 per month, Whites had more internet access than all other groups and were comfortable with most online tasks including telehealth, as compared with other groups.
- For all income levels, African American and Latinx populations were more likely to have access to smartphones than to tablets, laptops, or desktop computers. White populations had more access to all devices than other groups.

Focus Groups

"Many seniors simply don't have the resources to buy ANYTHING that would allow them to access the internet." To learn about internet and device needs among senior residents of long-term care facilities (LTCFs), the workgroup conducted two focus group discussions with LTCF staff. Empowered Aging, which provides ombudsman services in Alameda, Contra Costa, and Solano Counties, advised that it would be difficult to

survey LTCF residents during the pandemic because many would need support from staff in order to complete the survey, and many staff were already handling a heavy workload. Focus group staff participants described the critical importance of technology for keeping clients connected with family, particularly at end-of-life and during COVID-related lockdowns. Clients preferred using tablets to listen and speak with family members and access voice-activated functions. Many needed assistance to use the tablets. Along with clients, many of their families needed support to obtain the devices and instruction on how to use them.

Latinx Community Survey

The workgroup noted a gap in responses from Latinx older adults. To seek feedback about possible reasons for the low response rate and discuss ideas to address it, the workgroup engaged in meaningful discussions with an advisory group of community-based partners who provide services and supports to Latinx older adults. Recommendations included creating a shorter survey instrument that was focused on technology and training needs, removed demographic information questions, and designed to be administered verbally. Community partners also recommended that the survey be conducted in-person at community events and food distribution locations in the County's priority zip codes.

From November 2021 through March 2022, the workgroup circulated electronic and paper copies of the Latinx Community Survey in Spanish and English to community partners and administered the survey in person at community events. There were 63 responses from Latinx residents over the age of fifty. Findings generally followed the age-based trends in the general survey, but there were some critical differences. Respondents' comfort with telehealth decreased as age increased, with significantly fewer Latinx respondents older than 65 reporting comfort with telehealth. Further, significantly fewer respondents to the Latinx Community Survey had access to tablets and devices other than smartphones; and just 48% of Latinx Community Survey respondents had weekly access to the internet, compared with 63% of Latinx respondents to the general survey.

Recommendations

The results from the general survey and the Latinx Community Survey include a large proportion of Alameda County residents with a high level of need for support to access digital resources. The Digital Inclusion Workgroup developed the following policy and program recommendations, based on the results from both surveys, that could make a difference in Alameda County. Any effort to address gaps in digital resources should include a culturally appropriate approach that considers the needs of the County's diverse populations.

- Consider the internet to be a public utility so that everyone can access critical resources regardless of income level. This includes providing secure, low-cost and no-cost broadband access – or free, secure Wi-Fi in areas where broadband infrastructure is not available – as a government or health system benefit tied to household income level.
- 2. Fund programs that provide low-income seniors with tablets and other digital devices that include:
 - a. Working cameras that seniors can use at home to access telehealth and other critical services.
 - b. Adjustments including enlarged font sizes, larger screens, screen readers, enhanced keyboards or ergonomic equipment and voice-activated software for older adults and people with disabilities who need those supports.
 - c. Flexibility to meet individual language needs.
- 3. Support programs that provide culturally and linguistically competent training and ongoing technical assistance that are specific to the needs of older adults.
- 4. Support senior centers, libraries, and other public venues that can serve as digital access/navigation points and provide technical support.
- 5. Fund, train, and support culturally relevant and linguistically competent Community Health Outreach Workers to become "digital navigators" to help older adults find internet access and obtain digital devices; and to assist them to access telehealth and apply for benefits online.

6. Continue funding in-person and telephonic health care and service delivery options for those who are unable or not ready to utilize digital options for services and/or information and assistance.

Background and Methods

The COVID-19 pandemic has exposed and exacerbated existing problems faced by older adults, including inequitable access to digital resources. During the pandemic many resources for older adults were moved online. Currently, older adults are increasingly asked to use telehealth to access medical care as well as resources for caregivers and isolated seniors. And although shelter-in-place orders have been lifted, many older adults remain homebound and isolated either because they are immunocompromised and more susceptible to severe outcomes due to COVID or because the pandemic has made it more difficult to access services of all types, including transportation and in-home supports.

The <u>Alameda County Council for Age-Friendly Communities</u> (Age-Friendly Council) coordinates efforts to effect policy and system changes that enhance the overall well-being of older adults who live in Alameda County, engaging leaders, consumers, and providers to develop and sustain a community framework that fosters healthy aging. It includes representatives from community-based organizations (CBOs), <u>c</u>ities, and Alameda County agencies and programs that serve older adults.

The Council's Digital Inclusion Workgroup was established in August 2020 to discuss growing concerns about inequitable access to digital resources; identify gaps; and consider best practices to address those gaps. The workgroup is co-chaired by staff from the Alameda County Health Care Services Agency's Public Health Department (PHD), Alameda County Social Services Agency (SSA) and the Senior Services Coalition of Alameda County (SSC). It includes County, City and Community-Based Organization (CBO) partners that provide programs and services for older adults. Some of the workgroup members have technology expertise, and several had already begun to implement programs to increase their clients' and stakeholders' digital access.

SURVEY DEVELOPMENT

The group reviewed resources that were available to low-income older adults to address gaps, and what data may be needed. They determined that an important first step would be to conduct a countywide needs assessment of adults ages 50 and older, to collect information about gaps specific to Alameda County. Group members developed the survey instrument by committee during monthly meetings, working from a city-wide needs assessment that the City of Fremont Human Services/Aging and Family Services Department had previously conducted regarding older adults' access to digital resources and adapting it for county-wide use. PHD's Community Assessment, Planning and Evaluation (CAPE) Unit assisted to refine the questions to support survey analysis. A workgroup member from DayBreak Adult Care Centers provided graphic design. PHD translated the surveys into the County's nine most common languages, including Arabic, Farsi, Korean, Simplified and Traditional Chinese, Spanish, Tagalog, and Vietnamese.

The survey focused on three areas related to digital resources, including

- 1. Internet access such as broadband, Wi-Fi hot spots, etc.;
- 2. Access to digital devices including smartphones, tablets, laptops, and desktop computers; and
- 3. The ability to use digital devices.

