Technology Access & Adoption in the City of Seattle 2014

Technical Report

Department of Information Technology

City of Seattle

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Background

The Information Technology Indicators technical report provides a detailed, comprehensive view into Seattle residents' access to and adoption of technology. This is the fourth time since 2000 that this research has been done. Data in this report was collected in 2013, in three ways: a random dial telephone survey, an online survey, and through focus groups. The phone survey is the most statistically valid sample, while the online survey and focus groups provide valuable additions. The initial set of measures and goals that guide this project were created with community residents and experts in the fields of evaluation, data and technology adoption.

The topics covered have been updated each time the City collects this data to reflect new trends in technology, such as the development of broadband, social media, and mobile technology. This research provides insight into levels of broadband and social media adoption, digital literacy needs and barriers, and opportunities for electronic civic engagement and delivery of government and community services. Where possible, the new data has been compared with the earlier results, providing a longitudinal tracking of technology adoption in Seattle.

This information has already been used by the City to inform digital inclusion strategies, cable franchise regulation, and public engagement for city planning with future uses anticipated by the City as well as by other government, education, industry, social services and health, civil rights, neighborhood, and workforce and economic development bodies.

The City of Seattle Department of Information Technology (DoIT) Community Technology Program contracted with a consultant team (Elizabeth Moore at Applied Inference and Andrew Gordon of the University of Washington) to learn about:

- Residents' use of and attitude toward information and communication technology, such as computer and the Internet, cable TV, and mobile phones;
- Use of technology to interact with government and community and attitudes about the City's efforts to communicate with residents through technology;
- Residents' attitudes toward higher speed Internet (broadband) access ;
- Perspectives on technology and civic engagement in communities not typically reached through a telephone survey.

Methodology

The information for this study was collected in three ways: a telephone survey, an online survey, and focus groups.

Telephone and online survey

City staff and consultants developed an 18-minute telephone survey (see Appendix I) which was administered to 803 randomly selected residents. For the first time the sample included a subsample of cell phone users, 20% of the overall sample. The call sampling was done to produce a sample as close to

the City demographics as possible. The phone survey was conducted mainly in English, but also available in Spanish, Vietnamese, and Chinese. An online survey was conducted for the first time, using the same questions as the telephone survey and also translated into Spanish. This ran for a month and 1658 people completed the survey in that time. Questions were basically the same, but adjusted somewhat for the online format.

Despite efforts to reach a representative sample of Seattle residents, the resulting datasets over-represented some demographic groups and under-represented others. To produce a better balanced picture of Seattle residents, weights were calculated for the datasets with the aim of producing results that reflect the population of Seattle in terms of age, education, race/ethnicity, and income. Broadly speaking, respondents who are members of groups under-represented in the survey are assigned heavier weights to enable them to "speak for" themselves and some of their neighbors, while those who are members of groups over-represented in the survey are assigned lighter weights so that their voices, when combined with others in their demographic subgroup, do not dominate the survey results. (See Appendix II for details.)

Focus Groups

According to the 2010 Census, 10% of Seattle residents speak English less than very well and 17.3% are foreign born. Partnering with trusted community organizations, nine focus groups were conducted with immigrant/refugee and other communities who often are not reached by phone surveys, are less able to participate, or less trusting of the process. The groups included six non-English speaking groups, two African American groups, and a group of people with a range of disabilities. The immigrant/refugee community groups were Latino/Hispanic, Vietnamese, Somali, Chinese, and Ethiopian.

These focus groups were conducted in each group's native language, co-facilitated with community leaders, and hosted over a meal. Data collection relied on a method in which community members divide into four groups, each with its own topic area to research by interviewing participants in the other groups, discuss with other group members and summarize for discussion with the larger group. Each organization identified four or five community facilitators: one to provide overall direction and one to support each of the four topical groups. In the case of immigrant groups, the facilitators had good English language skills but engaged in the process using their native language. Facilitators were briefed on their roles just before the group and given support and direction by the consultants and staff throughout the process. Between 12 and 24 participants attended each focus group in addition to the five facilitators for a total of 182 participants and 43 facilitators, interpreters, and note takers. After a rather noisy process of simultaneous mutual interviews, the groups reconvene to discuss and summarize their findings, and report them out for discussion. It is an active and dynamic method which seems to create energy, enthusiasm, and confidence as it progresses. It requires and allows a high level of engagement by all for up to 24 participants, and offers a high level of confidentiality. Participants consistently and eagerly take responsibility for the success of the group, stepping forward to help resolve whatever challenges emerge, including supporting neighbors who cannot read or write, helping with translation, explaining technology (such a Twitter) or setting out the meal or helping with clean up.

In addition to the mutual interviews, short papers surveys were used to gather factual information (n=165 completed), leaving the precious minutes of mutual interviews for the more in depth and possibly complex discussions. Participants engaged earnestly in the activities with openness and interest. The community organizations were also given the opportunity to review the drafts of their focus group reports.

Who participated in the study?

Table 1 presents the unweighted and weighted distribution of survey respondents, both telephone and online, with the corresponding City distributions. Please see Appendix II for a detailed description of the weighting process to create a dataset that is representative of Seattle residents.

Table 1. Demographic description of survey respondents

	City Pop	RDD Phone Survey (valid n=803)				Online (valid n=1658)			
		Unweighted		Weighted		Unweighted		Weighted	
	%	#	%	#	%	#	%	#	%
Race/Ethnicity									
African American	8%	45	6%	60	8%	37	2%	134	8%
Asian/Pacific Islander	14%	85	11%	110	14%	101	6%	184	11%
Caucasian	66%	580	74%	517	66%	1370	86%	1090	68%
Hispanic/Latino	7%	52	7%	52	7%	42	3%	98	6%
Native Amer/AK Native	1%	6	1%	5	1%	4	0%	10	1%
Mixed	1%	10	1%	34	4%	39	2%	84	5%
Other	0%	3	0%	2	0%	9	1%	3	0%
Refused		22		24		56		54	
Total		**803**		**803**		**1658**		**1656**	
Age									
18-25	15%	49	6%	120	15%	139	8%	264	16%
26-35	25%	154	19%	202	25%	489	30%	398	24%
36-50	26%	247	31%	206	26%	501	30%	408	25%
51-64	20%	197	25%	161	20%	382	23%	359	22%
65+	14%	147	19%	106	13%	138	8%	222	13%
Refused		9		9		9		6	
Total		**803**		**803**		**1658**		**1656**	
Education									
Less than HS	7%	35	4%	51	6%	16	1%	136	8%
HS Grad	12%	72	9%	87	11%	35	2%	199	12%
Some college or 2 yr deg	29%	176	22%	236	30%	329	20%	492	30%
Four year degree+	52%	513	64%	421	53%	1270	77%	821	50%
Refused		7		8		8		8	
Total		**803**		**803**		**1658**		**1656**	
Income									
<$20K	16%	99	15%	115	17%	103	7%	241	16%

	City Pop	RDD Phone Survey (valid n=803)				Online (valid n=1658)			
		Unweighted		Weighted		Unweighted		Weighted	
	%	#	%	#	%	#	%	#	%
$20K to <$30K	8%	59	9%	55	8%	94	6%	118	8%
$30K to <$40K	8%	53	8%	58	9%	90	6%	125	8%
$40K to <$50K	8%	57	8%	53	8%	108	7%	112	8%
$50K to <$75K	17%	100	15%	120	18%	275	18%	260	17%
$75K to <$100K	12%	93	14%	81	12%	257	17%	188	13%
$100K+	30%	218	32%	192	28%	589	39%	444	30%
Refused		124		127		142		169	
Total		**803**		**803**		**1658**		**1656**	
Gender									
Female	50%	439	55%	448	56%	728	45%	764	47%
Male	50%	364	45%	355	44%	905	55%	871	53%
Refused						25		21	
Total		**803**		**803**		**1658**		**1656**	

Additional analysis comparing the cell phone respondents with the landline respondents shows that cell phone respondents were more likely to be younger, Caucasian, and male with less education but no difference in income.

Table 2 below presents the demographic distribution for the 165 focus group participants who completed a survey.

Table 2. Demographic distribution of focus group participants

	African American (2 groups) n=43	Chinese n=20	Ethiopian n=17	Latino (2 groups) n=43	Somali n=16	Vietnamese n=19	Dis-abilities n=7
Race/Ethnicity							
African American/ Black	91%		100%		100%		
Asian/Pacific Islander	2%	100%				100%	
Caucasian							83%
Hispanic/Latino				100%			
Native Amer/AK Native							17%
Mixed	7%						
Other							
***Missing**	0	0	0	0	0	0	1
Age							
18-25	15%		20%	29%	25%	13%	
26-35	10%	25%	20%	29%	25%	7%	14%
36-50	25%	35%	10%	21%	13%	27%	86%
51-64	38%	10%	20%	16%	13%	27%	

	African American (2 groups) n=43	Chinese n=20	Ethiopian n=17	Latino (2 groups) n=43	Somali n=16	Vietnamese n=19	Dis-abilities n=7
65+	13%	30%	30%	5%	25%	27%	
Missing	3	0	7	5	0	4	0
Median	**36-64**	**36-50**	**36-64**	**26-35**	**26-50**	**51-64**	**36-50**
Education							
Less than HS	10%	47%	11%	26%	39%	38%	
HS Grad	33%	26%	33%	41%	15%	50%	43%
Some college or 2 yr deg	36%	11%	33%	10%	39%	6%	11%
Four year degree+	21%	16%	22%	23%	8%	6%	43%
Missing	4	1	8	4	3	3	0
Median	**Some col/ 2 yr degree**	**HS Grad**	**Some col/2 yr degree**	**Some col/ 2 yr degree**	**HS Grad**	**HS Grad**	**HS Grad**
Income							
<$20K	53%	71%	43%	66%	92%	73%	100%
$20K to <$30K	21%	24%	29%	9%	8%	20%	
$30K to <$40K	3%	6%	29%	22%		7%	
$40K to <$50K	3%						
$50K to <$75K	12%						
$75K to <$100K	6%			3%			
$100K+	3%						
Missing	9	3	10	11	3	4	3
Median	**<$20K**	**<$20K**	**$20K to <$30K**	**<$20K**	**<$20K**	**<$20K**	**<$20K**
Gender							
Female	51%		56%	70%	38%	71%	14%
Male	46%		44%	30%	63%	29%	86%
Missing	6	20	8	3	0	5	0

*Those who did not respond to a question are not included in the percentages for that item.

Community partners were successful at recruiting diverse groups of participants. All groups had a reasonable representation of men and women and people belonging to a wide range of age groups. Participants in some groups ranged widely in education. Both the Chinese and Somali group provided substantial representation of participants with less than a high school education, while some of the other groups had participants with college degrees, as well as those with less education. Some of the participants in all of the groups were employed, but incomes tended to be low, especially in the immigrant groups.

Summary of findings

Overall, Seattle residents are online and interested in technological advances as they become available. Some subgroups – younger residents, and those with more education or income – tend to lead the way in adoption and use of new technology, and other groups usually follow once the technology has proven itself with the early adopters so that over time, groups that were slower to adopt have caught up and use has become fairly consistent across subgroups. Email is a good example of this process, and the adoption of cell phones may be another. Relatedly, some technologies seem to have reached their peak in adoption and may now be in the process of being replaced by the next generation options. For example, mobile computing options seem to be replacing desktop computers; higher speed cable Internet service seems to be replacing DSL (which already replaced dial-up modems); smartphones seem to be replacing cell phones. Accordingly, the "early adopter" subgroups which previously led the way in subscription to DSL, for example, now show a decline in DSL subscription and a rise in cable Internet service.

Despite this high level of adoption that seems to occur eventually, if not immediately, it is imperative to remember that even with near saturation of a technology, some residents – usually those with more barriers and fewer resources – will lack that access to information, but will still have information and connection needs. For example, despite overall high levels of connection, 12% of Seattle's residents do not have a home computer (even though one third of them are Internet users) and 15% are without home Internet access. Few of those without a home computer (13%) have mobile Internet access. These figures are higher in some demographic subgroups (for example groups with lower education or income, low English language skills, some disabilities, or older age groups). Racial or ethnic differences in adoption may be complex. In some cases, it may reflect differences in opportunity and in other cases, it may reflect competing cultural values. For example, in the focus groups we conducted as part of this research with members of communities that have traditionally been underserved by technology, we heard about unmet needs for access to technology and training in how to use it, especially in the groups whose participants had less income or education or limited English proficiency. And in most or all the groups with limited English proficiency as well as both African American groups, we also heard a consistent theme that members of these communities deeply value face-to-face contact, a value that may be at odds or needs to be intentionally integrated with the growing use of technology for communication and connection replacing face-to-face contact. Thus, participants in these focus groups were positive about the benefits of technology, may face barriers to access, may want additional access and training, and they have concerns about some of the unintended consequences of overusing the technology to replace interpersonal interactions. While this intersection of values may be most visible in focus groups with new Americans and other immigrants, some of the same concerns may underlie some of the differences in race/ethnicity reported below raising the caution that differences that may initially be interpreted as deficits may also be the result of cultural values that are community assets.

Computer and Internet access and use

Computer and Internet use is high (90% and 89%) and so is ownership of at least one computer (88%), and home Internet access (85%). Among those with a computer, they are now more likely to own a

laptop than a desktop, whether they have one or multiple home computers. According to the current survey, 55% of households have a desktop, compared with 72% of households with a laptop.

Comparing with the previous survey, this survey shows home computer ownership and home Internet access has leveled off at a high level, and residents seem to be making more use of that access with more people saying they use each function we asked about. Further, residents are increasingly comfortable performing specific computer tasks, and they are able to perform them faster as the speed of home Internet increases with more people subscribing to a broadband service, increasingly, cable. Residents are increasingly mobile with their computing as laptops are replacing desktops at home. The ownership of laptops has *increased* 18% since 2009 (from 61% to 72%), while the ownership of desktops has *decreased* 20% (from 69% to 55%). Among the online respondents, 86% own a laptop compared with 64% that own a desktop. Additionally, about three-fourths of computer owners - especially laptop owners - in the telephone sample also have a mobile Internet device (smartphone or tablet), a figure that is even higher among the online respondents (87%). About two-thirds of those with a smartphone or tablet are "very comfortable" adding an app to it. Respondents with more than one Internet device tend to be younger, male and have more income. This is one of the few findings where men and women differed in their technology profiles.

One of the most common uses of the Internet is for communication. The great majority of Seattleites (87%) use email and three-fourths (77%, up from 70% 2009) use it often. Two thirds of Seattleites use Facebook and about one third use it often. Fewer (one-third) use Twitter and fewer yet (7%) use it often. Once again, despite Seattle's increasingly computer literate residents, it remains important not to lose sighte of the 14% of residents who have never sent or opened an email attachment - and the other 20% that are less than "very comfortable" with this task. This could have important implications for applying for a job accessing online education, or seeking services.

Participants in most **focus groups** were enthusiastic about using computers and the Internet, with particular interest in the information and learning opportunities available via the Internet, and many participants in all focus groups identified significant barriers that interfere with their ability to use the technology as fully as they would like. Overall, access was much lower among many of the immigrant focus groups, pointing to the impact of low education, limited English language skills, low income, and lack of training opportunities on technology access and use.

Cell phone adoption among focus group participants is very high (86%, ranging from 70% to 98% of focus group participants) and similar to the telephone survey (89%). However, smartphones are more prevalent in the telephone sample (almost 60%) than in most of the focus groups with an overall average of 38% of participants saying they have smartphones, ranging from 19% of the Somali group to almost half of the African American groups and the Vietnamese group, and 71% of the disabilities group.

Other important technology trends are embedded in these results: Past surveys have all been conducted using landlines. This year, a sample of cell phone numbers was included. Overall, 80% of the telephone sample reported having a landline – less than the percentage with a cell phone (89%). *Among the cell phone respondents, only 39% reported having landlines, similar to the percentage reported by online*

survey respondents and more than the percentage reported by focus group participants (23%). Focus group and online respondents both reported high levels of cell phones (97% and 86%).

A look into demographic subgroups shows that men and women have largely achieved parity in computer use and ownership, home Internet access, including type of access (and interest in super high speed access), and having a smartphone, or tablet. A few differences remain, such as men were more likely to have *more than one* Internet device, and men and women tend to use the Internet somewhat differently: women were more likely to look for local school information, visit Seattle Public Schools, use Facebook "often," and they were more likely to voice a concern about the loss of personal contact with super high speed Internet, while men were more likely to use computers to look for answers to computer problems, legal or consumer rights information, use Twitter (and use it "often"), and among online respondents, watch TV over the Internet.

However many indicators of technology access and adoption (for example, computer use and ownership, home Internet access, number of computer functions endorsed, use of some of the functions themselves, use of Facebook and Twitter, number of places for Internet access, speed of Internet access, and owning a smartphone or tablet and to a lesser degree, having a cell phone) are lower among seniors, those with a disability, and/or families with children in Seattle schools, and access to all these indicators (in addition to the use of email) tends to *increase with education and income*. Additional analysis of parents of children younger than 18 shows that *those in the youngest age group whose children attend a Seattle Public School are much less comfortable with Internet tasks than their age mates whose children do NOT attend the Seattle Public Schools. That is, the youngest parents of Seattle Public School children have the least access to and comfort with computers. Those whose children attend Seattle Schools also use email and Facebook less frequently.*

Race and ethnicity effects were not completely consistent and may reflect the combined effects of opportunity and cultural values. Overall, Caucasian respondents continue to have more access to computers and the Internet, though, according to the phone survey, no race or ethnicity differences emerged related to the ownership of cell phones, smartphones, landlines at home, or tablets. Overall, African American respondents tended to make the least use of most of the computer functions questioned and tend to be least comfortable completing various computer tasks, including sending and opening email attachments. African American and Latino respondents rated themselves as least comfortable adding an app to their smartphone or tablet. The focus groups tapped into other ethnic subgroups than the phone survey and these residents reported lower access to all technology except cell phones. Looking just at respondents with children in Seattle Public Schools, like the larger sample, Caucasian families have more home computer and Internet access than other families, but unlike the larger sample, the Caucasian and Latino respondents are more likely to have smartphones than the African American and Asian/Pacific Islander respondents (80% vs. 50%).