The survey also included questions about demographic information; special needs that would affect the types of devices respondents could use; preferred learning methods; and space for written comments.

The survey was beta-tested with consumers, who provided valuable feedback that the workgroup incorporated into the instrument before widely disseminating it.

SURVEY DISSEMINATION

The workgroup disseminated the survey from April to October 2021 via an online platform (SurveyMonkey) and paper copies. Information about the survey, including links to the SurveyMonkey instruments and downloadable PDF copies in nine languages, was placed on the <u>Alameda County Age-Friendly Website</u>. Additionally, the workgroup developed a flyer with information about how to access the survey and made it available in English and Spanish. See Appendix A for the survey instrument and flyer.

With a focus on reaching residents with the lowest incomes and least internet access, the group disseminated the survey widely to County and community partners, and the workgroup cochairs presented the survey in several videoconference meetings that reached hundreds of seniors. **During the 6-month period, the workgroup tracked dissemination of over 72,000 surveys county-wide.** Dissemination was likely much more widespread than that as recipients of those surveys passed them along to their contacts.

It was important to the group to distribute as many paper copies as possible to reach people without any internet access. PHD, SSA and Alameda Alliance for Health printed thousands of paper copies in multiple languages and disseminated them with business reply envelopes in mailings to clients and patients. Community partners helped distribute paper copies and return envelopes in meal bags and activity kits distributed to seniors, and hand it out at senior centers, senior housing, libraries and in the SSA Adult & Aging Services Lobby.

Electronic distribution of the survey also reached many County residents, and those efforts also focused on low-income seniors with less access to resources. For example, SSA's In-Home Supportive Services (IHSS) department emailed the survey link to nearly 31,000 IHSS Recipients and Care Providers with an email address on file. Many other County and community partners

that serve low-income residents also emailed the link with their newsletters and other email notices.

Studies have shown significant differences in health and social conditions by neighborhood, including economic opportunity, education, affordable housing, a clean environment, and other critical factors.¹ For that reason, the County identified Priority Zip Codes (West Oakland, San Antonio/Fruitvale, East Oakland, South Hayward, and Ashland/Cherryland) where, throughout the pandemic, case rates have been higher, vaccine uptake has been lower and resources have been less accessible. Alameda County focused a significant portion of its COVID response, including testing, vaccine clinics, outreach and other resources, on the priority zip codes.

The survey included a question about respondents' Zip Codes. During survey dissemination, the workgroup tracked on an ongoing basis the proportion of surveys that were submitted from the County's Priority Zip Codes and worked to increase outreach in those areas.

See Appendix B for additional information about survey dissemination.

Long-Term Care Facility Focus Groups

To learn about internet and device needs among senior residents of long-term care facilities (LTCFs), the workgroup conducted two focus group discussions with LTCF staff. Empowered Aging, which provides ombudsman services in Alameda, Contra Costa, and Solano Counties, advised that it would be difficult to survey LTCF residents during the pandemic because many would need support from staff in order to complete the survey, and many staff were already handling a heavy workload. The focus group method had the advantage of reducing burden on LTCF staff and allowing facilitators to engage staff in more in-depth discussion. Empowered Aging reached out to LTCFs to recruit participants and worked with CAPE, and other PHD and SSA staff to develop focus group questions.

The workgroup held two focus groups over Zoom in July and September 2020, facilitated by the Executive Director of Empowered Aging. To ensure systematic data collection, the workgroup developed a protocol of focus group questions, and used a note-taking template.

LATINX COMMUNITY SURVEY

During the six months that the survey was out, the workgroup reviewed the preliminary results on an ongoing basis to assess for gaps in respondent demographics. For example, although this was a convenience sample and therefore cannot be considered to be representative in the same way as a random sample, the group compared survey responses by race/ethnicity with

¹ Joint Center for Political and Economic Studies and the Alameda County Place Matters Team. Place Matters for Health in Alameda County: Ensuring Opportunities for Good Health for All: A Report on Health Inequities in Alameda County, California. Joint Center for Political and Economic Studies, November 2012. <u>PLACE-MATTERS-for-Health-in-Alameda-County-2.pdf (nationalcollaborative.org)</u>

the Alameda County population age 50 and older. The response rates for most racial/ethnic groups were either proportionate to their distribution in the County population or higher. (See Appendix D: Respondent Demographics.) For example, 17% of survey respondents identified as African American, compared with 12% in the overall County population over 50 years old. However, the Latinx response rate (8.1%) was lower than the population's proportion in the County (12.1%).

To increase the number of responses from the Latinx community, the group conducted additional outreach. Digital inclusion workgroup members held two meetings and ongoing follow-up discussions with an advisory group of Latinx community-based partners to seek feedback and support for additional outreach. Please refer to the Acknowledgements section for a list of advisory group members.

During the first meeting in October 2021, community partners were asked to provide feedback about possible reasons for the low response to the general survey and suggest recommendations for methods to improve outreach to Latinx residents. Community partners noted that due to mistrust of health and legal systems, it is possible that questions about demographic information may discourage submitting a survey response. The group recommended development of an additional, shorter survey and advised on survey content and dissemination.

The shorter survey, the Latinx Community Survey, included seven questions focused on broadband access, devices, and training needs and was shared with community partners for their review and feedback. The survey instrument was designed to be easily administered verbally by, for example, restructuring the questions to support "yes/no" responses. (See Appendix A for the survey instruments in English and Spanish, as well as flyers developed to help disseminate the survey link).

Using SurveyMonkey, the workgroup circulated both Spanish and English versions of the survey to community partners in the County's priority zip codes, to share widely with providers and consumers across their networks from November 2021 through January 2022. From January through March 2022, the workgroup shifted to an in-person outreach approach to increase survey responses. In February 2022, the workgroup reconvened Latinx community partners to convey the challenges and successes in obtaining community responses. In collaboration with the ACPHD's GMOL/Care Partners program and community partners, workgroup members attended two community events to conduct in-person outreach, with bilingual Spanish-speaking volunteers who assisted in survey administration and community engagement.

Additionally, the advisory group supported dissemination to providers and consumers of 300 paper copy surveys and provided the electronic copies of the survey to over 2,800 individuals via email distribution lists.

As a result of the in-person outreach and partnerships, the workgroup received 63 responses to the Latinx Community Survey, which closed the gap in the number of surveys received from Latinx communities in Alameda County as compared with the proportion of Latinx older adults.

DATA ANALYSIS

General Survey

CAPE worked with other PHD staff to combine responses for electronic and hard copies in each language into one centralized database. Multiple choice answers were analyzed separately from those that were open-ended (fill-in-the-blank or comment boxes).

CAPE analyzed multiple choice answers using the Statistical Package for the Social Sciences (SPSS). Frequency and percentages of all answers were computed for all respondents, and for subgroups by survey type (electronic or paper), language, race/ethnicity, age, income, and supervisorial district. To determine whether differences between subgroups were more likely due to genuine differences, rather than by chance, CAPE used the Chi-square statistic. See Appendix F for survey method limitations and how these limitations were mitigated.

Open-ended responses were translated as needed and combined into Excel files by survey question. CAPE and PHD staff read through each answer, assigned common themes (or the main ideas), and tallied the number of responses for each theme. To ensure a common understanding of the meaning of each response and theme, staff compared and discussed findings throughout the analysis.

Latinx Community Survey

Responses were collected both electronically and via hard copy and added to a SurveyMonkey database. Responses were then downloaded into an Excel file and uploaded into SPSS to calculate the frequency of each multiple-choice response. Percentages were derived from the total number of respondents who answered a particular question (denominator).

The general survey and Latinx Community Survey used the same wording for the question about weekly internet access, so answers for that question were combined in the analysis. As noted in the Background and Methods section, the wording of all other questions in the Latinx Community Survey was changed from the general survey format at the recommendation of the Latinx community advisory group, to accommodate a verbal, in-person survey. For that reason, results for other survey questions are reported separately for the general and Latinx Community surveys.

Focus Groups

CAPE guided the workgroup in an iterative process of reading through focus group notes, comparing and contrasting participants' answers, and identifying common themes. The

workgroup met to discuss findings and agree on a central list of themes. See Appendix F for limitations of focus groups and how these limitations were mitigated.

Findings

RESPONDENT DEMOGRAPHICS

There were 1,413 survey responses from people ages 50 and over, of which more than half (55%) were paper copies. As shown in Appendix D, Respondent Demographics, respondents submitted the surveys in multiple languages including English, Traditional or Simplified Chinese, Spanish, Vietnamese, Korean and Tagalog.

Percentages of each race/ethnic group of respondents (general and Latinx survey combined) were found to be comparable with the overall Alameda County population over age 50+ (with the exception of the White population). Note that the number of general survey responses for which race/ethnicity was known (1,394 out of 1,413) was used in this calculation. See Table 1.

Table 1: Race/Ethnicity of Survey Respondents							
	General Survey Latinx Community Survey		itinx munity rvey	Surveys Combined		AC Pop. Age 50+	
	N	%	N	%	N	%	%
American Indian or							
Alaska Native	10	0.7%			10	0.7%	0.3%
Asian/Pacific Islander	465	32.9%			465	32.9%	31.9%
Black or African							
American	242	17.1%			242	17.1%	10.6%
Latinx	114	8.1%	63	100.0%	177	12.5%	12.1%
Middle Eastern North							
African	7	0.5%			7	0.5%	*
Multirace	29	2.1%			29	2.1%	2.3%
Other	17	1.2%			17	1.2%	0.2%
White	445	31.5%			445	31.5%	42.7%
Prefer not to State	65	4.6%			65	4.6%	
Missing	19	1.3%			19	1.3%	
Total # of Respondents	1,413		63		1,476		

*Not available

About 45% of all respondents stated that their income was under \$2,000 per month, with another 34% reporting incomes over \$2,000/month. Nearly 25% of respondents either skipped the income question or chose "prefer not to state."

The survey examined the association between location and access to digital resources. Of the survey respondents who provided their Zip Code, 36% reside in the County's Priority Zip Codes described above.

Responses varied across the five districts overseen by the Alameda County Board of Supervisors oversees (see map in Appendix E). Districts Three, Four and Five had a higher proportion of respondents with incomes under \$2,000 per month compared with Districts One and Two. See Figure 1.



General Survey (n=1,413)

QUANTITATIVE FINDINGS

As mentioned above, the survey focused on three areas related to digital resources. These included internet access; access to digital devices; and training and technical assistance.

Figure 2 shows **weekly internet access** by race/ethnicity, which varied significantly. Whites and Asians/Pacific Islanders had higher rates of access than other populations. As noted above, the general survey and Latinx community survey used the same wording for the question about weekly internet access, so answers for that question were combined in the analysis.

Overall and in both the general and community surveys, Latinx respondents had lower weekly internet access than other races/ethnicities. Only 58% of Latinx respondents to both surveys had weekly internet access. Some differences emerged when comparing weekly internet access in the responses to the Latinx Community Survey with the general survey responses. Just 48% of Latinx Community Survey respondents had weekly access to the internet, compared with 63% of Latinx respondents to the general survey.

The differences in weekly internet access may be related to the methods used to administer each survey. For the general survey, which was self-administered, 35% of Latinx respondents submitted electronic copies and the remainder submitted paper surveys. Based on the recommendations of the advisory group described above, of the 63 Latinx Community Survey responses, 38 were administered verbally in person during community events. The remaining 25 were submitted electronically; however, of those, 22 were submitted online multiple times by one person. This very likely indicates that someone else, such as a service provider, assisted residents to complete their surveys. Only three respondents submitted just one electronic survey, and 12 of the 22 online survey responses were submitted by an advisory group member who said that she planned to assist community members in completing the survey. This likely indicates that the Latinx Community Survey reached more residents with little or no internet access.



General Survey and Latinx Survey Combined (n=1,476)

Please see the Latinx Community Survey analysis section below for additional results.

Across all of the findings from the general survey, income level had more of an impact than any other variable. There were significant differences between respondents reporting incomes below \$2,000 per month and those with higher monthly incomes.