Individuals in the disabilities **focus group** were all accomplished technology users. Compared with telephone survey respondents, these focus group participants were more likely to be computer and Internet users, and more likely to use mobile computing. Participants explained their high level of use despite the cost barrier, considering their relatively low incomes, by pointing out that technology makes

it possible for people with disabilities to function more fully and more independently. For this group, technology offers more than the information, communication, and learning other focus group participants mentioned. For participants in the disabilities group, it enables them to access services and claim autonomy. Participants in this focus group described two barriers to technology adoption facing them: 1) cost, and 2) accessibility of the technology. For example, Facebook is a boon for deaf users, but very difficult for those using a screen reader because the interface changes so frequently.

Results of the telephone survey indicate that the participants in the disabilities focus group have more access to technology than residents with disabilities selected at random. Analysis of that data shows that randomly selected residents with disabilities are less likely to own a computer or use the Internet, primarily because of the cost, and decidedly not because of not being interested. Participants in this focus group also explained that some people with disabilities can't or won't transition to current technology, so it remains important to retain TTY and video relay technology. Consistent with these participants' decisions to devote a relatively high percentage of their incomes to technology - and access to fuller participation - these focus group participants were particularly positive about the use of technology to communicate with government and to participate civically, with the caveat that those hosting events consider the principles of universal design or at least the use of multiple formats (hard copy, electronic, and telephone) to enable participation by people with different disabilities.

Turning to the other focus groups, compared with telephone respondents, focus group participants were less likely to use computers (90% vs. 64%) or the Internet (90% vs. 59%). Computer ownership is also lower among focus group participants (overall two thirds compared with almost 90% of the telephone respondents), as is home Internet access (overall 63% of the focus group households, compared with 85% of the telephone respondents). Overall, the use of technology by focus group participants was significantly muted compared with that of phone survey respondents, and this gap is greater for some functions than others. For example, focus group participants are about half as likely as phone survey respondents to shop online, attend an online class, meeting, or webinar, visit the Seattle Library, or look for answers to computer problems. The gap narrowed a little for watching TV online and looking up health or medical information. However, the gap is wider for working from home and visiting Seattle Schools.

Internet service

High percentages of phone and online respondents, as well as focus group participants have asked for more speed (especially the younger respondents, and those in the lowest and highest income groups), and despite increases in available speed since the last survey, the percentage asking for more speed yet is greater now than it was in 2009, and 85% overall are interested in the additional speed described as "super high speed." This demand is tempered by the even more frequent request for *more affordable* Internet access, requested by about half of the phone and online respondents, and identified as a major barrier to access by focus group participants.

The need for speed is not just personal - the great majority of online respondents (81%) and more than half of the phone respondents (up from less than half four years ago) said that it is "very important" that

all Seattle households have high speed Internet service. Another 30% of the phone respondents said that this is "somewhat important." African American respondents were the least positive about this sentiment.

Some of the barriers to Internet access have changed since the past survey. Still the same are the cost of monthly Internet access (about 20% among those without home access in both years) and Internet access is not relevant (about a quarter in both years), but the percentage saying that that an Internet device is too expensive has gone down by more than half (from 32% to 13%) and the percentage saying they don't know how to use it has gone up more than three-fold (5% to 17%).

These results are consistent with what we heard in the **focus groups**. Uniformly across focus groups, participants wanted more ability to use technology. Several barriers were identified:

- The most commonly identified barrier is the cost of home access to the Internet, given the low incomes of the focus group participants. Some of the groups mentioned their distrust of contracts with carriers - the concern that the monthly fee will increase after they enter into a contract not realizing that the introductory price will be replaced by a higher price, or that they will be tricked into contracts for services that they don't need. A similar finding came out of the telephone survey in which Asian respondents were more likely to note that the cable service level options are too difficult to understand.
- Lack of home access can often be addressed by using public access computers - at a library or a community center. However, participants point out that the time limit is too short at those locations, making it difficult to improve skills. In one of the Latino groups, participants explained that they can't afford a monthly plan for voice, text, or data for their smart phone, or home Internet access, so they have invested in a smartphone and use it as a portable computer, going to the library or other public wifi locations to use the signal to send emails and to make connections using Facebook, the primary communication tool for some without a voice plan.
- Young participants noted that without home access, they must spend more time at the library to complete their homework. One young Somali participant mentioned that she does not have a home computer, and instead writes her papers for high school on her smartphone.
- For some, they have access to computers and the Internet, but they don't know how to use them and can't find a way to learn. About one quarter overall indicated that they have little to no skill with technology, and another quarter said they "know what they need to know" about technology. Even many in the groups with a relatively high level of technology adoption were eager to ask technical questions of those perceived as having more skills. Like the phone respondents, focus group participants tended not to say that they don’t have an Internet device at home (even though for some, it may be only a smartphone), but they did say 1) they can't afford home Internet access and 2) they don't know how to use computers or the Internet.
- For others, English-only web pages, even if they contain a link to translated pages, are too difficult to navigate. Participants in the Chinese group noted that because of their language barrier, they are unable to navigate their way to a website that will help them improve their English skills.

- Low levels of education presented a barrier for participants in several groups. Without first language literacy, navigating the Internet is dauntingly difficult. Participants explained that in this case, they rely on younger relatives to help them with the technology or bilingual friends and family, or community organizations, that can help them with the English. One important reason those with low English language skills prefer getting important information by letter is that they are able to carry the letter to others who can help them understand the message.
- Concerns about privacy and security were mentioned in almost every group. Some were worried about scammers, others about security of information, and some were concerned about making too much information available to the government. These concerns are exacerbated with consideration of super high speed Internet.

As participants discussed how they attempt to overcome some of these barriers, it became clear that the technology available at community centers or libraries is very important to these groups, despite the inconvenience and limitations involved in using them. Community organizations also serve as information intermediaries, transmitting information from government to the community, and conveying the perspective of the community to government.

Confidence in the security and privacy of financial transaction has remained fairly consistent since the previous survey and is generally higher among subgroups that use the Internet more (younger respondents, and those with more education and income) - to a point. Even the subgroups that make the greatest use of computers and the Internet most often stop short of "Very confident" and instead tend to be "Somewhat confident," which may be a reasonable balance of confidence and concern given the reality of risks to security and privacy. Those with less education or less experience with the Internet are aware of the possibility of breaches in Internet security and fear its consequences, but a larger percentage of these groups may not have enough information to accurately understand or manage their risk. Of the different racial/ethnic groups in the phone survey, African American respondents expressed the least confidence in the security and privacy of financial transactions. This issue was also emphasized in all the focus groups, especially in connection with questions about super high speed access and in some groups, connecting with the government through social media. Participants were concerned that higher speed creates a greater threat to security and privacy and others were concerned that "friending" the government would permit the government to intrude too deeply into their private affairs.

Super high speed Internet

Interest in super high speed Internet followed a similar pattern to other indicators of technology adoption. The great majority (85%) said they would be interested in super high speed Internet access, with almost two-thirds (64%) endorsing the use of super high speed to attend medical appointments remotely, followed by interactive classes or job training (61%), and even more of the online respondents (83% and 74%, respectively). Interestingly, only 18% mentioned cost as a concern about super high speed Internet, about same percentage as those who mentioned cost as a barrier to home Internet access and fewer than the 45% that said that the one thing that would most improve their Internet service is lowering the price. Many more phone survey respondents were concerned about privacy and

security when considering super high speed Internet. The pattern among the online respondents was reversed with three fourths endorsing a concern about cost and only about a quarter (28%) endorsing a concern about security and privacy, despite similar income profiles between the groups and regardless of income level.

Subgroup analysis followed a familiar pattern: interest in super high speed Internet tended to be higher for those 50 and younger (except for younger parents of children in Seattle Public Schools), those with more education, and those with more income. In a break from the familiar pattern, African American and Caucasian Internet users were the most likely to be interested in super high speed access. Among those who were interested, about the same percentage in each subgroup was interested in many of the possible uses. The concern about cost of service was about the same across the different subgroups with a tendency for overall fewer concerns among those who were most interested. Some subgroups (those older than 50 and African American respondents) expressed the most concern about security and privacy. Interestingly, those in the youngest group were the most concerned about the importance of personal contact (16%), a concern mentioned by between 5% and 8% of those in the other age groups.

Cable service

About six in ten Seattleites subscribes to cable TV and about two-thirds have cable service for TV, phone and/or Internet. The percentage of online respondents with cable service was a bit higher (71%).

Even though largely satisfied with customer service and the type and variety of programming (about three-fourths each), a large majority (81%) say that the rates they pay for their cable service is either “somewhat too expensive” (45%) or “very much too expensive” (36%) and they are most likely to say that better pricing is the one thing that would most improve their cable service (63%), outpacing program choices (19%) or customer service (5%). About half of the respondents are aware of the basic cable package, and only two in ten are aware of the City’s Cable Office.

The percentage of cable TV subscribers has decreased since 2009 from 68% to 59%. About one third (35%) of those without cable have dropped it in the past few years (since the last survey), and almost half of current subscribers say they are very likely (23%) or somewhat likely (23%) to drop their cable TV in the next five years. Of those who have dropped or are considering dropping, about half of the telephone respondents and even more online respondents (79%) say they’ve dropped their service or are likely to do so in the future because of the cost. Others (16% of phone respondents and two-thirds of online respondents) say it’s because they can get video content over the Internet or free TV over the air (26% online and 15% phone respondents). Three-fourths of Seattle watches TV over the Internet (using services such as Hulu, YouTube, Netflix, and AppleTV). Taken together, these responses may have implications for cable subscriptions going forward. Few mentioned problems with service as the reason although 61% of subscribers reported problems with their cable TV and 44% reported problems with their Internet service.

Looking at subgroups, subscription to cable service increases with age, and likelihood of dropping cable within the next five years decreases with age. Together, these may portend important trends from a policy perspective. Seniors may be the last remaining loyal customers of cable service. They are least

likely to say that price is the one thing that would most improve their cable service, though even the seniors are dissatisfied with the cost of cable as they gave this answer more often than the other answers. Among those who have dropped or are considering dropping, cost was given as a reason more often as age increased. This pattern was especially marked among those who dropped cable recently.

Of the few factors related to cable service that seem sensitive to level of education, some may require attention from a policy and education perspective: While respondents across the education spectrum were equally likely to be cable customers and as likely to consider dropping cable, only a quarter of cable customers with less than a high school education were aware of the low cost basic cable package, compared with half of the other education groups, and they were also less aware of alternative sources of video content.

There are many indications of the price sensitivity of cable subscriptions: although the majority of every income group subscribes to cable, the proportion with cable increases with income from about 55% of those earning less than $30,000 per year, climbing to more than three-fourths of those with incomes more than $100,000 per year. Those with more incomes were more likely to note a number of problems with their cable service, including that their cable TV went out or their Internet service was too slow or went out.

About two-thirds of **focus group** participants said they were satisfied with their Internet speed - slightly more if they were cable customers than DSL customers and about the same percentage are satisfied with their Internet provider customer service. More (about three-fourths) are satisfied with their Internet reliability - slightly more if they are cable customers, but many fewer (about half) are satisfied with its cost (more - 60% -if they are DSL customers). When it comes to cable TV, customers are satisfied with reliability (80%) and customer service (60%), but not cost (42%). When asked what one thing would most improve their cable TV service, 80% said "Price." When asked the same question about their Internet service, the most frequent response was "Price," given by 80% of those with data plans, 73% of those with cable and half of those with DSL. Almost as frequent was "speed," given by 83% of those relying on a data plan, 64% of those with DSL, and 56% of those with cable. Those who rely on a data plan for their Internet access were the most likely to name each domain of service: speed, price, reliability, and customer service as the one thing that would most improve their Internet service. When asked how much they would be willing to pay for Internet access or for faster Internet access, more than half of the respondents named a monthly amount between "less than $5" and "$10-$20." Another 17% said "Nothing."

Taking together respondents' various reactions to their cable providers, our impression is that if customers become increasingly frustrated with expensive cable service and various options, including cable over the Internet continue to arise, the move away from cable is likely to accelerate in the future.

Civic Participation

About half of Seattleites (more among the older or more educated groups) continue to participate in a community group such as a neighborhood association or block watch, or school or religious group, and about three-fourths want to give opinions to such a group or to the City via an electronic method,

including email (39% - up to 75% when asked to identify a preferred *electronic* method) or a web survey (15% - up to 22% of electronic methods). Many fewer mentioned Facebook (5% - up to 10%) or the City's blog (5% - up to 6%) or Twitter (3% - up to 4%). Readers are urged to keep in mind that gathering opinions solely via electronic means will exclude important community groups. Very few respondents with low levels of education mentioned email as a way of giving opinions, preferring in person methods. Focus group participants, whether English speakers or not, expressed a desire for more in person contact and community meetings like the focus group to give opinions and get information. African American respondents were much more likely to mention the telephone or an in person meeting and older residents were also likely to want to give their opinions by phone – about the same percentage as email or attending a community meeting, while younger residents were more likely to mention Twitter or Facebook (though those responses were still less common than some of the other methods).

Seattleites across the age groups also want to *get* their information from the City or a community group electronically, by email (61%) or the City's website (27%). Again, it is important to remain aware that an important minority, disproportionately people of color, people with less education or limited English skills, and older residents, want such information by mail (15%) or telephone (11%), and according to focus group responses, from TV news. Written information was especially important to participants in the limited English focus groups because they are able to take a letter to a friend or relative, or community organization to have it translated.

When it comes to urgent information, such as utility outages or emergency safety alerts, phone respondents want an email (43%), text message (41%), or telephone call (32%). For online respondents, it was email (76%), text (63%), and phone (40%). A combination of these methods would reach almost nine out of ten respondents, though these methods would miss 75% of seniors. Most of those left out by phone, email, and text could be reached by adding a TV or radio announcement and word of mouth. Any urgent messages should encourage the recipient to spread the word. Notable differences emerged in response to getting urgent information. Asian/Pacific Islander and African American respondents were most likely to mention the telephone (more than 40% of both groups) compared to about a quarter of the Caucasian and Latino groups, and half of the Latino respondents asked for a text.

At most, about one-third of the focus group participants have ever used Twitter, but this is likely to be an overestimate because about one-third of those who replied to some of the items in this section simply did not answer this question.

Overall, focus group participants want to participate in civic discussions, especially if they know their opinions are valued. Focus group participants are willing to accept electronic communication, but consistently expressed a preference for in person contact and a great appreciation for the City coming into the community to listen to them. Overall about 80% of **focus group** participants use email, but the percentage of email users was not consistent across the different groups. The disabilities group, the African American groups, the Vietnamese group and the Latino groups reported a higher rate of email use, while at least one third of the Chinese, Ethiopian, and Somali participants said they don't use email. Of those who do use it, most use it daily.

About 70% of focus group participants overall use Facebook, again, not evenly across the groups. The groups that use email most also use Facebook most, but users don't check Facebook as often as they do email. The Latino participants stood out in their higher level of use and *daily* use. During the focus group, some explained that unable to afford a voice plan for their smartphone, Facebook is their main means of communication. Facebook was used by very few of the Chinese participants who use QQ instead, a social networking service that is available in China. Focus group participants' most frequently endorsed options for giving opinions are: email or online survey (38%), community meeting (36%), telephone survey (31%), or in-person focus group (28%).

When it comes to getting information from the City, the clear favorite option of focus group participants is TV news (55%), followed by email (38%), a notice in the mail (30%), or the City's website (28%). About half of the focus group participants have visited Seattle.gov and about half have seen the Seattle Channel, most of them on cable.

Overall, residents prefer to make contact with government by email (51%), though about one-third each checked "In person," "By telephone," and "By letter." Fewer (19%) checked "Facebook."

Participants made these suggestions:

- Build more communication pathways between government and the community through activities, regular information updates, and more frequent community level discussions and information seeking. Latino group participants especially wanted printed information or interpersonal interaction to receive information about improving their community.
- Communicate better, and in multiple languages, about resources available for non- or limited English-speaking residents.
- Continue to provide information by telephone, email, and letter.
- Reach Chinese residents through community restaurants and grocery store owners.
- Continue to communicate with the community through trusted community organizations.

Seattle.gov and the Seattle Channel

About two-thirds of the telephone respondents and even more of the online respondents have visited Seattle.gov, though mostly, once a month or less. Respondents with less income and those with less than a high school education were less likely to have visited Seattle.gov. When considering the City's mobile presence, most respondents preferred a single app. Respondents with disabilities were an exception, preferring separate apps. The difference did not reach statistical significance, but may nevertheless be pointing to an opportunity for the application of universal design – a design that makes it possible for people who would otherwise be excluded to access the resource, while other users also benefit. This question should be explored further with residents with a variety of disabilities.

About half of the telephone responders have seen the Seattle Channel, nearly all (92%) on TV and 21% over the Internet. Of those who have ever seen it, 30% have not seen it in the past year, leaving about one-third of Seattleites watching the Seattle Channel in the past year, mostly once a month or less,

somewhat down from the previous year. Parents of children in Seattle public Schools seem to be more active viewers, more likely to have seen it at all in the past year, and more often.

Respondents want to see more local information on the Seattle Channel, especially pertaining to their neighborhood, including community events, festivals, and other activities. They are also interested in local crime and safety information. Some were very interested in getting more information and updates about public works, and other government activities. Some were also interested in a resource that could help them navigate City services, and find the right staff person or available programs.

Interest in most topics decreased with age except for a resource to help residents navigate City services, staff, and available programs.

Ethnic groups varied in the type of information they would like to find on Seattle.gov or the Seattle Channel. Overall, Hispanic/ Latino respondents were more outspoken about the type of information they'd like to find on the website or the Seattle Channel. This includes alerts about problems occurring in the City and especially in their neighborhood; disaster preparedness information; cultural events; and with Caucasian respondents, they'd like more information about the City Council process; and with Asian/ Pacific Islander respondents they'd like to see more general information and current events from the City.

Summarizing, Seattleites report very high levels of technology access, and there is still work to be done. Residents continue to adopt new technologies, are largely connected to the Internet at home with desktop or increasingly, laptop computers and connected elsewhere too, thanks to broad adoption of mobile technologies including laptops, smartphones, and tablets. The telephone and online surveys indicate that nearly all Seattleites have broadband Internet access at home (and want faster access yet), and use the Internet with growing skill and for a growing number of functions. People with disabilities who can overcome technology's financial barrier describe the dramatic benefit of accessible technology: more technology permits more participation and enables them to claim their autonomy. At the same time, for those who face barriers to access that they have not found a way to overcome, more technology leads to *less* ability to participate and increasing *dis*connection from entities that rely on electronic forms of communication. Even without identifiable barriers, people adopt technologies at different rates: younger respondents, and those with more education or income tend to adopt first and more fully, and others usually follow. The focus group participants explained that their low levels of adoption are not due to lack of interest. Indeed, members of their communities would like to adopt new technologies, but face barriers in doing so, including a financial barrier (especially the monthly cost of home Internet access) and a knowledge barrier, not knowing how to use the technology, a barrier that is exacerbated by a lack of access that prevents exploration and practice, and in some cases, a language barrier. Community access to computers and the Internet (including a free wifi signal) is at least convenient and appreciated by those with home access, and vitally important for those without home or mobile access.

Cable subscriptions for Internet are increasing, but cable TV subscriptions are falling and, according to survey participants, are likely to fall further in the next few years. Respondents say that it is too

expensive, and many note that they can get video content over the Internet. Again, some groups – notably those with the least education - seem less aware of this option. Some who might be eligible for reduced rates for cable service may not be aware of that benefit or of the basic cable package.

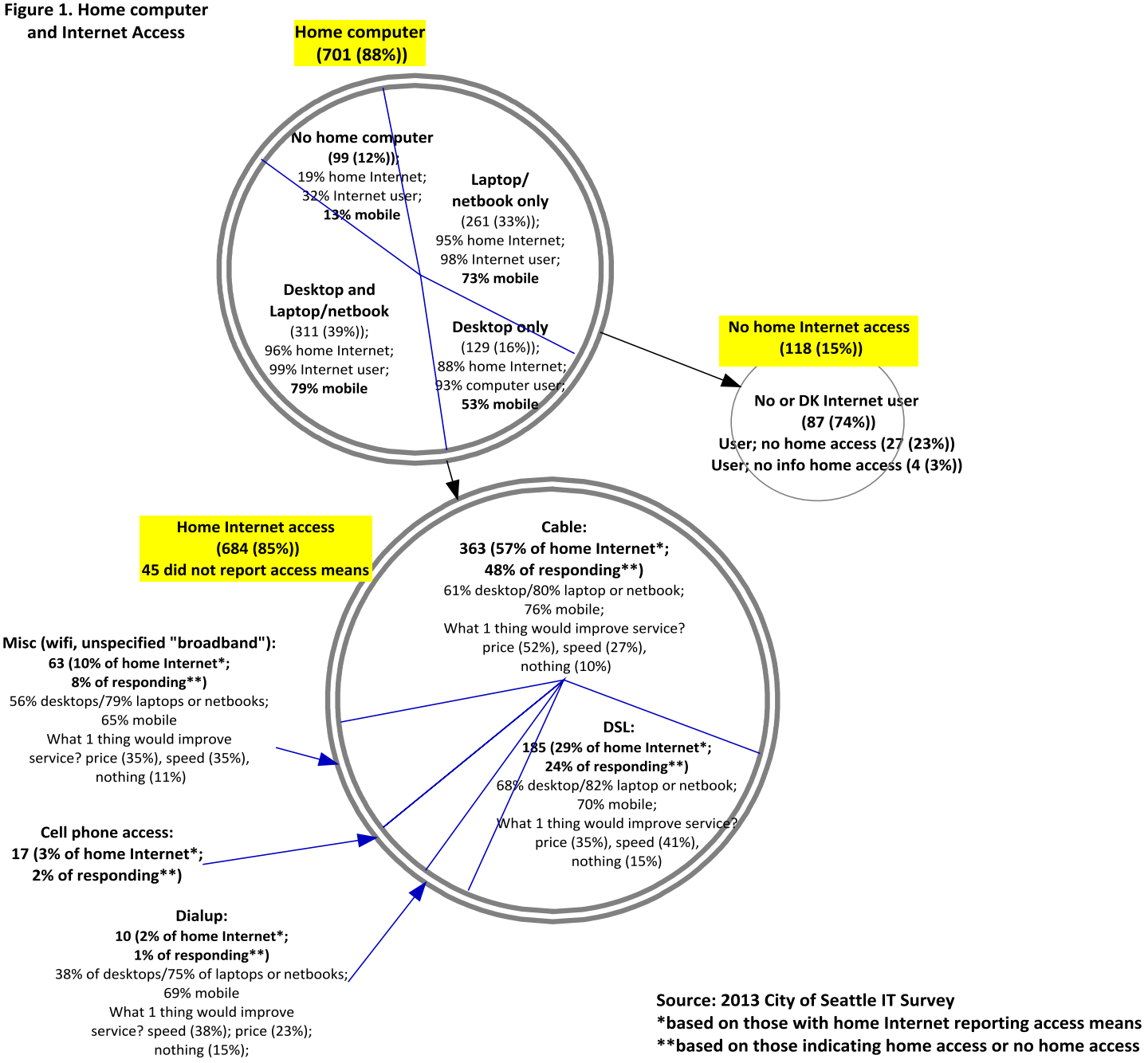
Many Seattleites are interested in communicating with the City or community groups using electronic means – and depending on whether the residents are giving opinions, getting information, or getting urgent information, the preferred means of communication are different. For example, email for giving opinions and getting routine information, but text or phone for urgent alerts. Again, these communication strategies are effective for Seattle's dominant population – those who can and do respond to a telephone or online survey, but older residents or those with less education or income, and other community groups that are not well represented by a traditional survey, though still somewhat likely to ask for an electronic option, are much more likely than other groups to emphasize the importance of richer communication pathways often involving visits by City representatives into the community.

Detailed findings

Technology checklist summary

Respondents were first asked about their personal use of information technology. Responses show that nearly all of the 803 respondents use computers (719, 90%) and the Internet (716, 89%), and own at least one working computer (701, 88%).

Figure 1. Home computer and Internet Access



Source: 2013 City of Seattle IT Survey
***based on those with home Internet reporting access means**
****based on those indicating home access or no home access**

Figure 1 illustrates that the great majority of Seattle residents have both a home computer and high speed Internet access at home. Of the 803 people interviewed by phone, 99 (12%) do not have a home computer (though some of these access the Internet without a home computer) and 118 (15%) do not have Internet access at home. It also shows that people who own a laptop are *more* likely to also own a mobile Internet device in addition to the laptop.

Tables 3 and 4 summarize responses to these and other questions for the current year's telephone survey, and compare the data to previous years' surveys, and to this year's online survey.

Computer Ownership: Residents are more likely to own a laptop. Table 3 shows that the percentage of telephone respondents that use a computer has remained fairly steady and high, while the percentage that owns a computer has increased since 2000, but leveled off at 88% in 2009. Although the percentage of respondents with both a laptop and a desktop has remained about the same since 2009, if respondents have only one type of computer, in 2009, it was more likely to be a *desktop* (27% desktop vs. 19% laptop) while in 2013, it is more likely to be a *laptop* (33% laptop vs. 16% desktop). Not surprisingly, online respondents are more likely to have a computer overall (99% vs. 88%). They are also more likely to have both a laptop and a desktop, and less likely to have only a desktop.

Table 3. Computer ownership since 2000

	Phone survey				Online survey
Year	2000	2004	2009	2013	2013
Use computer	88%	85%	88%	90%	100%
Use Internet				89%[1]	100%
Own any computer	76%	83%	88%	88%	99%
Own desktop and laptop			42%	39%	52%
Desktop only			27%	16%	12%
Laptop/Netbook only			19%	33%	34%

About three-fourths (72%) of computer owners also own a mobile device (smartphone or tablet), more among laptop owners than non laptop owners (76% vs. 48%). Of the few respondents without a home computer, 17% reporting owning a mobile device.

Age and education were the demographic factors most associated with laptop ownership. Only about 40% of those with less than a high school education owned a laptop, compared with between 70% and 80% of the other education groups. The decrease in laptop ownership with age was more gradual, from 87% of those in the youngest group down to 73% of those in the 51-64 year old group, but the greatest drop was for those 65+ where only about half reported having a laptop.

Internet Access: Overall, 85% of the telephone respondents have home Internet access, high speed access (cable, DSL, wifi, or cell phone data plan) for about 97% of those who reported any access. Even

[1] In past surveys, use of the Internet and use of computers were asked together.

though this is a high rate of adoption, it is important to remember that estimating across Seattle households as a whole, this means that nearly 20% of Seattle residents do not have any Internet access.

Mobile devices:

Table 4 summarizes the dramatic trends in the forms of technology people utilize. Almost 9 in 10 residents have cell phones and two-thirds of these (58% overall) have smartphones or other mobile Internet devices. Table 3b shows that cell phone ownership overall climbed steeply between 2000 and 2009 and – in contrast to computer ownership -- continued to climb after 2009, from 80% in 2009 to 89% in 2013. During the same period, ownership of *smartphones* (such as the iPhone or Android) increased by two-thirds, from 35% to 58% among the phone sample, and to 76% among the online respondents. Two-thirds of telephone respondents reported having some type of mobile Internet device, such as a tablet, Kindle, or a smartphone. Overall, online respondents were between 30% and 40% more likely to report having a mobile device[2].

Other important technology trends are embedded in these results: Past surveys have all been conducted using landlines. This year, a sample of cell phone numbers was included. Overall, 80% of the telephone sample reported having a landline – less than the percentage with a cell phone. *Among the cell phone respondents, only 39% reported having landlines, similar to the percentage reported by online survey respondents*.

Table 4. Telephones and mobile devices

	Phone survey				Online survey
Year	2000	2004	2009	2013	2013
Cell Phone	46%	*	80%	89%	97%
Smartphone			35%	58%	76%
Land line				80%	41%
Land line (among cell phone sample)				39%	40%
Any mobile device (smartphone or tablet)				66%	87%
Any tablet				40%	66%
(iPad, Galaxy, Surface)				*35%*	49%
Kindle/Nook				*6%*	34%

*In 2004, we asked whether there was a cell phone in the household. 70% answered yes.

More than one Internet device: Overall, nearly three-fourths of telephone respondents (71%) report having more than one Internet device, including a desktop, a laptop or netbook, a tablet, or a smartphone.

[2] Although Table 4 shows that the online respondents are more than four times as likely as telephone respondents to report having a Kindle or Nook, this is likely to be due to differences between the two surveys. The options were not read to the telephone respondents and they may not have thought of their reader as "a tablet such as an iPad, Surface, or Galaxy" whereas Kindle/Nook was one of the choices presented to the online respondents.

Table 5. Number of Internet devices

# of devices	# (%) of respondents
None	79 (10%)
Single device	150 (19%)
2 devices	209 (26%)
3 devices	228 (29%)
4 devices	135 (17%)
Average #	2.2
Total	801

Table 5 shows the distribution of number of Internet devices. Of those with a single Internet device, it is slightly more likely to be a laptop or netbook (46%) but almost as likely to be a desktop (41%). For those with two Internet devices, most commonly, they are a laptop or netbook and a smartphone.

Those with at least one Internet device tend to be younger and have more education and income. Those who have more than one device tend to be younger, male and have more income.

Subgroup analysis

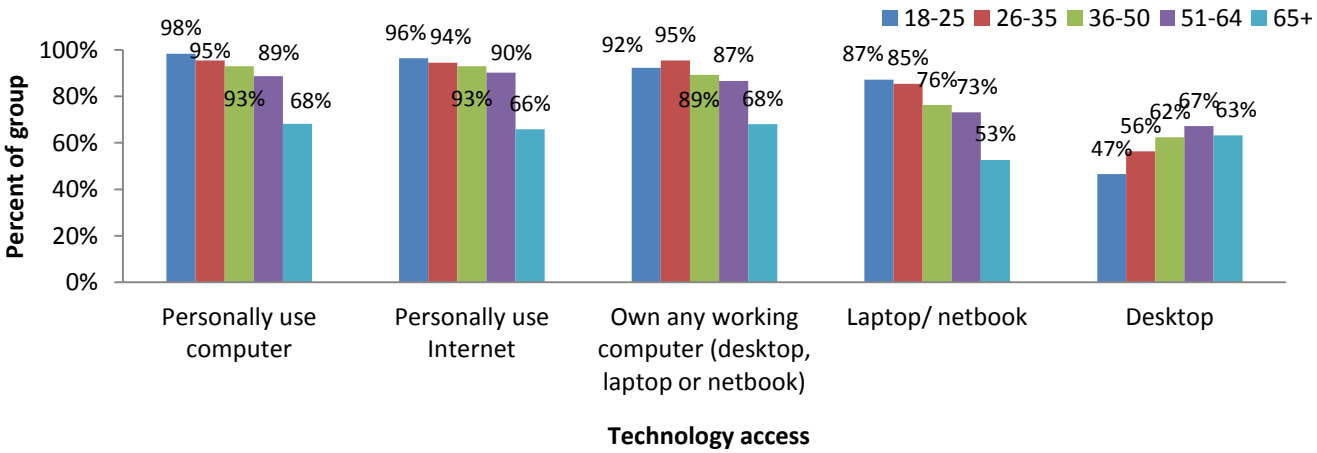
Several factors worthy of attention as policy issues were associated with access, or lack of access, to technology. These include:

Gender: Gender seems no longer to be the issue it used to be in technology use. Here, for example, men and women did not differ in their response to the "technology checklist."

However, in the more in depth analysis reported above to identify those most likely to have *multiple* Internet devices, when age, income, and education are all accounted for, men are more likely to have more than one Internet device.

Age: An age gap persists, though in some respects the substantial gap seems to be aging with the population. Figure 2 shows a slight decrease in computer and Internet use from the youngest group (18-25) to the fourth group (51-64), with a greater drop among those 65 and older.

Figure 2. Computer use and ownership by age



A similar pattern is seen in the type of computers and ownership of cell phones: younger respondents are less likely to own desktop computers, and more likely to own laptops or netbooks, and as shown in Figure 3, cell phones - especially smartphones.

Figure 3. Communication and mobile devices by age

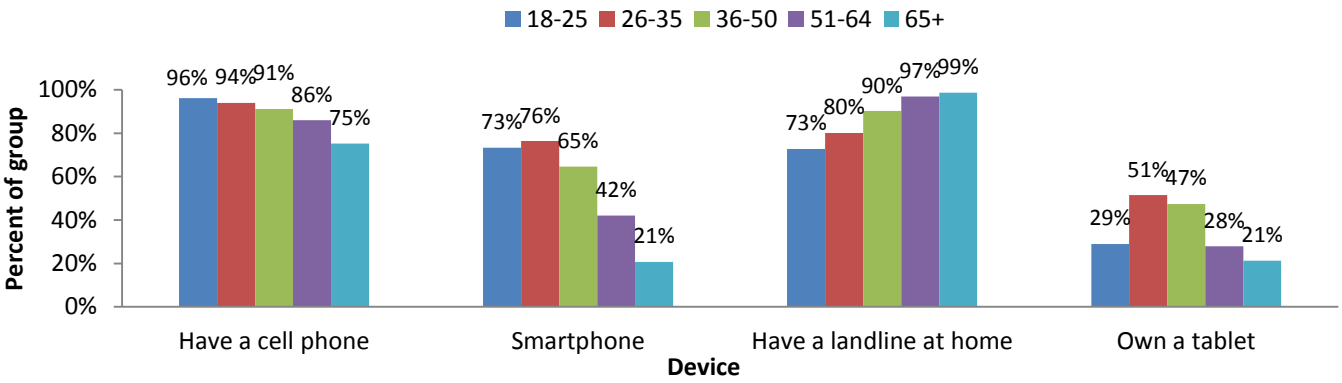


Figure 3 shows a linear drop in cell phone adoption by age (from 96% in the youngest group to 75% in those 65 and older) and a complementary increase in the use of landlines (from 73% among the youngest respondents to 99% among the 65 and older group). Seniors are behind their younger counterparts in cell phone adoption overall, and dramatically behind their younger counterparts in the adoption of *smartphones*, with between 65% and 75% of those younger than 50 having smartphones, compared with 21% in the 65 and older group.

Race/ Ethnicity: **Caucasians continue to have more access to computers and the Internet.** However, ethnic groups did not differ significantly on access to cell phones, smartphones, landlines at home, or tablets. Analysis of the information in Figure 4 shows that Caucasian respondents have more access to computers and the Internet and are more likely to own a computer than Hispanic/Latino respondents, and that African American and Asian/ Pacific Islander respondents fall between the two groups.

Nine focus groups with about 20 members of underrepresented communities[3] were conducted as part of this study and reported separately. Although communities differed in their use of technology, overall figures provide another important view of technology access and adoption by Seattle's residents. Overall, members of these underrepresented groups had less access to technology.