As shown in Figure 3, 68% of people with incomes under \$2,000 per month had **weekly internet access,** as compared with 80% of people of all income levels (not included in the figure) and 90% of people with incomes higher than \$2,000 per month.



General Survey (n=1,413)

Weekly internet access varied in a similar pattern when comparing respondents that submitted paper and electronic surveys. Survey type is associated with respondents' income levels. Figure 4 shows that among those who answered the question about income level, two-thirds of the hard copies were submitted by respondents with incomes under \$2,000 per month. See Figure 4.



Access to devices also varied significantly by income across the four device types listed in the survey, as shown in Figure 5. Across all devices, respondents with incomes under \$2,000 per month had less access than those with incomes over \$2,000. Smartphones were the most commonly used device for respondents of all income levels.



General Survey (n=1,413)

Race/Ethnicity was also associated with access to devices and the internet, and comfort doing online tasks. Again, all groups had more access to smartphones than any other device. African American and Latinx populations were more likely to have access to smart phones than to tablets, laptops or desktop computers. White populations had more access to all devices than other groups. See Appendix E.

Some differences by race/ethnicity remained even within groups of the same income level. For respondents with incomes under \$2,000 per month, Whites had more internet access than all other groups and were comfortable with most online tasks including telehealth. Differences by race among non-white groups with

"I use Zoom but don't have a camera and use my telephone to access the meetings and classes."

incomes under \$2k were as follows; see Appendix E for additional details.

- Asians/Pacific Islanders had more access to the internet at least once per week.
- Asians/Pacific Islanders had less access to laptop computers, and less comfort with most internet tasks.
- African Americans had more comfort with shopping online, using social media and voice-activated features.

There were also differences across Board of Supervisors' Districts regarding access to the internet and devices, as well as comfort with various online tasks. Residents of Districts One and Two had more access overall to the internet and devices, and higher levels of comfort with most tasks. See Figure 6 below and additional information in Appendix E.



General Survey (n=1,413)

"Technology makes things easier for me but I know that for many older people it does not and they will never get used to it. Please take this into account even more." The survey included a question about **comfort with doing various tasks online** such as internet searches, using email and video applications, accessing benefits, shopping, banking, and others. Respondents with incomes under \$2,000 per month were significantly less comfortable with all of the tasks then those with higher incomes. A significant number of respondents used the

internet to complete tasks related to their finances, such as online banking or paying bills. This category had more association with respondents' income than the others, with the higher income respondents being more likely to use these functions. Again, a similar pattern emerged with respondents that submitted paper surveys showing lower comfort levels across all tasks than those who submitted electronic surveys. See Appendix E.

During the pandemic, health care providers increasingly asked patients to meet online rather than in person. Notably, survey respondents aged 75 and older were less comfortable using



telehealth than younger groups of all income levels, and that outcome increased with age. See Figure 7.

Latinx Community Survey

There were 63 responses from Latinx Community Survey respondents over age 50. As shown in Table 1 above, the Latinx Community survey closed the gap in responses from the Latinx community.

Findings mostly followed the age-based trends as in the general survey, but there were some stark differences. First, only 24% of Latinx Community Survey respondents overall were comfortable with telehealth, as compared with 58% of the general survey respondents. This disparity remained when comparing the Latinx Community Survey results with the subset of general survey respondents who submitted paper copies of the survey and/or had incomes under \$2,000/month. In the general survey, 44% of respondents who submitted paper copies, and 44% with incomes under \$2,000 a month were comfortable with telehealth. Comfort with telehealth decreased as age increased, with only 17% of Latinx Community Survey respondents aged 65 and over reporting comfort with telehealth.

Latinx Community Survey respondents ages 65 and over were also less likely than respondents ages 50-64 to prefer training over the phone (10%) or online (29%). Preference for in-person training did not significantly differ by a respondent's age and was preferred by 44% of respondents overall.

Regarding access to internet-capable devices, a majority of respondents (68%) to the Latinx Community Survey had access to smartphones. Only two percent had access to a tablet, and 13% to other devices. In contrast, fewer respondents in the general survey had access to smartphones (48%) and more had access to tablets and computers.

QUALITATIVE FINDINGS

Open-ended Survey Responses

The survey included several open-ended questions that allowed respondents to write in their answers.

Internet access: For this survey question, multiple choice options included home Wi-Fi (wireless), home cable internet access (wired), senior center, public library, at work, and other. Respondents who specified other methods of accessing the internet were more likely to use mobile hotspots as compared with any other method. Many respondents also mentioned mobile data plans. Among the public areas used to access the internet, responses showed a close to even distribution of libraries, cafes, and other

"I want to work and need computers to look for and apply for jobs. We need libraries and senior center to be open longer. Also need libraries to check out computers and hotspots."

businesses. However, respondents were more likely overall to use the internet at a family member's home than at a public place.

Devices: The survey asked whether respondents used a desktop computer, tablet/iPad, laptop, smartphone or other device, and responses included a wide range of other devices that also had internet connectivity. Smart TVs were the most common among them, and this finding persisted across income levels. However, in general, income was strongly associated with which respondents used such devices, with higher income indicating greater access.

Comfort level with internet tasks: The survey included a list of nine types of internet tasks and asked respondents to indicate whether they were comfortable with each. A separate openended question asked about other tasks that respondents typically do online. The answers to the open-ended question were extensive, with the most common ones being related to entertainment. A large number of respondents said that they used their devices to play games or stream videos or music. The next most popular categories were more general, mostly related to retrieving information and communication.

"Most of us seniors don't understand this technology, we will be left behind or forgotten." The survey included an open-ended question regarding people who assisted respondents with using the internet. The most common answers were family members, including children, spouses/partners, grandchildren, and other relatives. Respondents also received assistance from caregivers, social workers,

housemates, and neighbors.

Regarding the open-ended question asking respondents to identify special needs that would affect the type of device they could use, the most frequent answer was visual impairment, followed by hearing loss, movement, hand dexterity and neurological issues. Many respondents specified the types of resources needed to overcome these challenges, including enlarged font sizes, larger screens, enhanced keyboards, ergonomic equipment, and voice-activated software. Several respondents stated that they needed computer keyboards and software in languages other than English.