Though most (86%) had a cell phone, only about four in ten had a smartphone - and one-third had mobile Internet access. About two-thirds said they use a computer, and about as many had a computer at home. About six in ten use the Internet, and fewer than half have Internet access at home. Among the immigrant participants, this figure drops to about one-third. When mobile access and smartphones are included in the assessment of "home access," the figure increases to about six in ten.

[3] Six of the groups were conducted with immigrants from 5 different language groups (Spanish, Amharic, Somali, Chinese, and Vietnamese), in addition to English-speaking people with disabilities, and African American residents.

Education: Figure 5 shows the substantial relationship between education and technology adoption, with a clear increase in computer use and computer ownership with education. Although those with less than a high school education have significantly less access than those with a high school education, both groups fall well below those with any college education in use of computers or the Internet, and computer ownership.

Figure 5. Computer use and ownership by education

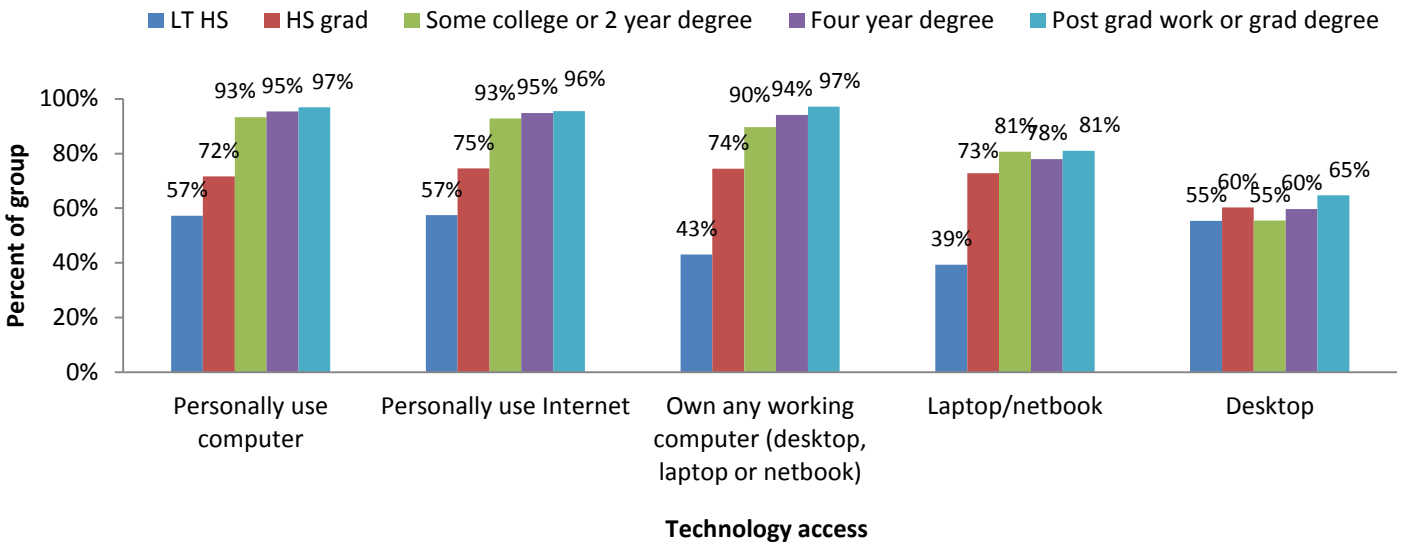
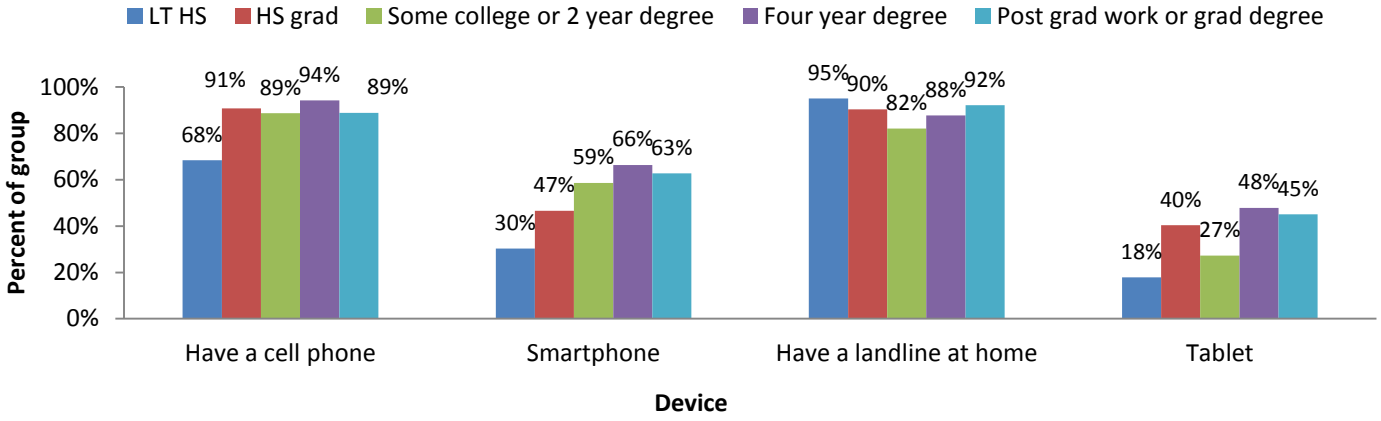


Figure 6 shows a similar result for smartphones, but a less marked impact of education on adoption of cell phones and tablets for those with at least a high school education.

Figure 6. Communication and mobile devices by education



Income: Figure 7 shows a linear increase with income in use of computers and the Internet, as well as in computer ownership.

Figure 7. Computer use and ownership by income

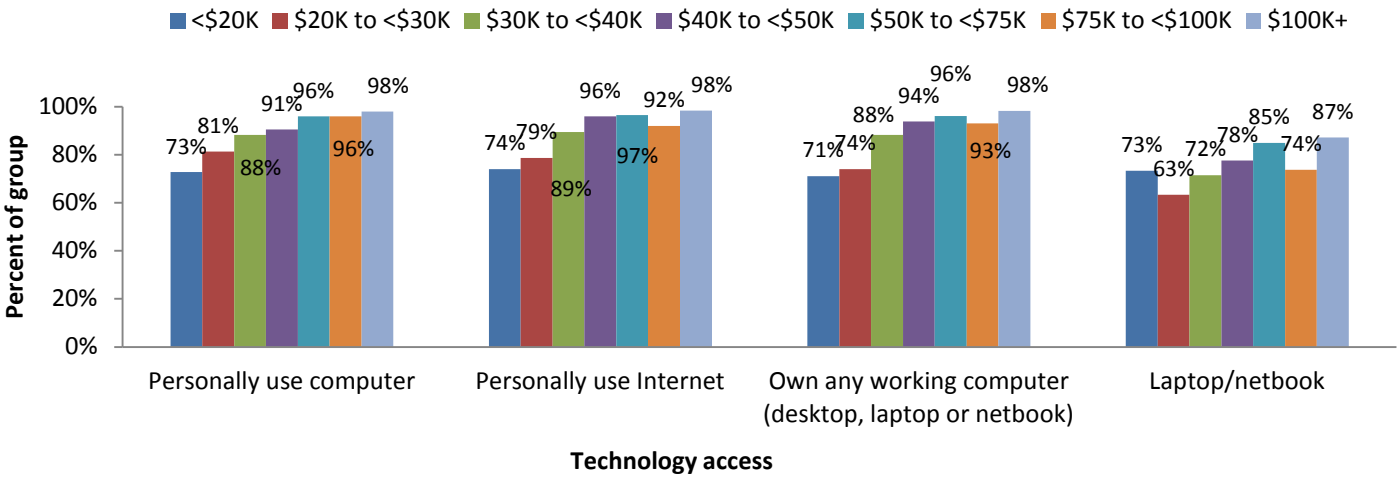
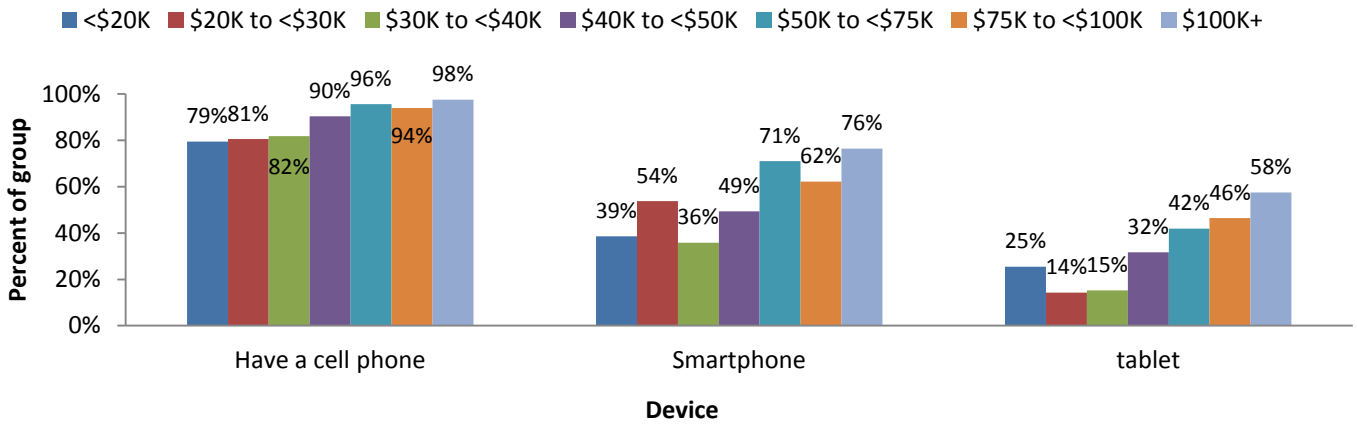


Figure 8. Communication and mobile devices by income



Likewise, Figure 8 shows a linear increase with income in access to cell phones, smartphones and tablets. The pattern of smartphone ownership also has a non linear component. That is, overall, ownership of smartphones increases with income. But this figure shows some "blips" within that trend, especially at the lower end of income. It is not clear what accounts for the higher rate of smartphone ownership in the second income category. One contributor is the higher use of smartphones as the respondents' single Internet device in the first two income groups than in the other groups.

Children in Seattle Schools have less technology than other families with children: Looking just at respondents with children younger than 18, those whose children do NOT attend a Seattle Public School are more likely to personally use a computer (98% vs. 89%) and the Internet (96% vs. 89%). They are more likely own a working computer (98% vs. 89%), and specifically more likely to own a laptop or a netbook (88% vs. 78%), and a tablet (56% vs. 43%). They were similar in their use of cell phones and

smart phones. Overall, families with children under 18 are more likely to have a home computer and Internet access, but part of that is because they also tend to be younger than the groups with the least technology access. However, even after adjusting for age, 72% of those with children under 18 have a smartphone, compared with 51% of respondents without children in that age group.

As with the larger sample, Latino families with children in Seattle Schools are less likely to have a home computer or Internet access than Caucasian families, with the access of Asian and African American families falling between them. In the larger sample, smartphone use was about the same across the ethnic groups. Among Seattle School families, a different pattern emerged: about eight in ten Caucasian and Latino Seattle Schools' families reported having a smartphone, compared with only about half of the African American and Asian Seattle School families.

Internet Access

Respondents were asked to provide some details about their Internet use, including a number of items that were also asked in prior surveys. They were asked where they access the Internet (with special attention to any use of public access computers), how their home Internet is delivered, what would improve their Internet service, and their attitudes about Internet speed and security of financial transaction. Those who don't use the Internet or don't have home access were asked why they don't.

Table 6[4]. Locations for Internet access

	Phone	Online
At home	86%	97%
At work	44%	81%
At school	9%	24%
At the library	21%	45%
At a community center	2%	15%
At neighborhood cafe or restaurant	22%	69%
Anywhere/ everywhere	25%	X
At friend's or relative's	7%	74%

Table 6 shows the locations mentioned by telephone and online respondents for accessing the Internet.

Home is the most common location for accessing the Internet in both samples, and work is the second most common, though the samples different significantly on the frequency of responses to all location types. [5] Note that "online" respondents report accessing the Internet more frequently from *all* locations, including libraries and community centers.

Home Internet access in 2013 was reported by 684 (85% overall). Of these, 639 indicated how they access the Internet from home and of those, 618 reported high speed access (DSL, cable, paid or free wifi, or a cell phone data plan). This means that about 80% of Seattle households[6] have high speed Internet access (97% of those reporting any type of access). It is important to remember that nearly all

[4] These percentages are based on those who responded to the question AND non Internet users.
[5] These figures are not directly comparable because they were not presented to the telephone respondents as they were to the online respondents. However, if telephone respondents did not mention the library or a community center, they were prompted with those specific locations.
[6] Calculated using as a base all 803 respondents except those 45 with home access who did not provide type of access.

of those without high speed access from home are not online at all from home, demarking a sharp divide.

Table 7 shows the growth in home Internet access from 57% in 2000, leveling off to more than 80% after 2009. Almost half of Seattle households get home Internet access via cable, up from 11% in 2000 and 44% in 2009 and about a quarter get home Internet access via DSL, also up from 7% in 2000, but down slightly from 27% in 2009.

Table 7. Home internet access since 2000

	Phone survey				Online survey
Year	2000	2004	2009	2013	2013
Home Internet	57%	76%	84%	85%	97%
No access	44%	26%	16%	15%	4%
High speed (Cable, DSL, WIFI, Cell data plan)	18%	45%	77%	81%	96%
Dialup modem	32%	29%	6%	1%	<1%
DSL	7%	19%	27%	24%	19%
Cable	11%	26%	44%	48%	72%
Paid WIFI			5%	5%	4%
Free WIFI			<1%	1%	1%
Cell data plan				2%	1%
Web TV			<1%	0%	0%

Home Internet has leveled off, high speed access has gone up

Table 7 shows that the striking rise over time in home Internet access seems to have leveled off: Only 57% of Seattle's homes reported Internet access in 2000, increasing to 76% in 2004 and 84% in 2009, and barely rising four years later. High speed access rose even more steeply -- first measured at 18% in 2000, increasing one and one-half times to 45% four years later, then increasing to 77% in 2009, and then to 81% in 2013. More of the *online* respondents have home Internet; many more get their home Internet via cable (72% vs. 48% in the phone survey) and fewer via DSL (19%). Additional analysis found that 6% of the phone survey respondents use smartphone Internet service as their only home Internet[7]. This figure increases to 15% of the lowest income group and 10% of the second income group. Looking at age, this figure increases to 13% of the youngest age group. It is a challenge to infer membership in this group with confidence because some of these respondents may access the Internet on their home computer using a neighborhood wireless signal rather than a private subscription. Future studies may want to ask questions designed to identify what may be an emerging strategy for lower cost Internet access.

[7] Internet access by smartphone Internet service only if respondent has a smart phone and no home DSL, cable, or paid wifi Internet access.

Improving Internet Service: Speed and Price

Speed and price are the biggest issues in improving internet service. The need for speed has grown.

Table 8. What would most improve your Internet service?

	Phone survey		Online survey
Year	2009	2013	2013
Speed	28%	33%	37%
Price	49%	45%	50%
Customer service	2%	4%	2%
Nothing	11%	12%	3%
Other	11%	6%	8%

Table 8 shows that when asked what would most improve Internet service the biggest concern of home Internet users remains the *price* they pay for service, followed by speed of service. Online respondents were less likely to say that "nothing" would improve their service with proportionate increases in speed and price.

Among the telephone respondents, cable customers were more likely to identify *price* as the one thing that would most improve their service (52% vs. 35% of DSL customers) while DSL customers were more likely to identify *speed* as the one thing (41% vs. 27% of cable customers). The same pattern appeared for online respondents with cable customers more likely to identify price (54% vs. 43% of DSL customers) and DSL customers more likely to identify speed (47% vs. 33% of cable customers).

Respondents were asked to use a scale from 1 "Not important at all" to 4 "Very important" to indicate how important they think it is for all Seattle households to have high speed Internet.

Table 9. How important for all Seattle households to have high speed Internet

	Phone survey		Online survey
Year	2009	2013	2013
Not at all important (1)	4%	5%	1%
Not really that important	10%	9%	4%
Somewhat important	39%	30%	14%
Very important (4)	47%	56%	81%

Table 9 shows a 19% *increase* since 2009 in the percentage of respondents indicating that high speed access for all Seattle households is "very important." This increase was largely at the expense of respondents who believe that it is "somewhat important." The percentage believing that it is "not that important" or "not important at all" remained steady at 14%. Online respondents were much more likely to indicate that high speed access is "very important" and much less likely to indicate "not at all important" or "not really that important." The same percentage as last time (14%), don't see high speed internet as being important.

Confidence in Financial Transactions

There are interesting patterns in the levels of confidence people have reported over time regarding the security and privacy of financial transactions over the Internet. Confidence has increased since 2000, but has remained level at an average of 3.4, between "In the middle" and "Somewhat confident" since 2009. The percentage indicating "Not at all confident" or "Not very confident" has declined from 43% in 2000 to 30% in 2004 and 23% in 2009 where it remained in 2013. The percentage that is at least "Somewhat confident" has remained at just over half since 2000, with fewer of these in the "Very confident" category. About three-fourths (77%) of the online respondents are at least "Somewhat confident," with the bulk of these also not ranging into the "Very confident" category.

Table 10. How confident that financial transactions on the Internet are secure and private

	Phone survey				Online survey
Year	2000	2004	2009	2013	2013
Not at all confident (1)	20%	17%	13%	14%	2%
Not very confident	23%	13%	10%	9%	7%
In the middle	6%	27%	27%	25%	15%
Somewhat confident	40%	28%	30%	34%	49%
Very confident (5)	12%	15%	21%	18%	28%

Barriers for non-Internet Users: Knowing how to use it is a greater barrier than price

Residents without home access were asked why they don't have home access or why they are not Internet users and how much, if anything, they would be willing to spend per month for Internet access.

Table 11. Reasons not to have home Internet or not to use Internet

	Phone survey		Online survey
Year	2009 (n=172)	2013 (n=114)	2013 (n=66)
Internet device is too expensive	32%	13%	0%
Internet service is too expensive	22%	21%	75%
Don't want it or need it or like it	24%	27%	1%
Don't know how to use it	5%	17%	0%
Have other access	5%	3%	15%
Computer-related safety/security	7%	8%	0%
No device at home	17%	14%	29%
Problems with service	2%	3%	18%

Since 2009, the percentage of people without home access has stayed about the same, but the reasons have changed somewhat. Compared with 2009, fewer than half as many in 2013 said that an Internet device is too expensive, but more than twice again as many said that they don't have home Internet access because they don't know how to use it. The 66 online respondents without home Internet access were significantly more likely to identify the cost of service as the barrier (75%), the lack of an Internet device at home (29%), the

availability of other access (15%), or problems with Internet service (18%). Despite the public conversations about Internet security, there is no rise in concern as a reason not to use the Internet.

Income and no Internet: Among those without Internet access, income level did not seem to influence the pattern of reasons for not having Internet access. Approximately the same number of lower income residents cited cost as a factor as those who cited relevance and skills (don't want it or don't know how to use it). About the same percentage in each group is willing to pay for home Internet access and to pay about the same amount.

Table 12. Willing to pay for Internet access

	Phone survey		Online survey
Year	2009 (n=37)	2013 (n=119)	2013 (n=66)
Would pay something	62%	72%	65%
Of those willing to pay,			
Average amount per month	$22	$29	$14
Median	$20	$25	$10
% indicating $25 or less	75%	50%	94%

Among *phone* respondents *without* home Internet access, about 62% in 2009 and 72% in 2013 said they would pay something per month for Internet access[8]. The average amount they are willing to pay per month has increased somewhat from an average of $22 per month to an average of $29 per month. In 2013, half named an amount of $25 per month or less. In 2009, 90% named an amount of $25 per month or less. These amounts did not vary significantly across income level.

Among the online *survey* respondents *without* home Internet, 65% were willing to pay an average of $14 per month.

Subgroup analysis

Gender: Gender mattered little in respondents' perspectives. Men and women did not differ in whether or how they have home access, what would improve their home access, where they access the Internet, or in attitudes about the importance of high speed access for all Seattle households, or about the security and privacy of financial transactions over the internet. Among those without home Internet access, men's and women's responses were similar regarding the reasons for not having access, their willingness to pay for it and the amount they would pay.

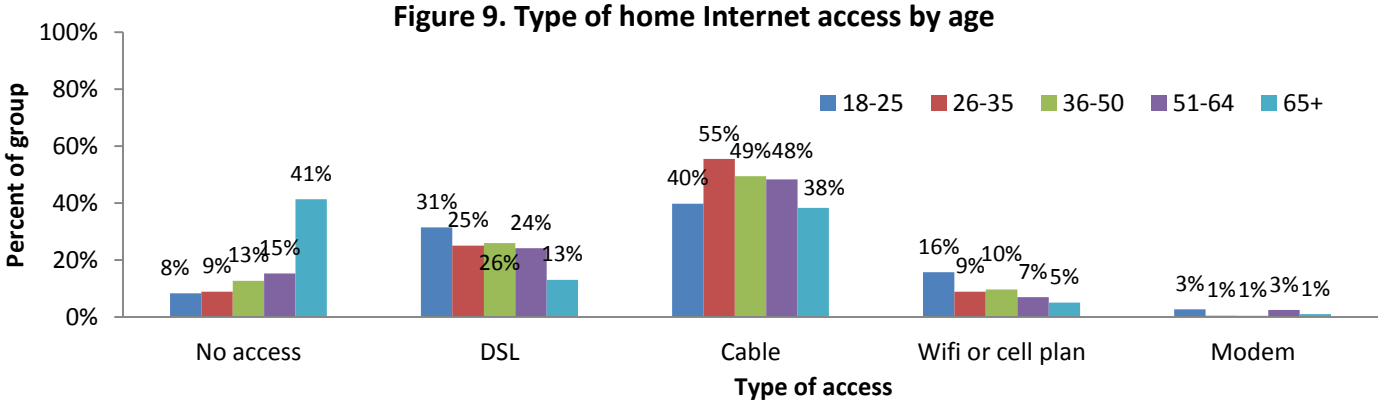
[8] A large number of respondents were given a code of 98 or 99 for this question. These responses were interpreted as "Don't know" or "Refused" and were not included in the calculations.

Age: Unlike gender, age continues to distinguish the use patterns of respondents in many ways.

Home Internet

Figure 9 shows that a much larger percentage of those older than 65 than their younger counterparts do not to have *any* home Internet access. The youngest group is more likely than the others to have access by than by cable (including DSL, wifi/cell plan, or modem) and are as unlikely as the seniors to have Internet access by cable. Analysis of reasons for no access reveals no differences by age group. Interestingly, among those without home Internet access, *the youngest and the oldest* are least likely to say they'd pay for service (65% of the youngest, 55% of the oldest, and 72% of the next oldest, compared with 88% of those between 26 and 50). Of those who would pay, younger respondents say they would pay the most (average of $80 per month), while the other groups averaged between $26 and $28 per month.

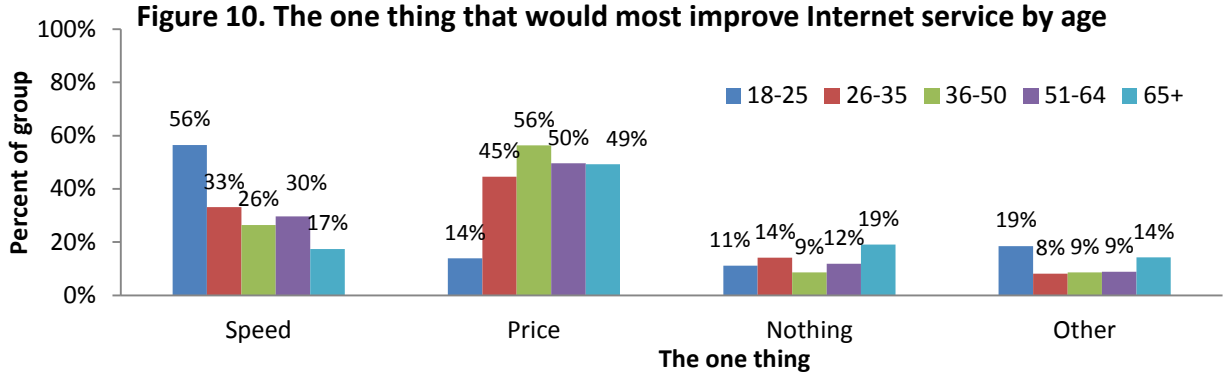
Figure 9. Type of home Internet access by age



Improving home Internet service

Figure 10 illustrates responses by age group to the question: what one thing would most improve you Internet service. More than half of those in the youngest group answered, "Speed," -- more than any other age group (related, perhaps, to the heavy use of gaming, including multi-player gaming, among the young or perhaps related to less experience with comparatively very slow connection speeds, such as dial up modem). Speed was decreasingly important as age increased. Price was of greater importance to older respondents than to the youngest age group.

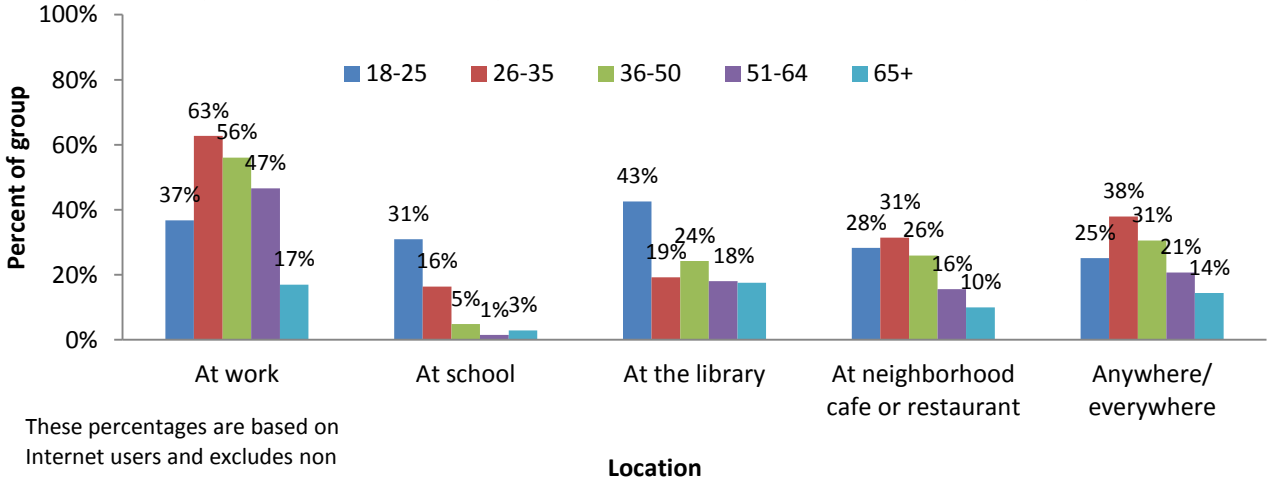
Figure 10. The one thing that would most improve Internet service by age



Access locations

Figure 11 shows that not only is age related to where respondents access the Internet, but also to the *number* of places that respondents access the Internet, decreasing from an average of 2.7 places for those up to 35, down to an average of 2.5 places for the 36-50 year olds, 2.1 for the 51-64 year olds and 1.7 for those 65 and older. The age groups were similar in their use of home, the community center, and friends or relatives' homes to access the Internet. Locations varying in rate of use by age are included in Figure 9. Unsurprisingly, younger respondents are more likely to access the Internet at school, and the youngest group is also about twice as likely as any other group to access the Internet at the library (43% vs. 18%-24%). This group is also less likely to access the Internet at work, a neighborhood café or restaurant, or "anywhere/ everywhere." It may be that the library provides an "anywhere/everywhere" option for those not yet established with mobile computing. Focusing on those 26 and older, access to the Internet declines with age at work, at neighborhood cafés or restaurants, and "anywhere/everywhere."

Figure 11. Places the respondent accessed the Internet last year by age



These percentages are based on Internet users and excludes non

Importance of high speed access

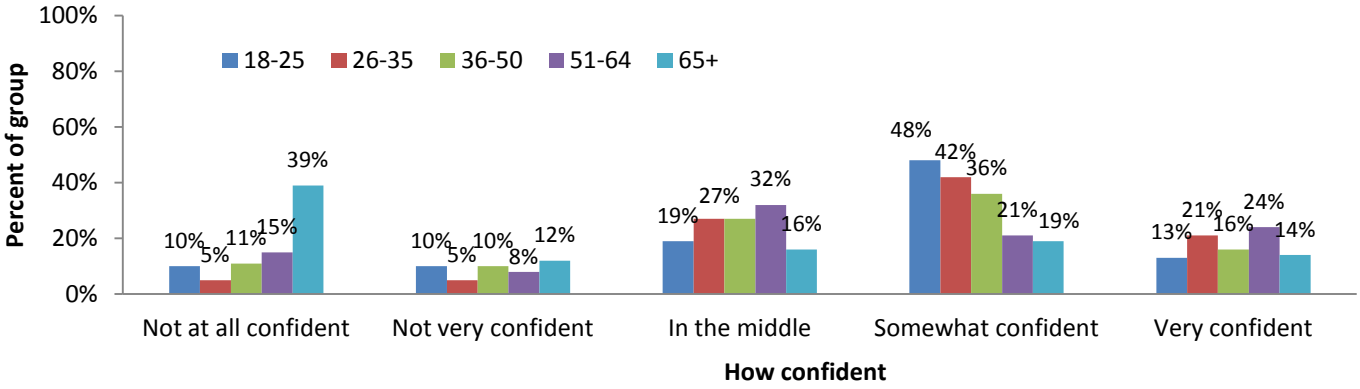
Intriguingly, the youngest group was no more likely than the next two age groups to say that it is "Very important" for all Seattle households to have high speed Internet access (about 60% of the first three

age group, down to 55% of those 51-64 and down again to 37% of those 65 and older). As age increased, so did the likelihood of selecting "Somewhat important" -- from about 27% of the three youngest groups, to 31% of the 51-64 year olds and 40% of those 65 and older.

Confidence in Internet financial transactions

Overall, confidence that financial transactions are private and secure erodes with age, though for the most part, the youngest group defied the pattern slightly by endorsing the Internet's safety more often with "Somewhat confident" and less often with "Very confident." Figure 12 shows that the seniors (who are the least likely to have Internet access) are also the least confident in the privacy and security of financial transactions.

Figure 12. How confident that financial transaction over the Internet are private and secure by age

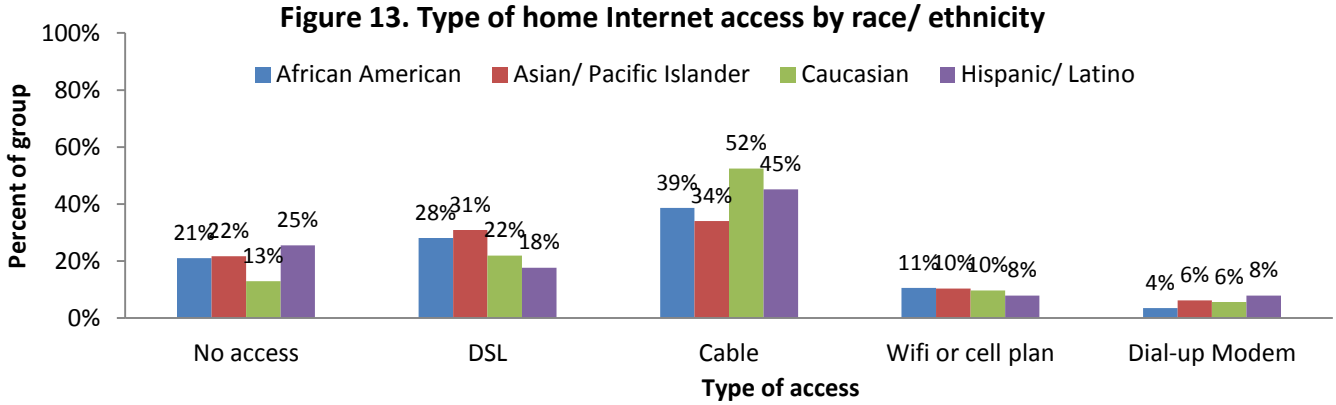


Race/ Ethnicity

Home Internet

Figure 13 shows more similarity than difference in type of home Internet access by race/ ethnicity, with one striking exception: Caucasian respondents were only half as likely to lack home Internet access, compared with the other groups. When respondents without home Internet access were asked why not, respondents from the different groups gave similar responses, except that Hispanic/Latino respondents were more likely to say they didn't know how to use it (45%) than were Caucasian respondents (11%). African American and Asian/Pacific Islander respondents fell between these two.

Figure 13. Type of home Internet access by race/ ethnicity

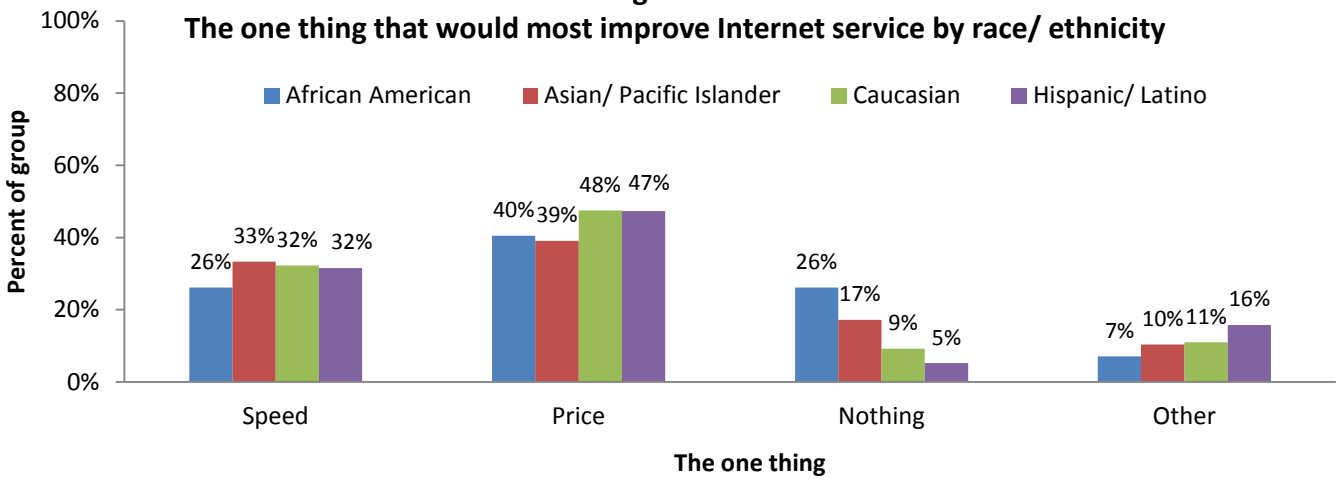


Hispanic respondents were the most likely to be willing to pay something for home access (94%), followed by the Asian/Pacific Islanders (87%). About 60% of Caucasian and African American respondents were willing to pay for Internet access. African American respondents indicated that would be pay an average of $14 per month for Internet access, not significantly different from the $22 average mentioned by Hispanic respondents or the $29 average of the Caucasian respondents, but the African American and Hispanic amounts were significant less than the average of $43 indicated by the Asian/Pacific Islander respondents.