The final survey question asked, "Do you have any comments for us?" The most frequent theme concerned the high cost of the internet and need for subsidies or free access. Other respondents asked for resources, including internet training, one-on-one support, electronic equipment, and better Wi-Fi. Several respondents commented on rapid changes in technology and the need to "keep up," and some expressed concern about internet security or the vulnerability of older adults to identity theft or scams. Respondents also reiterated special needs, particularly ergonomic equipment and software in other languages.

Analyzing general comments by respondent income level revealed several differences. More respondents with incomes below \$2,000 per month asked for technology resources and described their language needs. Respondents with incomes above \$2,000 per month were more likely to request training, provide additional information about their disabilities, comment about rapid changes in technology or express concern about internet security.

Focus Groups

During two focus groups, staff of long-term and memory care facilities discussed technological needs and gaps in services for their residents. Participants described the critical importance of technology for keeping clients connected with family, particularly at end-of-life and during COVID-related lockdowns.

Clients preferred using iPads or tablets to speak with family, listen to music and access voiceactivated functions. To use devices, most clients needed hands-on assistance from staff, particularly if they had dementia, and some required protection against dropping or breaking the devices. Along with clients, many of their families needed help obtaining devices such as tablets and instruction on how to use them. Discussing a "wish list" for clients, participants suggested innovative and interactive technology such as Alexa and similar devices tailored to specific needs that can, for example, socially interact with clients or play calming music.

When asked about the effects of COVID-19 on technological access, focus group participants discussed how their facilities had to extend and improve Wi-Fi coverage, since so many more residents were using devices. Their facilities were able to use COVID-19 government relief funds to purchase additional bandwidth and devices.

As lessons learned about technological access for senior residents, participants reiterated the ongoing need for both residents and their families to have access to devices, assistance in their usage and enough Wi-Fi bandwidth. During COVID-19, technology was vital for residents to connect with loved ones.

Discussion

The survey results include a large proportion of Alameda County residents with a high level of need for support to access digital resources. More than half of the respondents completed paper copies of the survey as opposed to submitting them electronically; and of those who answered the question, 45% indicated they had incomes lower than \$2,000 per month. Although this was not a representative sample, these results clearly indicate that outreach efforts were successful in reaching many older adults with limited ability to access the internet or digital devices.

Respondents' needs were affected by their income more than any other factor. There were also important differences according to where in the County people live; their age (i.e., people ages 50-64 had different needs than those 85 and older); and race/ethnicity.

The survey responses indicated that Alameda County older adults need more resources and support for internet access, digital devices, and training/technical assistance. First, sustainable funding is needed for secure broadband and Wi-Fi access for all. There are currently programs available that provide low-cost internet subscriptions for eligible residents. However, many low-income seniors cannot afford even the

"Please find way to give free WiFi to seniors – would like to use home surveillance camera for fall prevention concerns, but do not have enough data or fund for monthly subscription."

lowest rates, and it is notable that this was the most common theme in the open-ended survey comments. Additionally, most funding for internet access comes with an expiration date, which means that those who can use the programs will eventually be without access again.

Although a majority of respondents have access to some type of digital device, access to needed internet resources is not universal across all devices. For example, as one respondent noted, "I use Zoom but don't have a camera and use my telephone to access the meetings and classes." Older adults in this situation will not, for example, be able to see PowerPoint slides during educational classes, participate in video meetings with their health providers who may need to see them to work with them effectively, etc.

Additionally, many older adults need technical assistance and training to be able to use telehealth and other supports that have become critical to their health and ability to participate in daily life. Many survey respondents requested training not only to learn to use digital resources, but on an ongoing basis to be able to keep up with a rapidly changing digital environment.

Recommendations

The COVID-19 pandemic, and the emerging data about gaps in internet access and the ability to use it, have presented both a crisis and an opportunity. Public and private sector leaders have an opportunity to develop programs and policies so that older adults and people with disabilities are not left out - and can access critical digital resources and the support they need to be able to use them. The data and model programs exist to guide this work.

The following policy and program recommendations, which are based on the findings from the general survey and the Latinx Community Survey, could make a difference in Alameda County. Any effort to address gaps in digital resources should include a culturally-appropriate approach that considers the needs of the County's diverse populations.

- 1. Consider the internet to be a public utility. Access to critical resources such as health care, applications for benefits, and educational programming should not be available only to people with higher incomes. Along those lines:
 - a. Fund ongoing low-cost and no-cost broadband access as a government or health system benefit tied to household income level.
 - b. Make free and secure Wi-Fi available in geographic areas that lack adequate broadband infrastructure. Although this resource has been implemented in parts of Alameda County and holds promise, security and privacy issues that can arise when Wi-Fi access is public must be addressed.
- 2. Fund programs that provide low-income seniors with tablets and other digital devices that include:
 - a. Working cameras that seniors can use at home to access telehealth and other critical services.
 - b. Adjustments including enlarged font sizes, larger screens, screen readers, enhanced keyboards or ergonomic equipment and voice-activated software for older adults and people with disabilities who need those supports.
 - c. Flexibility to meet individual language needs.

- 3. Support programs that provide culturally and linguistically competent training and ongoing technical assistance that:
 - a. Are specific to the needs of older adults
 - b. Begin at the most basic level for those who have no experience with digital resources
 - c. Include multiple sessions
 - d. Are available by telephone or in-person, as pandemic conditions permit
 - e. Are offered in multiple languages
 - f. Offer an option for peer training; some organizations ask older adults who have received training to then support others that are beginning their training
 - g. Provide specific information about how to be safe online, including how to protect proprietary information and avoid scams/predatory behavior
- Support senior centers, libraries, and other public venues that can serve as digital access/navigation points and provide ongoing technical support, guidance, and workshops.
- 5. Fund, train, and support culturally relevant and linguistically competent Community Health Outreach Workers to become "digital navigators" to help locate resources to support internet access and obtain digital devices; and to provide training and technical assistance to enable older adults and individuals with disabilities to access telehealth and apply for benefits online.
- 6. Ensure that policies and programs carve out exceptions for those who need non-digital access.
 - a. Continue funding in-person health care and service delivery options for those who are unable or not yet ready to utilize digital options for services and/or information and assistance.
 - b. Support robust telephonic options for those who lack access to internet or devices, including best practices training for care delivery staff.

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PLEASE DIRECT COMMENTS OR QUESTIONS TO: Internet.Survey@acgov.org

THIS REPORT IS AVAILABLE ONLINE AT: agefriendly.acgov.org/af-efforts/internet-survey

APPENDICES

Appendix A: Survey Instruments and Flyers

Understanding Internet Connection Needs in Our Communities

The Alameda County Council for Age-Friendly Communities* is conducting a brief survey of older adults in our County to determine gaps in access to the internet and electronic devices, and the need for education and support to use those devices. Your responses to this survey are confidential and will help us find that information.

Please return completed surveys to a specified drop box if available, or send to: email: Internet.Survey@acgov.org or mail to: Internet Survey, c/o Chronic Disease Program, Alameda County Public Health Department, 7200 Bancroft Ave., Suite 202, Oakland, CA 94605

1. Please provide your Zip Code:

2. Are you able to access the internet at least once per week?

Yes No I Don't Know

3. If yes, where do you currently access the internet or go online? (Check all that apply)

Home WiFi (wireless)	Home cable internet access (wired)	Senior Center	Public Library
At Work Other: Pl	ease specify		

4. On which electronic devices do you access the internet and where? (Check all that apply)
a. Desktop Computer 🗌 If so, where do you use that device to access the internet? At home 🗌 Elsewhere 🗌
b. Tablet/iPad If so, where do you use that device to access the internet? At home Elsewhere
c. Laptop Computer 🗌 If so, where do you use that device to access the internet? At home 🗌 Elsewhere 🗌
d. Smartphone (iPhone, Android, other) 🔄 If so, where do you use that device to access the internet? At home 📃 Elsewhere 🤤
e. Do you use any other devices? If yes, please specify:

5. Please indicate below whether or not you are comfortable with the following tasks.	YES	NO
a. Doing an internet or Google search.		
b. Using an email account to connect to people and/or online services (send messages, photos, etc.)		
c. Using video applications such as Zoom, FaceTime, WhatsApp, YouTube, or other options.		
d. Accessing benefits such as CalFresh, housing, insurance, or other community resources.		
e. Shopping online for medication, clothes, groceries, etc.		
f. Banking online such as paying bills, checking account balances and credit card statements, etc.		
g. Using voice-activated features such as on Alexa or Google Home, or on a smartphone.		
h. Having a telehealth meeting with a doctor or other health care provider		
i. Using social media such as Facebook, Instagram, Twitter, etc.		

continued on reverse

continued from reverse

6. Please specify any other tasks you do with your computer, tablet and/or smartphone:

7. Is there anyone else in your home who can assist you in doing an Yes No I Don't Know I I fyes, please specify	y of these tasks?
B. Do you have any special needs that would affect the type of device such as larger font, larger keyboards or screens, voice-activated and the second	ce you could use software, etc.?
9. What are your preferred learning methods? (check all that apply)	
One-on-one with a trained coach by phone and/or online A group telephone In-person, with COVID-19 precautions Online group class	ne call
10. What is your age group?	
Under age 50 50 to 64 65 to 74 75 to 84 85+	
11. What is your gender? How do you self identify? Prefer not to state	
12. What is your sexual orientation? (check all that apply)	
Straight or heterosexual Bisexual Gay, Lesbian or homosexual Prefer to Self-Describe: Prefer not to state	Questioning/Unsure
13. What is your race or ethnicity? (check all that apply) Black or African American American American Indian or Alaska Native Lating Native Hawaiian or Other Pacific Islander Middle Eastern or North African Other Race or Ethnicity Prefer not	o, Latina or Latinx Asian Asian Asian Asian Asian Asian Asian Asian Asian to state
14. What is your household's monthly income?	
S0 - \$2,000	
\$2,001 - \$4,000	
\$4,001 -\$8,000	
\$8,001-\$10,000	
More than \$10,001	
Prefer not to state	16 (01) (02) 1 (02) (4 <u>)</u>
15. What is your preferred language:	Prefer not to state
16. How many people are in your household, including yourself?	Prefer not to state
17. Do you have any comments for us?	
(Optional). Please provide your name and email address or phone num to be able to contact you in the future about digital resources, if avail	nber if you would like us able.
Name:	

Email address and/or phone number:

"The Alameda County Council for Age Friendly Communities coordinates efforts to effect policy and system changes that enhance the overall well-being of older adults who live in Alameda County, engaging leaders, consumers, and providers to develop and sustain a community framework that fosters healthy aging. The Council is a forum for expanding resources, services, and access to services and increasing collaboration among many stakeholders, including County departments, cities, and Community Based Organizations (CBOs). Please visit agefriendly.acgov.org/af-efforts/af-council for additional information.



UNDERSTANDING INTERNET NEEDS IN ALAMEDA COUNTY

Make Sure Older Adults' Voices are Heard in Alameda County!

COVID-19 has exposed and worsened the problems faced by older adults due to inequity in access to online resources. We want to hear your voice to learn more about these gaps in our County.

QR Code



Have questions? Email us at Internet.Survey@acgov.org



Take the Survey today!

If you are age 50 and over, we want to hear from you!

Please take our brief survey to provide details about your level of internet access, as well as any needs for educational support to better use devices that connect to the internet. Your responses are confidential.

To access the survey, just point your Smartphone's camera at the QR code to the left to be instantly taken to the Age Friendly Council's website, or visit agefriendly.acgov.org!

Age Friendly

COMPRENDIENDO LAS NECESIDADES DE INTERNET EN EL CONDADO DE ALAMEDA

¡Asegúrese de que las voces de los adultos mayores sean escuchadas en el condado de Alameda!

COVID-19 ha expuesto y empeorado los problemas que enfrentan los adultos mayores debido a la inequidad en el acceso a los recursos en línea. Queremos escuchar su voz para aprender más sobre estas brechas en nuestro Condado.

Código QR



¿Tiene preguntas? Envíenos un correo electrónico a Internet.Survey@acgov.org



¡Realice la encuesta hoy!