Improving home Internet service

Figure 14 shows responses to the question, "What one thing would most improve your Internet service?" by race/ ethnicity. Groups appear largely similar, except that African American respondents were more likely to say that "Nothing" would improve it, followed by Asian/Pacific Islander respondents.

Figure 14.
The one thing that would most improve Internet service by race/ ethnicity



Access locations

In general, Internet users from different ethnic groups did not differ significantly on where they accessed the Internet, but there were a few exceptions to that overall similarity: Asian/Pacific Islander respondents (27%) and to a lesser extent Hispanic/Latino respondents (20%) were more likely to identify "school" than African American respondents (6%) or Caucasian respondents (9%), while African American and Caucasian respondents (37% and 24%) were more likely to mention the library than were Hispanic/Latino (14%) and Asian/Pacific Islander respondents (19%). Hispanic/Latino respondents were also most likely to mention a friend's or relative's house (20% vs. 7% Caucasian and 6% Asian/Pacific Islander).

Importance of high speed access

African American respondents stood out in interesting ways: they were less likely than other respondents to believe that it is "Very important" for all Seattle households to have high speed Internet access (44% vs. 55% to 65% of the other groups).

Confidence in Internet financial transactions

African American respondents also expressed the least confidence that financial transactions over the Internet are private and secure, with 31% saying they are "Not at all confident" that transactions are private and secure, compared with 11% to 17% of the other groups. Correspondingly, only 17% of the African American respondents indicated that they are at least "Somewhat confident," compared with between 44% and 59% of the other groups.

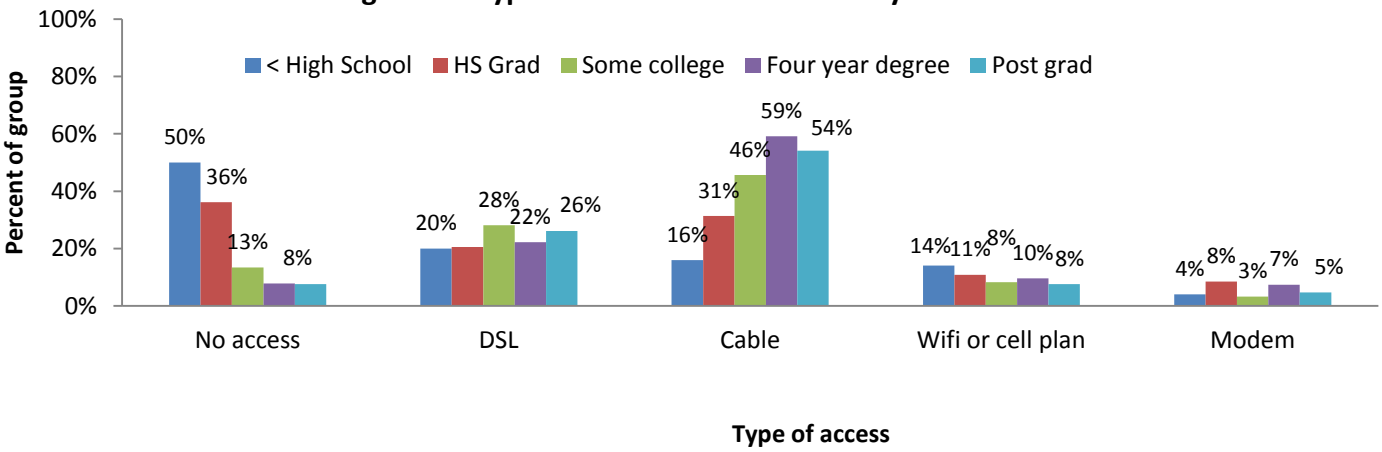
Education

Importantly, as education increases, so do many aspects of access to technology, including home access to high speed Internet such as DSL, Cable, any wifi, or a cell plan and the number of places respondents reported having Internet access.

Home Internet

Home access to high speed Internet such as DSL, Cable, any wifi, or a cell plan (from half of the group with less than a high school education to about 90% of those with at least a college degree). Figure 15 shows that overall access follows education, and that cable access, specifically, increases with education.

Figure 15. Type of home Internet access by education



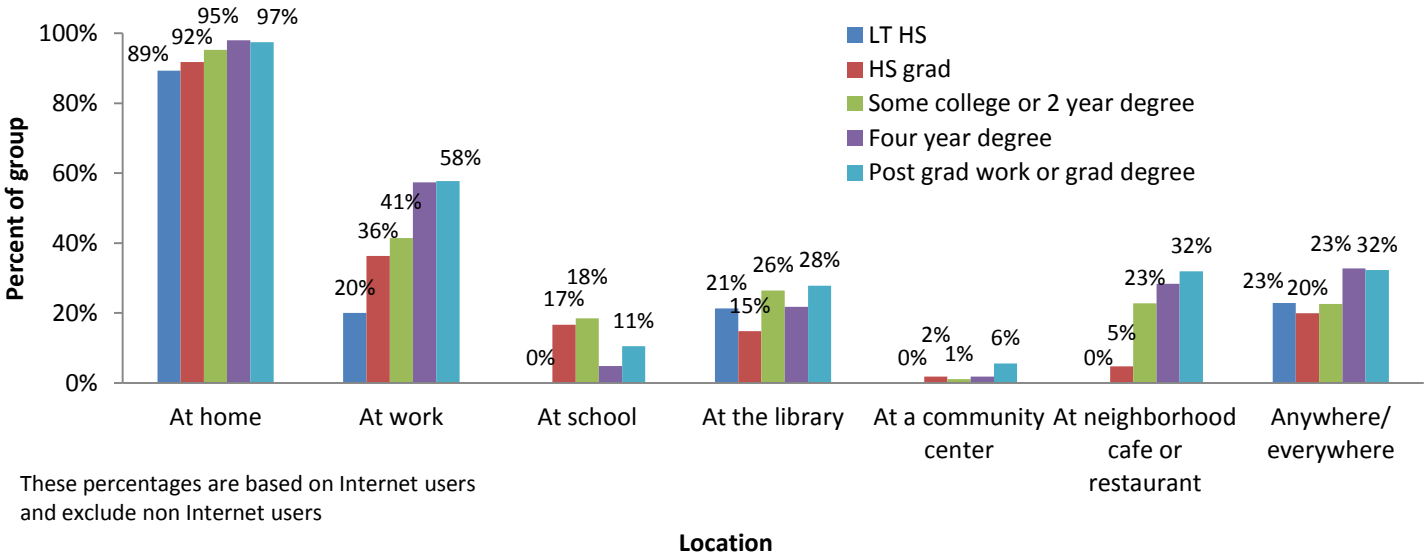
Improving home Internet service

While the education groups did not differ greatly in response to the question "What one thing would most improve your Internet access," those with some college were more likely than other groups to say they need more speed and less likely to say they need a better price.

Access locations

The number of places respondents reported having Internet access increases with education (from 1.7 among those with less than a high school education) to 2.7 (among those with post graduate work**).** Figure 16 shows that any home access, access at work, at a neighborhood café or restaurant, or "anywhere/everywhere" all increase with education. In contrast to these differences, the percentage of those accessing the Internet through the library did *not* depend on level of education.

Figure 16.
Places the respondent accessed the Internet last year by education



These percentages are based on Internet users and exclude non Internet users

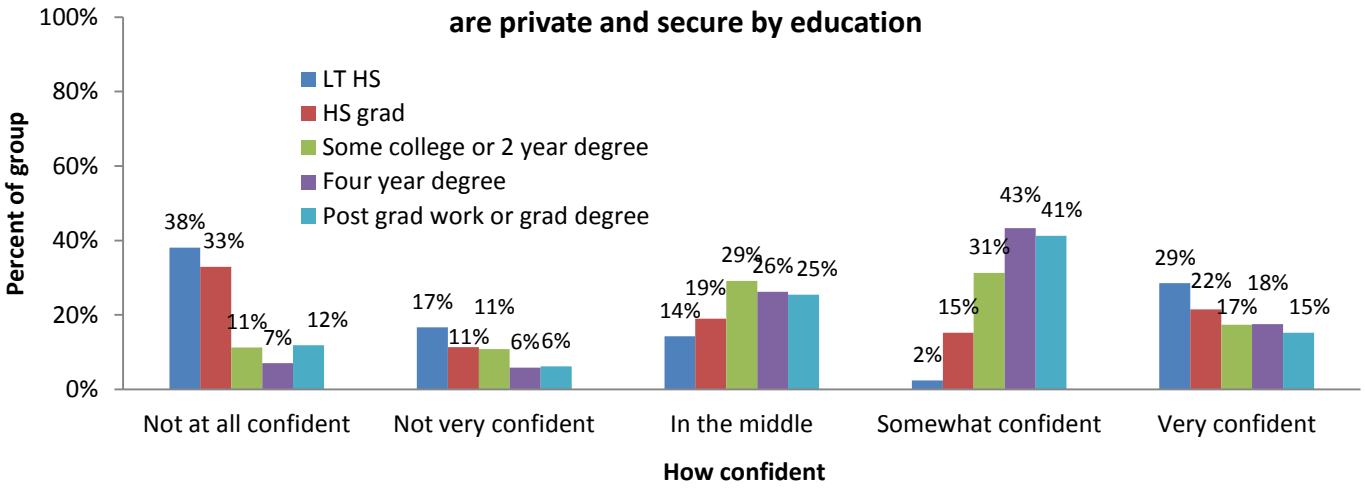
Importance of high speed access

The groups were also similar in responding about the importance of all Seattle households having high speed Internet access.

Confidence in Internet financial transactions

Figure 17 shows that participants in the different education groups differed significantly when asked about their confidence that financial transactions on the Internet are secure and private: as education increases, so does confidence in the security and privacy of financial interactions over the Internet, but those with the most education hold back from the highest confidence rating.

Figure 17. How confident that financial transaction over the Internet are private and secure by education



Those with less education were divided. About one third of those with a high school education or less are "Not at all confident" that those transactions are secure and private, compared with about 10% of the other groups. At the other end of the scale, one quarter of those with a high school education or less are "Very confident" in the security and privacy of those financial transactions, compared with 17% in the other groups. Those with the least education are divided, with 38% "Not at all confident" and 29% "Very confident."

Those without home Internet access

Those without home Internet access were similar in their reasons regardless of education level, and at each education level, about the same percentage was willing to pay for home Internet access, and they were willing to pay about the same amount.

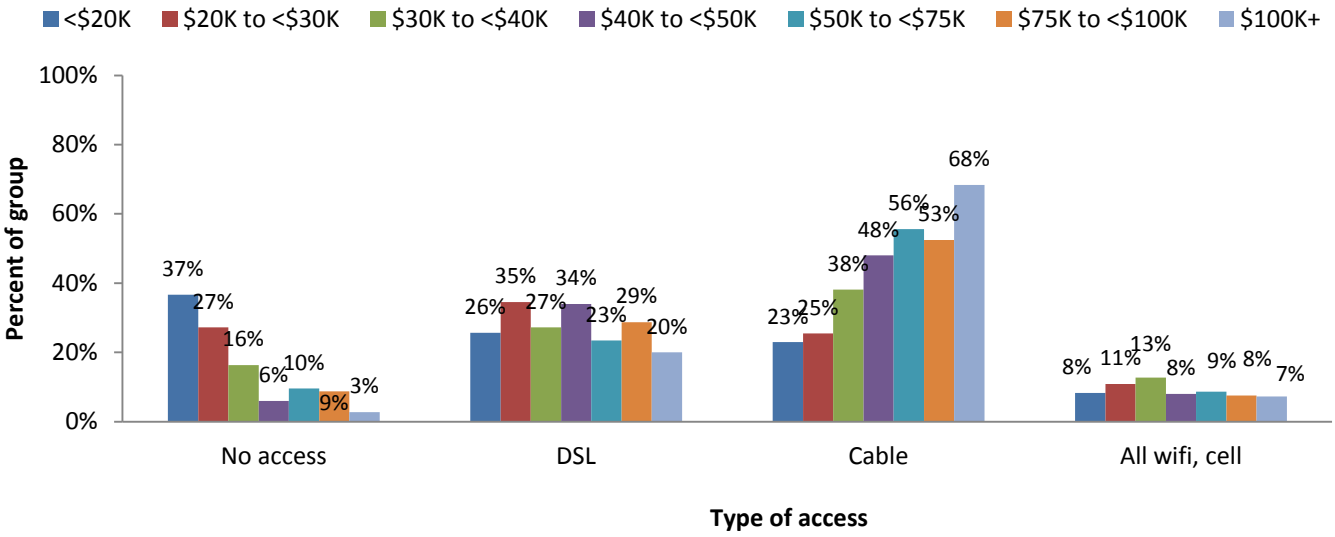
Income

Home Internet

Overall, income has a great influence on Internet access. Only 57% of the households with income less than $20,000 reported high speed Internet access from home[9]. (This figure calculation includes those with no Internet access at all.) The percentage climbed steadily to 70% of those with incomes between $20,000 and $30,000, and again to 79% of those with incomes between $30,000 and $40,000, to 90% of those with incomes above $40,000.

Figure 18 breaks this down by type of home Internet access. It shows the steep decline in *no* access as income increases, and the steep increase in cable service as income increases. Broadband provided by cable companies currently offers the fastest, most available service. Only about a quarter of the lowest two household income groups subscribe to cable Internet, compared to two-thirds of households who make $100,000 per year or more. Access by DSL, wifi, and cell phone plan are not strongly influenced by income. Access by dial up modem, used by 4% of the lowest income group and no more than 2% of the others, does not appear on the graph.

Figure 18. Type of home Internet access by income

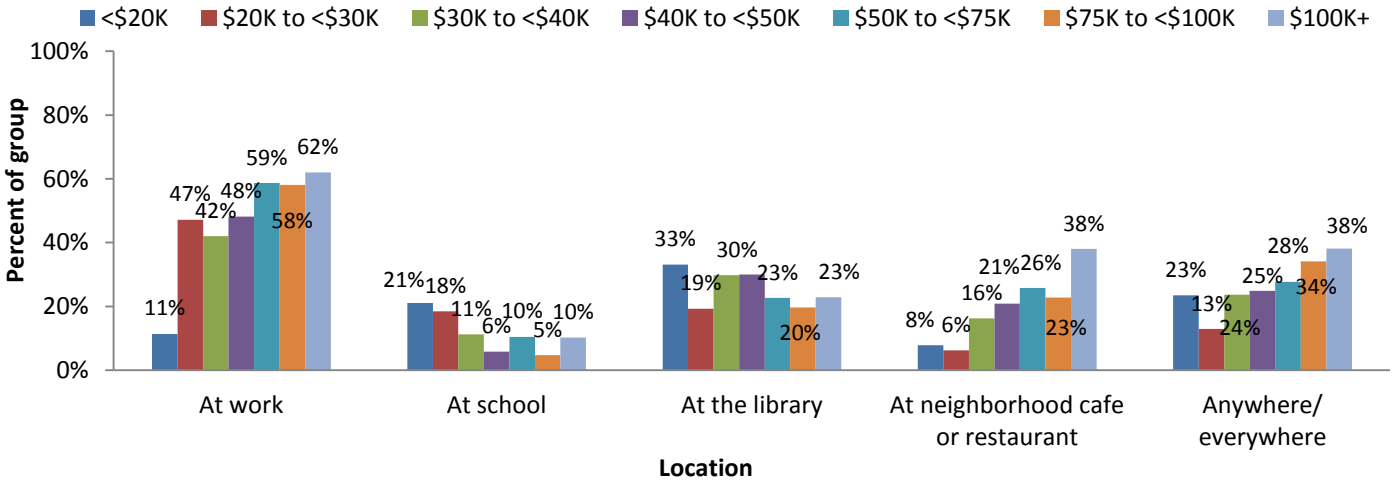


[9] For the purposes of this report, high speed Internet includes cable, DSL, wifi, and smartphone data plans.

Access locations

Overall, as income goes up, so does the number of places respondents access the Internet. This also holds true for home access with ranges from 90% of the lowest income group to 99% of the highest income groups. Figure 19 illustrates access at other locations. This figure shows that at almost each location, as income goes up, so does the percentage of people in that income group accessing the Internet. The *exceptions* are the *library*, where about a quarter of the respondents indicated that they used the Internet, and *school*, which is more likely to be a location for Internet access as income goes *down*.

Figure 19.
Places away from home that respondent accessed the Internet last year by income



Improving home Internet service

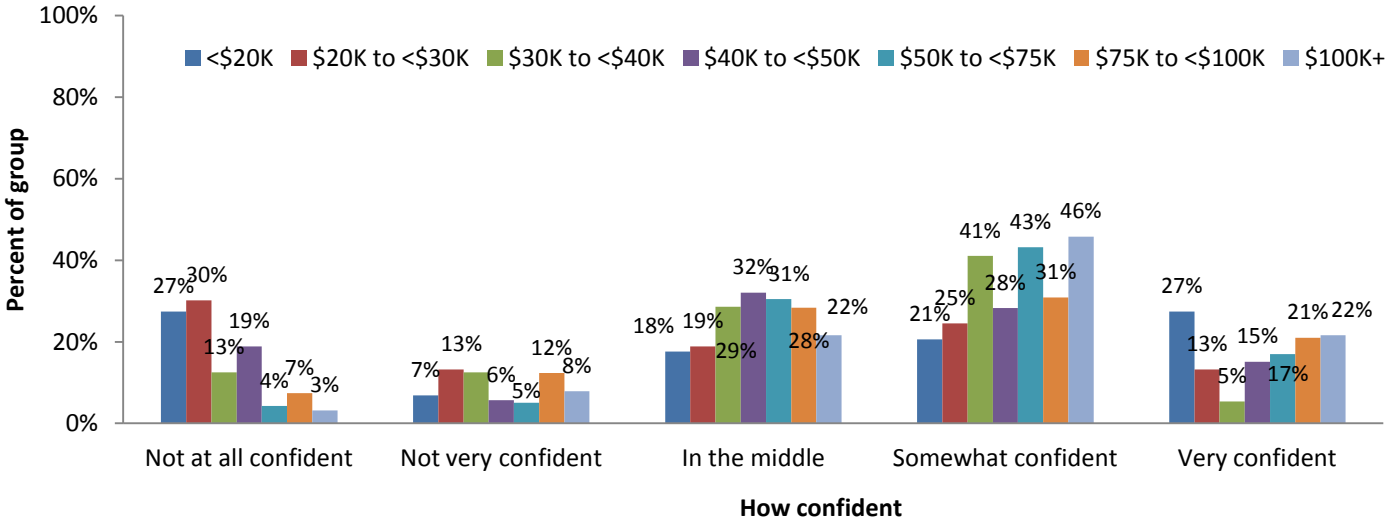
When asked what one thing would most improve their home Internet service, those with incomes below $20,000 and those with incomes above $100,000 were both more likely than those in the other income groups to mention "speed." (45% of those earning less than $30,000 and 40% of those earning more than $100,000 per year mentioned speed, compared with 26% of those with incomes between $30,000 and $100,000.) Surprisingly, "Price" was more likely to be mentioned by those with incomes above $50,000 (47%) than by those below (36%). (Perhaps those with more income have spent the extra money for higher speed access, with many perceiving this additional speed as too expensive).

Confidence in Internet financial transactions

While income appears unrelated to the perceived importance of high speed access for all Seattle households, it is related to respondents' confidence that financial interactions over the Internet are secure and private. The pattern illustrated in Figure 20 is similar to the pattern with education: between one-quarter and one third of those in the lowest income category are "Not at all confident" that those financial interactions are secure and private (a view shared by about the same percentage in the next income group). But just as many of those in the lowest income group (27%) are "Very confident." Figure

20 illustrates the pattern. Overall, as income increases so does confidence in financial transactions over the Internet, but most Seattleites remain cautious and stop short of reporting that they feel "Very confident" in these transactions.

Figure 20. How confident that financial transaction over the Internet are private and secure by income



Children in Seattle Schools

Looking just at respondents with children younger than 18, those whose children do NOT attend a Seattle Public School reported about the same number of places that they access the Internet as those whose children do attend a Seattle Public School (2.6 vs. 2.5), and about equally likely to have Internet access in most locations except for home. Those whose children do NOT attend a Seattle Public School are *more* likely to have Internet access at home (100% vs. 96%).

Those whose children do NOT attend a Seattle Public School are more likely to have some form of high speed Internet access (94% vs. 81%) and are more likely to say that the one things that would most improve their Internet service is speed (34% vs. 21%). These respondents who want more speed were more likely to get Internet access through paid wifi (13% vs. 4%) or a cell phone data plan (5% vs. 0%). These groups responded about the same in their rating of the importance of high speed Internet access for all Seattle households (about 60% of both groups said "Very Important."). Those whose children do NOT attend a Seattle Public School were more confident in the privacy and security of financial transactions over the Internet (62% vs. 47%).

Computer and Internet Use

Internet users were read a list of activities for which they might use the Internet and asked whether or not they use the Internet for that activity, and for communication and entertainment, how often. Additionally, respondents were asked how comfortable they are performing specific activities with their technology.

Table 13 summarizes these results, over time, from the initial list of Internet-related activities. Two sets of phone survey results are presented. The first set, under the header "Phone survey (all)" includes respondents who are not Internet users to produce an estimate of the percentage of Seattle residents that use the Internet for each activity. The second set, under the header "Phone survey (users only)" includes only the survey's Internet users. (Nearly all the online survey respondents are Internet users so only one set of responses is presented for that group.)

Table 13. Use of the Internet by Seattle residents

	Phone survey (all)[10]			Phone survey (users only)[11]			Online survey
Year	2004	2009	2013	2004	2009	2013	2013
Health or med info	59%	71%	75%	69%	80%	84%	87%
Job or job training	46%	48%	57%	54%	55%	64%	65%
Purchase products or services	70%	76%	81%	82%	86%	91%	97%
Attend online class, meeting or webinar		31%	46%		35%	51%	61%
Legal or consumer rights info	45%	50%	55%	52%	56%	62%	55%
Find local school info		46%	49%		52%	55%	42%
Respondents with children < 18			77%			83%	77%
Seattle School families			77%			87%	82%
Visited Seattle Schools			49%			54%	21%
Respondents with children < 18			75%			80%	58%
Seattle School families			79%			89%	76%
Make a donation to charity online		46%	54%		52%	61%	59%
Look for answers to computer problems			69%			77%	85%
Work from home			53%			60%	69%
Visited Seattle Library			59%			66%	59%

Table 13 shows that the most common reported use of the Internet in all years and for both telephone and online respondents is to purchase products or services. In 2004, 70% of respondents (82% of Internet users) said they use the Internet for this purpose, a percentage that has increased to 76% in 2009 and 81% in 2013 (or 91% of Internet users). Nearly all the online respondents use the Internet to purchase products or services.

The second most common use of the Internet – again in all three years and also among the online respondents – is to look up health or medical information. The third most common use is to look for answers to computer problems, selected by 85% of the online respondents and 77% of the telephone respondents who use the Internet.

[10] Includes those who do not use computers or the Internet in the base
[11] Includes only Internet users in the base

Respondents were asked about their use of email, social media, and using the Internet to watch TV. Table 14 summarizes these responses.

Table 14. Use of email, social media, and TV over the Internet

How often do you … Year	Phone survey (all)[12] 2009	Phone survey (all)[12] 2013	Phone survey (users only)[13] 2009	Phone survey (users only)[13] 2013	Online survey 2013
Use email					
Don't use it/Not Internet user	12%	13%	0	3%	<1%
Infrequently	3%	3%	3%	4%	1%
Occasionally	15%	7%	17%	8%	2%
Often	70%	77%	79%	86%	97%
Use Facebook					
Don't use it/Not Internet user		34%		26%	16%
Infrequently		13%		15%	14%
Occasionally		16%		18%	11%
Often		37%		41%	59%
Use Twitter					
Don't use it/Not Internet user		67%		63%	48%
Infrequently		20%		22%	21%
Occasionally		7%		7%	10%
Often		7%		8%	22%
Watch TV over the Internet					
Don't use it/Not Internet user		26%		18%	14%
Infrequently		18%		20%	18%
Occasionally		27%		30%	29%
Often		29%		33%	39%

Table 14 shows an increase in the frequent use of email since 2009 from 79% of Internet users to 86% in 2013 – up to 97% of those who responded to the online survey. The popularity of newer sharing services (too new even to be included in earlier surveys) is also evident in these data: The estimated percentage of Seattle residents who use Facebook at least occasionally (66%) or often (37%), as well as the percentage who use Twitter at least occasionally (33%) provides evidence of their popularity, and their potential value to the city as it connects with residents.

This table also shows that, at least infrequently, three-fourths of Seattle residents (and 86% of online respondents) use the Internet to watch television (using services such as Hulu, YouTube, Netflix, and AppleTV), which may have implications for cable subscriptions going forward.

[12] Includes those who do not use computers or the Internet in the base
[13] Includes only Internet users in the base

Since the first technology adoption indicators survey in 2000, respondents have been asked to use a scale from 0 ("Never done this task") to 5 ("Very comfortable") to rate their comfort on a series of computer- or Internet-related tasks that range from basic to advanced to provide an estimate of residents' computer literacy. Table 15 shows that like access to computers, computer and technology *literacy* is on the rise as well.

Table 15. Changes in indicators of computer literacy since 2000

How comfortable are you… Year	Phone survey (all)[14]				Phone survey (users only)[15]				Online survey
	2000	2004	2009	2013	2000	2004	2009	2013	2013
Searching the web									
Never done this task	13%	11%	12%	11%	4%	2%	<1%	<1%	1%
Not at all comfortable (1)	7%	3%	1%	2%	7%	3%	2%	2%	<1%
(2)	4%	2%	1%	2%	4%	2%	2%	2%	<1%
(3)	11%	6%	6%	3%	12%	7%	7%	4%	1%
(4)	20%	14%	8%	7%	22%	15%	8%	7%	4%
Very comfortable (5)	46%	65%	71%	76%	51%	71%	81%	84%	94%
Sending and opening email attachments									
Never done this task	18%	12%	14%	14%	8%	2%	2%	1%	0%
Not at all comfortable (1)	7%	4%	4%	3%	8%	5%	5%	3%	<1%
(2)	5%	5%	3%	3%	5%	5%	3%	3%	1%
(3)	7%	10%	7%	6%	8%	11%	8%	7%	2%
(4)	12%	14%	11%	8%	13%	15%	12%	10%	6%
Very comfortable (5)	52%	56%	61%	66%	58%	62%	70%	76%	91%
Adding an application (app) to your smartphone or tablet Based on those with smartphones/tablets: 516 phone respondents; 1434 online respondents									
Never done this task								3%	4%
Not at all comfortable (1)								5%	1%
(2)								6%	2%
(3)								6%	5%
(4)								15%	7%
Very comfortable (5)								66%	81%

Table 15 shows that the percentage of Seattle residents who are “Very comfortable” with searching the web has increased steadily from 46% in 2000 to 76% 13 years later. The percentage of residents comfortable with sending and opening email attachments has also risen, though not as steeply. It has increased from about half of the city’s residents to about two-thirds. In the context of this rise, it remains very important to remember that 14% of Seattle residents still have never sent or opened an email attachment and another 20% are less than "very comfortable" with the task. When considering only those who use the Internet, the percentage of those who are very comfortable searching the web has increased from 51% in 2000 to 84% in 2013, and the percentage very comfortable sending and

[14] Includes those who do not use computers or the Internet in the base
[15] Includes only Internet users in the base

opening email attachments has increased from 58% in 2000 to 76% in 2013. About two-thirds of the telephone respondents with a mobile device are "Very comfortable" adding an app to it. Analysis by subgroups follows below.

Subgroup analysis

Earlier analyses showed a consistent pattern in which certain groups – those with less education or less income, older respondents, and some racial groups – have less access to computers and the Internet. This section addresses the question of whether Internet users in various subgroups use the Internet differently in ways that have policy implications [16]

Gender: Analysis of the use of technology shows that men and women are equally likely to use the Internet, but there are differences in their use for specific tasks. Specifically, men are more likely to use the Internet to find legal or consumer rights info (66% vs. 58%) and look for answers to computer problems (81% vs. 74%) while women are more likely to use it to find local school information (59% vs. 50%) and to visit Seattle Public Schools (60% vs. 47%).

Men and women use email and watch TV over the Internet with about the same frequency, and they are equally comfortable searching the web, sending and opening email attachments, and adding an app to their mobile devices. However, women are more likely to use Facebook "Often" (47% vs. 35%) and men are more likely to say they use Twitter (45% vs. 31%) and more likely to use it "Often" (12% vs. 5%).

Use of the Internet for Specific Activities

Table 16. Use of the Internet to...	Phone survey (users only)[17]	Online survey
Health or med info	84%	87%
Job or job training	64%	65%
Purchase products or services	91%	97%
Attend online class, meeting or webinar	51%	61%
Legal or consumer rights info	62%	55%
Find local school info	55%	42%
Respondents with children < 18	83%	77%
Visited Seattle Schools	54%	21%
Respondents with children < 18	80%	58%
Make a donation to charity online	61%	59%
Look for answers to computer problems	77%	85%
Work from home	60%	69%
Visited Seattle Library	66%	59%

Table 16 repeats and simplifies data presented in Table 13 above for the convenience of the reader. This table presents rate of use only for the current survey (phone and online), and only for Internet users.

[16] Note that the analysis for this set of questions was based only on those who *use* the Internet. As discussed elsewhere, the approximately 10% of the population which does not use the Internet is not evenly distributed across the various demographic groups.

[17] Includes only Internet users in the base

Age: Figures 21a through 24 show a familiar pattern. For the most part, use of the Internet for any of these tasks decreases with age. However, examination of the patterns of use may reveal useful information. For example, Figure 21a shows that the use of the Internet to find a "Job or job training" decreases steeply with age, possibly because people in the different age groups are at different places with their careers and job training. On the other hand, the use of the Internet to find "Health and medical info" or to "Purchase products or services" decreases only slightly with age. When considering what accounts for these different patterns, it is important to remember both comfort with the technology for any given task, and relevance of the information.

Figure 21a. Use of the Internet for different activities by age

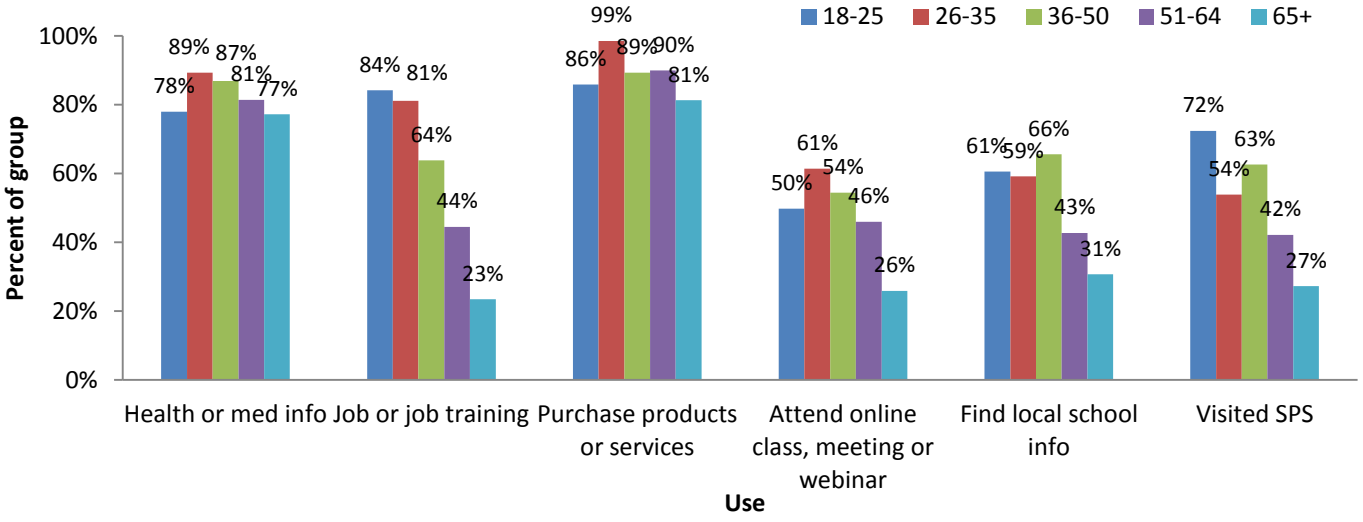


Figure 21b. Use of the Internet for different activities by age

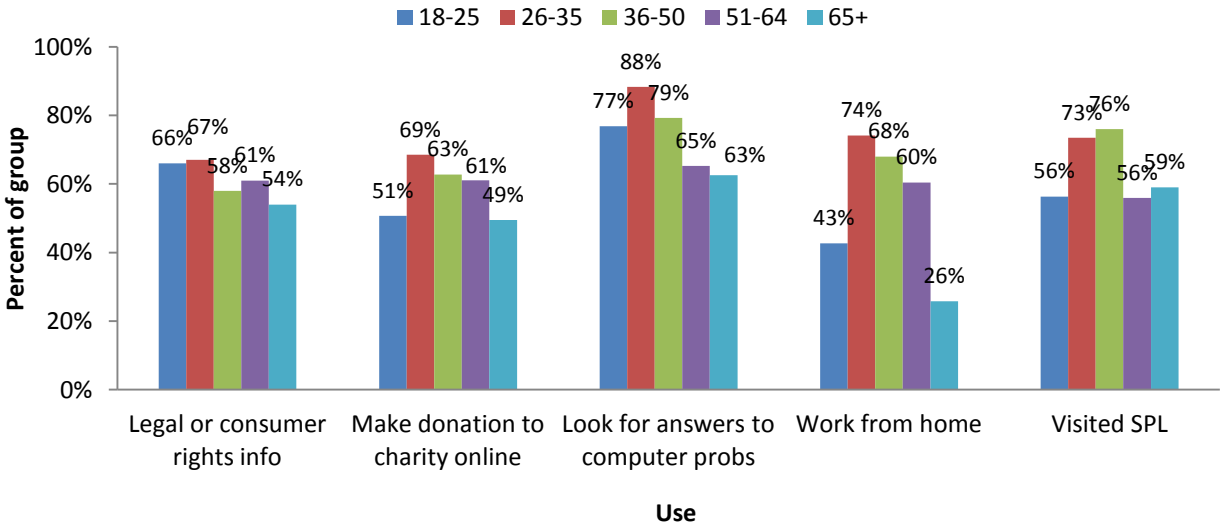
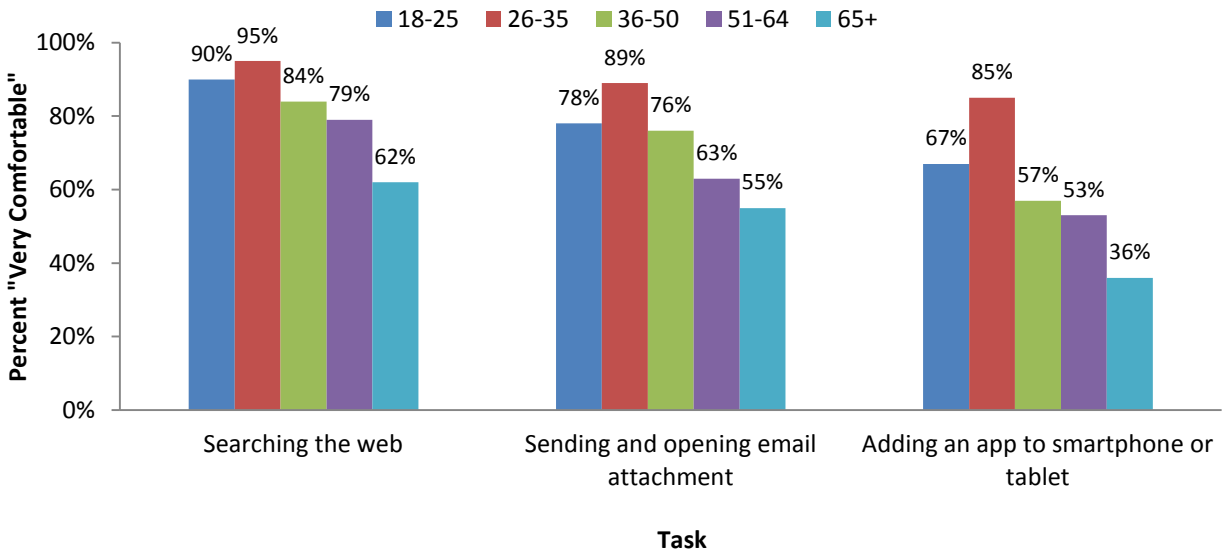