Si tienes 50 años o más, ¡queremos saber de ti!

Realice nuestra breve encuesta para proporcionar detalles sobre su nivel de acceso a Internet, así como cualqier necesidad de apoyo educativo para utilizar mejor los dispositivos que se conectan a Internet. Sus respuestas son confidenciales.

Para acceder a la encuesta, simplemente apunte la camara de su teléfono inteligente al código QR a la izquierda para ser llevado instantáneamente al sitio web del Age Friendly Council, ¡o visite agefriendly.acgov.org!

Latinx Community Survey

A completar por el agrimensor:

La fecha de hoy:

Nombre: _____ Ubicación o evento: ____

Código postal:

Age Friendly

Alameda County

El Concilio para Comunidades Amigables para la Edad del Condado de Alameda está conduciendo una breve encuesta de personas de la tercera edad en nuestro Condado para determinar faltas en acceso a recursos, servicios y apoyos, aparatos electrónicos y para el internet, y la necesidad para educación y apoyo para usar estos aparatos. Sus respuestas a esta encuesta serán confidenciales y nos ayudarán a recolectar esta información.

Disponibilidad de Recursos, Servicios y Apoyos, y Acceso al Internet

- 1. Este recurso o servicio está personalmente disponible a usted:
 - a. Vivienda accesible ___Sí ___No
 - b. Una forma de transportación que es accesible para usted __Sí __No
 - c. Acceso a comida saludable y accesible __Sí __No
 - d. Ingreso y oportunidades de trabajo ___Sí ___No
 - e. Servicios de salud que son culturalmente apropiados, y, en una idioma que entiende usted (cuidado primaria, cuidado especial) __Sí __No
- 2. ¿Puede usted obtener acceso al internet por lo menos una vez a la semana? __Sí __No
- 3. ¿Tiene usted acceso a un aparato que puede usar para obtener acceso al internet? ___Sí ___No
 - a. Si es que sí, es un 'smartphone,' tableta, u otro (especifica ______
- 4. ¿Está usted cómodo en haciendo estas cosas en el internet?
 - a. Correo electrónico, internet o búsqueda sobre Google __Sí __No
 - b. Usando aplicaciones de video como Zoom, Facetime, WhatsApp, YouTube __Sí __No
 - c. Accediendo beneficios como CalFresh, viviendas, aseguranza, u otros recursos comunitarios __Sí __No
 - d. Usando funciones activados por voz como Alexa o Google Home __Sí __No
 - e. Teniendo una reunión de tele salud con un médico u otro proveedor de salud __Sí __No
 - f. Usando media social como Facebook, Instagram o Twitter __Sí __No
- 5. Cuáles son sus métodos preferidos para aprender, si tiene alguna, ¿en orden para ser más cómodo haciendo lo que quiere hacer en el internet?
 - a. Entrenamiento uno a uno __Sí __No
 - b. Entrenamiento sobre una llamada telefónica con un grupo __Sí __No
 - c. Entrenamiento en persona, con precauciones sobre el coronavirus __Sí __No
 - d. Entrenamiento en el internet __Sí __No
 - e. Yo no quiero estar en el internet __Sí __No

Díganos sobre usted. Esta información es Confidencial y será utilizado para el propósito de planear SOLAMENTE.

6.	¿Con quién vive usted al momento? Favor de seleccionar todas las respuestas que aplican:				
	Nadie (Vivo sole	o)	🗖 Hijo	o(s)	Amigos/conocidos
	Esposo/a o Pare	eja	🗆 Far	nilia extendida	Otro cuidador(a)
	Parientes		🗆 Otr	o (especifica)	
7.	¿Cuál es tu grupo	de edad? (Traza	un circulo a	lrededor de su	respuesta)
	Menos de 50	50 a 64	65 a 74	75 a 84	Mas de 85

¿Tiene usted algún comentario? ____

To Be Completed by Surveyor:

Your Name: _____ Today's Date _____ Survey Location or Event: _____

Survey Zip Code:

Age Friendly

Alameda County

The Alameda County Council for Age-Friendly Communities* is conducting a brief survey of older adults in our County to determine gaps in access to resources, services and supports, internet and electronic devices, and the need for education and support to use those devices. Your responses to this survey are confidential and will help us find that information.

Availability of Resources, Services and Supports, and Internet Access

1. Is this resource or service **personally** available to you:

- a. Affordable housing ___ Yes ___ No
- b. A form of transportation that is affordable for you ___ Yes ___ No
- c. Access to healthy and affordable food ___ Yes ___ No
- d. Income and job opportunities ___ Yes __ No
- e. Health services that are culturally appropriate and, in a language, you understand (e.g. primary care, specialty care) ___ Yes __ No
- Are you able to access the internet at least once a week? ___ Yes ___ No

3. Do you have access to a device that you can use to access the internet? ___ Yes ___ No

If yes, is it a Smartphone, Tablet, other (specify ______)? (Circle answer)

4. Are you comfortable doing these things online?

- a. Email, Internet, or Google search ___ Yes ___ No
- b. Using video applications like Zoom, FaceTime, WhatsApp, YouTube __ Yes __ No
- c. Accessing benefits such as CalFresh, housing, insurance, or other community resources __ Yes __ No
- d. Using voice-activated features like Alexa or Google Home __ Yes __ No
- e. Having a telehealth meeting with a doctor or other health provider ___ Yes __ No
- f. Using social media such as Facebook, Instagram, Twitter __ Yes __ No
- 5. What are your preferred learning methods, if any, in order to be more comfortable doing what you want to do online?
 - a. Training one-on-one ___ Yes ___ No
 - b. Training in a group telephone call ___ Yes ___ No
 - c. Training in-person, with COVID-19 precautions ____ Yes ___ No
 - d. Training online ____ Yes ___ No
 - e. I don't want to be on the internet/online ___ Yes __ No

Tell Us About You, This Information is Confidential and is to Be Used for Planning Purposes ONLY

Who do you currently live with? Please select	all that apply				
No one (Live Alone)	Child (children)	Friends/Acquaintances			
Spouse/Significant other	Extended family	Other Caregiver			
Parents	Other (specify)				
7. What is your age group? (Circle answer)					
Under age 50 50 to 64 65 to	74 75 to 84 85+				
8. Do you have any comments?					



SU NIVEL DE ACCESO AL INTERNET, ASÍ COMO CUALQUIER NECESIDAD DE APOYO EDUCATIVO PARA UTILIZAR MEJOR LOS APARATOS ELECTRÓNICOS QUE SE CONECTAN AL INTERNET. SUS RESPUESTAS SON CONFIDENCIALES





IF YOU ARE AGE 50 AND OVER, WE WANT TO HEAR FROM YOU! PLEASE TAKE OUR BRIEF SURVEY TO PROVIDE DETAILS ABOUT YOUR LEVEL OF INTERNET ACCESS, AS WELL AS ANY NEEDS FOR EDUCATIONAL SUPPORT TO BETTER USE DEVICES THAT CONNECT TO THE INTERNET. YOUR RESPONSES ARE CONFIDENTIAL.



Appendix B: General Survey: Dissemination

Organization/Location	Paper Surveys	Electronic Surveys
Public Health Department	545	5
Social Services Agency	140	32,955
Senior Housing	3,936	
Conion Contone	700	21.200
Senior Centers	/90	21,260
Meals on Wheels		
Programs	4,558	
Libraries	630	
Health Care Providers	3,000	
CBO Newsletters	2,360	1,831
TOTAL	15,959	56,051

Appendix C: Long-Term Care Facility Focus Group Questions

- Does your facility have readily-accessible Wi-Fi or other internet services for residents?
- Does the service cover the entire property?
- If not, where is service available?
- If no service, what is the barrier?
- What types of devices are accessible to residents in your facility?
 - Who on your staff is responsible for managing their use?
 - Where did you obtain the devices?
 - How many are available?
 - Where are they able to use it?
 - Please describe what types of assistance are available to residents using devices.
 - Do you have a system in place to ensure that residents without their own device and without ability to pay for one themselves are provided one for use?
- What types of tech support or training do your residents need that your staff are not able to provide due to time constraints, capacity, or other resources?
- Do some of the residents in your facility have different needs than others related to their ability to use technology? For example, residents with cognitive, vision or hearing impairments?
- If money was not a barrier, what would you like the technology in your facility to look like? What supports or services would you need to realize your vision?
- If smart devices i.e., Google Home Speakers or iPads were available to your organization/residents?
 Please explain how you would utilize the devices to enrich your residents' lives.
- What are we missing? What haven't we asked?

Appendix D: General Survey: Respondent Demographics

Survey Response by Language and Type (Age Over 50)

Language	Electronic	Paper	Electronic + Paper
English	534 (48.5%)	582 (51.5%)	1,101
Spanish	12 (22.2%)	40 (76.9%)	54
Traditional Chinese	21 (13.5%)	133 (86.4%)	155
Simplified Chinese	65 (100%)		65
Korean	6 (46.2%)	7 (53.8%)	13
Tagalog	1 (100%)		1
Vietnamese		24 (100%)	24
Total	638 (45.2%)	775 (54.8%)	1,413

Respondent Demographics				
Age (n=1,371 gave an answer)	(50 to 64) (65 to 74) (75 to 84) (85+)	19% 40% 30% 11%		
Income (n=1,340 gave an answer)	Under \$2,000/month Over \$2,000/month Prefer not to State	44% 36% 20%		
Sexual Orientation (n= 1,278 gave an answer)	Straight/Heterosexual Gay, Lesbian or Bisexual Questioning/Other Prefer not to state	83% 3% 1% 13%		

Responses in Priority Zip Codes (If Given)



City/Unincorporated Area (If Given)





Appendix E: General Survey: Quantitative Results

*n=1,413 for all tables in Appendix E













Appendix F: Latinx Community Survey: Quantitative Results

*n=63 for all tables in Appendix F















Appendix G: Data Analysis Methods and Limitations

The surveys and focus groups had several limitations that were mitigated by outreach, analysis methods and research design.

Lack of a random sample

Because it was not feasible to collect a random sample from all seniors in Alameda County, the respondents may not have represented the entire population. Some of the observed frequencies may have resulted from the variety of people who took the survey, and not true differences between groups. The large number of responses (1,413) and strongly representative sample by race/ethnicity, gender, income level and location make it more likely that true differences were observed.

Because of the non-random sample and large number of responses, statistical significance or differences in a few percentage points should be viewed as less important than the magnitude of observed differences and overall patterns observed between groups. The data is also meant to describe the current situation and viewpoints of seniors, rather than to predict access or behavior.

Skipped Questions

Several questions had more than 5% of responses missing, which may have been left blank or answered as "prefer not to state." The percentage of missing answers was 24% for income, 23% for gender and 9% for sexual orientation. The gender question was fill-in-the-blank and may have been misunderstood. Questions about income and sexual orientation may have felt intrusive.

Missing responses can limit data analysis when they are "systematic," meaning that people from specific age, racial/ethnic or income levels are more likely to skip a survey question. A way to check for systematic bias is to compare missing and non-missing responses along other demographic variables. Few differences between people who skipped questions were noted, with the exception of race/ethnicity among people who skipped the question about sexual orientation. A higher percentage of Latinx respondents skipped the question about sexual orientation.

Qualitative Data Analysis

To overcome subjectivity in interpreting open-ended survey responses and focus group notes, the researchers created a system for identifying preliminary code words or themes and reviewing each other's work and refining codes and themes. The researchers also presented

preliminary findings to the Digital Inclusion workgroup, gathering input into themes and how to best interpret respondent quotes.

Duplication

Offering the survey in multiple formats raised the possibility of duplication. To partially mitigate this limitation, responses were checked for patterns suggesting duplication, such as being submitted electronically only minutes apart or having the exact same answers. Surveys strongly suggesting duplication and blank responses were omitted from the final data analysis.

Benefits of Using Mixed Methods

Using both qualitative and quantitative methods strengthened the research design. Qualitative responses helped provide context and meaning to quantitative answers. For example, comments about lack of affordable Wi-Fi helped explained why some people may have lacked internet access. Multiple choice questions and collecting many surveys allowed comparison by subgroups.