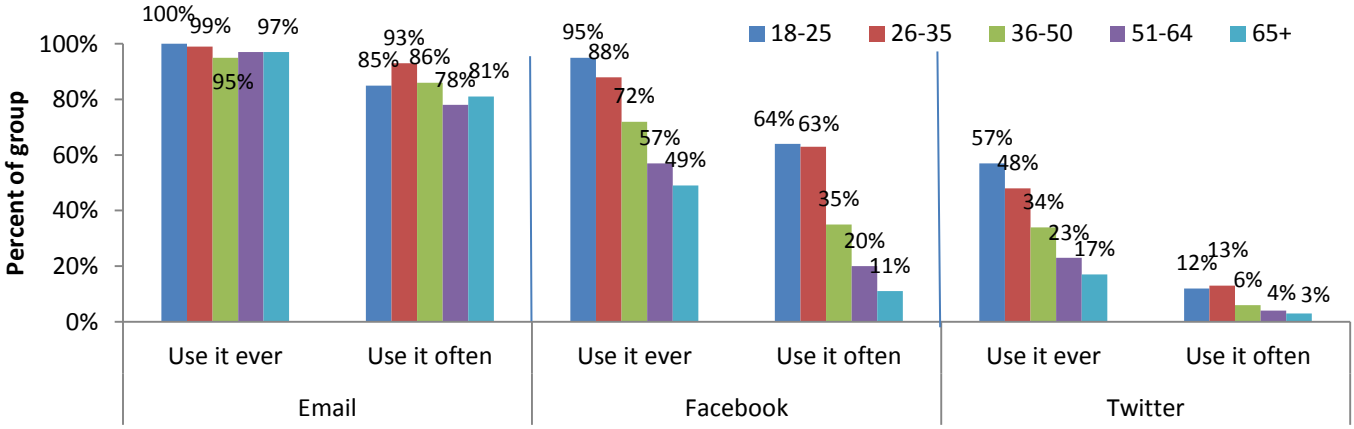
Figure 22. Comfort with different computer tasks by age



At the same time, Figure 22 shows that comfort with each of the tasks (searching the web, sending and opening an email attachment, and adding an app to a mobile device) decreases with age so that between 70% and 90% of the younger groups are "Very comfortable" with each of the task down to between 40% and 60% of the oldest group.

Figure 23 shows different rates of use of email, Facebook, and Twitter for the different age groups.

Figure 23. Use of the Internet for communication by age



For each pair of bars, the first reflects the percentage who said they use that site at least infrequently, and the second, the percentage who said they use it "Often." Figure 23 shows that nearly all Internet users use email at least infrequently and the vast majority, even in the older age groups, use it "Often." Facebook is clearly more of a young person's activity currently, with nearly all of the younger groups saying they use Facebook at least infrequently, compared with about half of the older groups, and about

60% of the younger groups say they use Facebook "Often," a rate that drops off steeply starting with those 36 and older. Twitter is a service that is used by no more than half of most age groups, and decreases with age. Few say they use it often, and that too decreases with age.

Figure 24.
Use of the Internet to watch TV by age

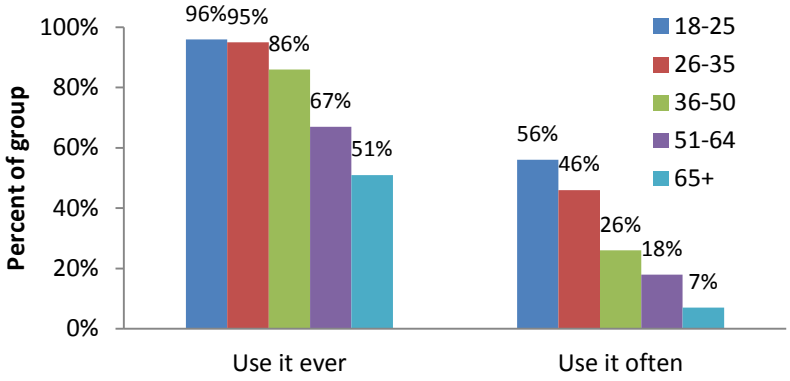


Figure 24 shows that the use of the Internet to watch TV also seems to be more of a young person's activity. More than eight in ten of those younger than 50, and at least half of those older than 50 use the Internet to watch TV at least "Infrequently." About half of the younger groups watch TV via the Internet "Often," again, decreasing with age to fewer than 10% of those 65 and older.

Race/Ethnicity: Internet users of different ethnic backgrounds reported different patterns of use of the Internet, and analysis of reported use shows that Caucasian Internet users use the Internet for more functions than African American or Asian/ Pacific Islander Internet users. Hispanic Internet users fell between these two ends.

Internet users of the different races or ethnicities did not differ significantly on their use of the Internet to: attend an online class, meeting or webinar or look up legal or consumer rights information.

Figure 25a. Use of the Internet for different activities by race or ethnicity

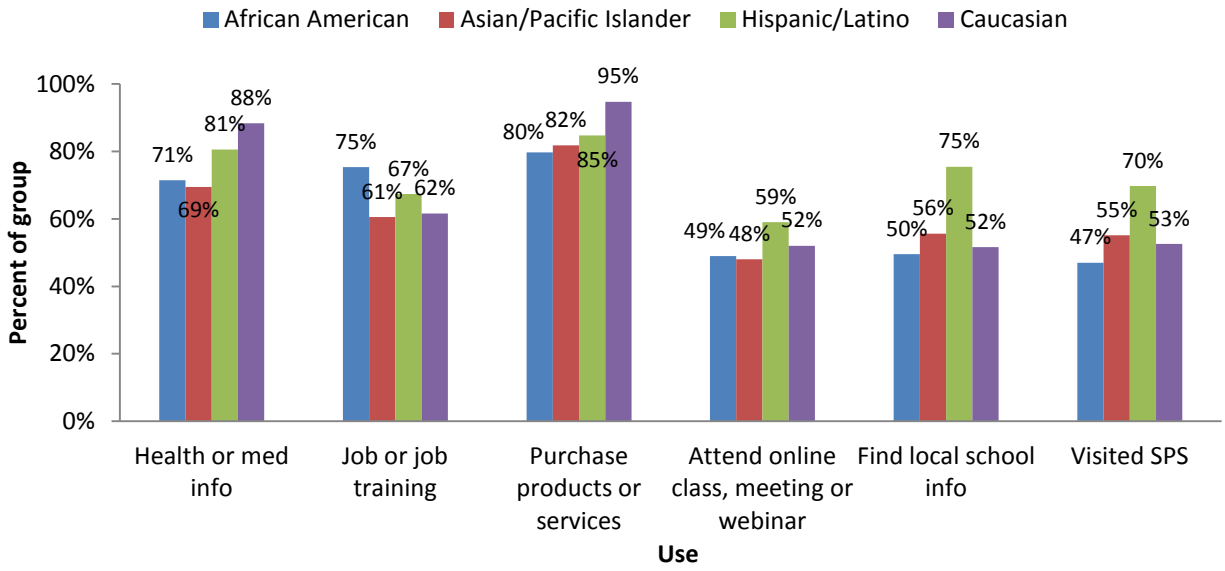


Figure 25a shows that Caucasian Internet users were more likely to use the Internet to find health or medical information and purchase products or services, while Latino Internet users were more likely to use the Internet to find local school information and visit the Seattle Schools website.

Figure 25b. Use of the Internet for different activities by race or ethnicity

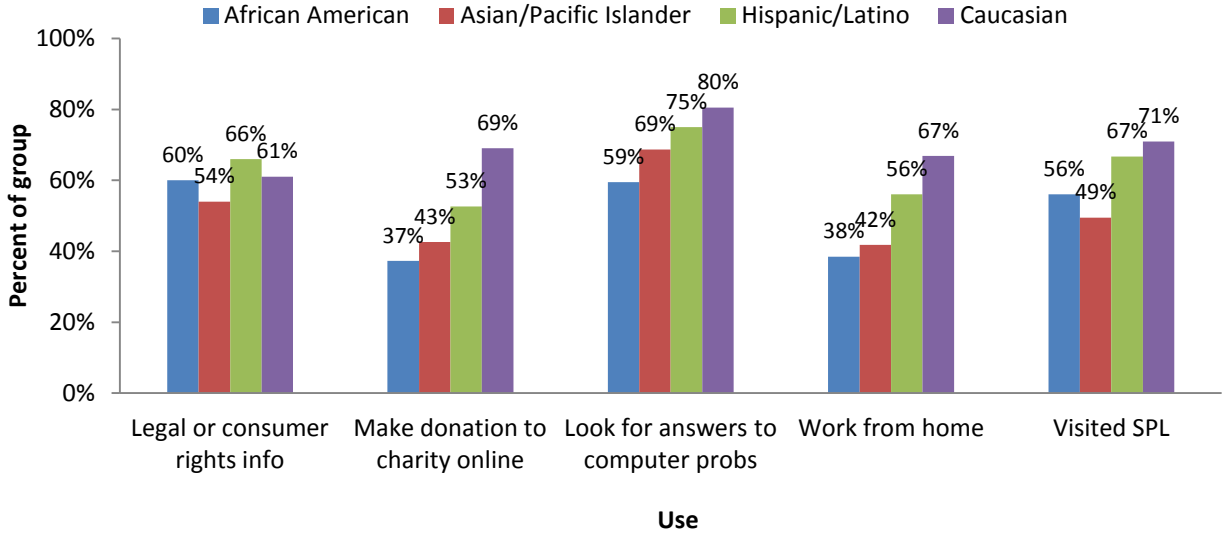


Figure 25b shows that Caucasian Internet users were more likely to use the Internet to: work from home, make a donation to a charity, look for answers to computer problems, and visit the Seattle Public Library.

Figure 26. Comfort with different computer tasks by race or ethnicity

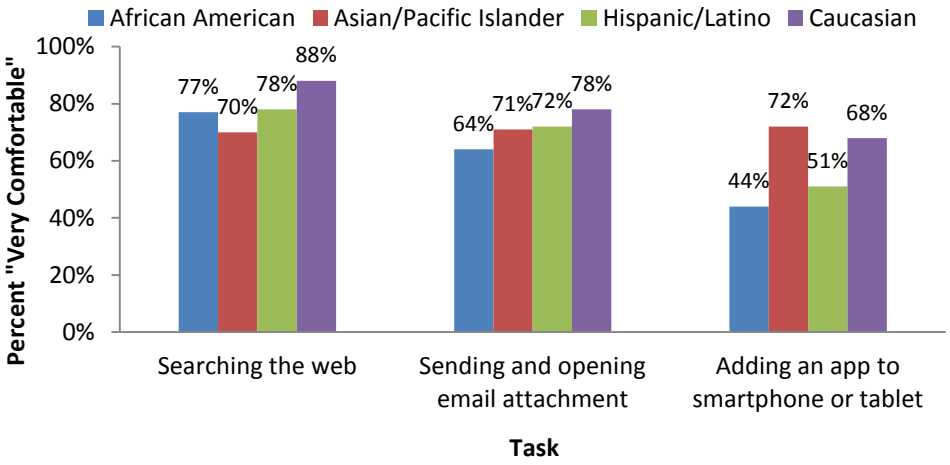


Figure 26 shows some difference by racial/ ethnic group in comfort levels performing certain Internet tasks.

Above, Figure 25b showed that African American Internet users are somewhat more likely than the Internet users in other groups to use the Internet to find a job or job training. However, Figure 26 shows that the African American respondents are least comfortable sending and opening email attachments, something that is often required by an online job search. Looking more closely at responses to this question reveals that not only did fewer African American Internet users give themselves the highest "comfortable" rating for this task, fewer also gave themselves the second highest "comfortable" rating. Adding together respondents who selected rating "4" or "5 (Very comfortable)" provides a rating that may be interpreted as "more comfortable than not." 70% of African American Internet users rated themselves as "more comfortable than not" with sending and opening email attachments, compared with at least 85% of the Internet users in each of the other groups. African American and Latino respondents reported less comfort adding apps to a smartphone or tablet.

Figures 27 and 28 illustrate the use of communications services and Internet-based TV by the different ethnic groups. These figures show that Asian/ Pacific Islander Internet users are less frequent users of email *and* more respondents in that group do not use email at all. None of the ethnic/ racial groups stood out in their use of Facebook or Twitter.

Figure 27. Use of the Internet for communication by race/ethnicity

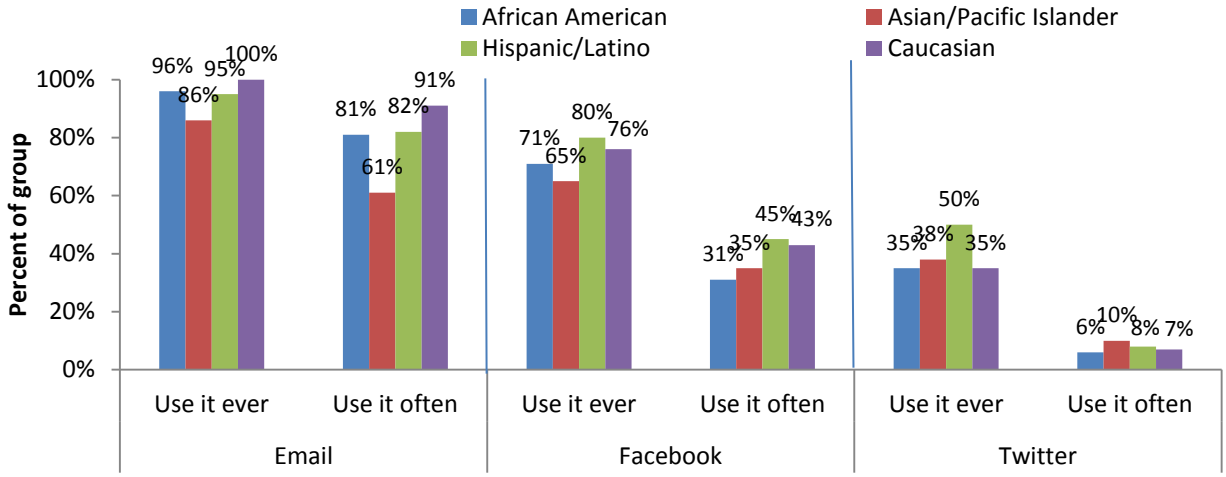


Figure 28. Use of the Internet to watch TV by race/ethnicity

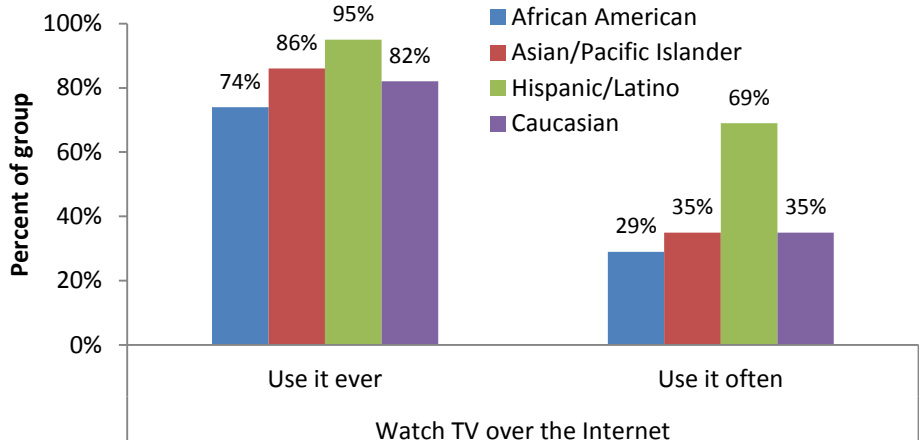


Figure 28 shows that Hispanic/Latino Internet users are much more likely than those in other groups to watch TV over the Internet.

Education: Those with more education use the Internet for more activities. Earlier analyses showed a consistent pattern: those with less education also have less access to computers and the Internet. This analysis shows that Internet users with less education tend to make less use of the Internet than users with more education. Specifically, those with less than a high school education reporting using the Internet for between two and three of the functions listed, while those with at least a four year degree reporting using it for between seven and eight of the functions listed.

Figures 29a and b show that the Internet is a source of health and medical information for a high percentage at all the education levels, though increasingly with education, and that a high percentage of individuals in each education group use the Internet to purchase products and services, though again,

this participation ranges from less than 80% among those with less education to more than 90% of those with more education. This pattern can also be observed for attending a meeting or class online, making a donation to charity, looking for answers to computer problems, and working from home.

Other functions, such as finding a job or job training, finding local school information and visiting the Seattle Schools website, are used similarly by Internet with at least a high school education. However, without a high school education, Internet users are relatively unlikely to benefit from this online information or services.

Figure 29a. Use of the Internet for different activities by education

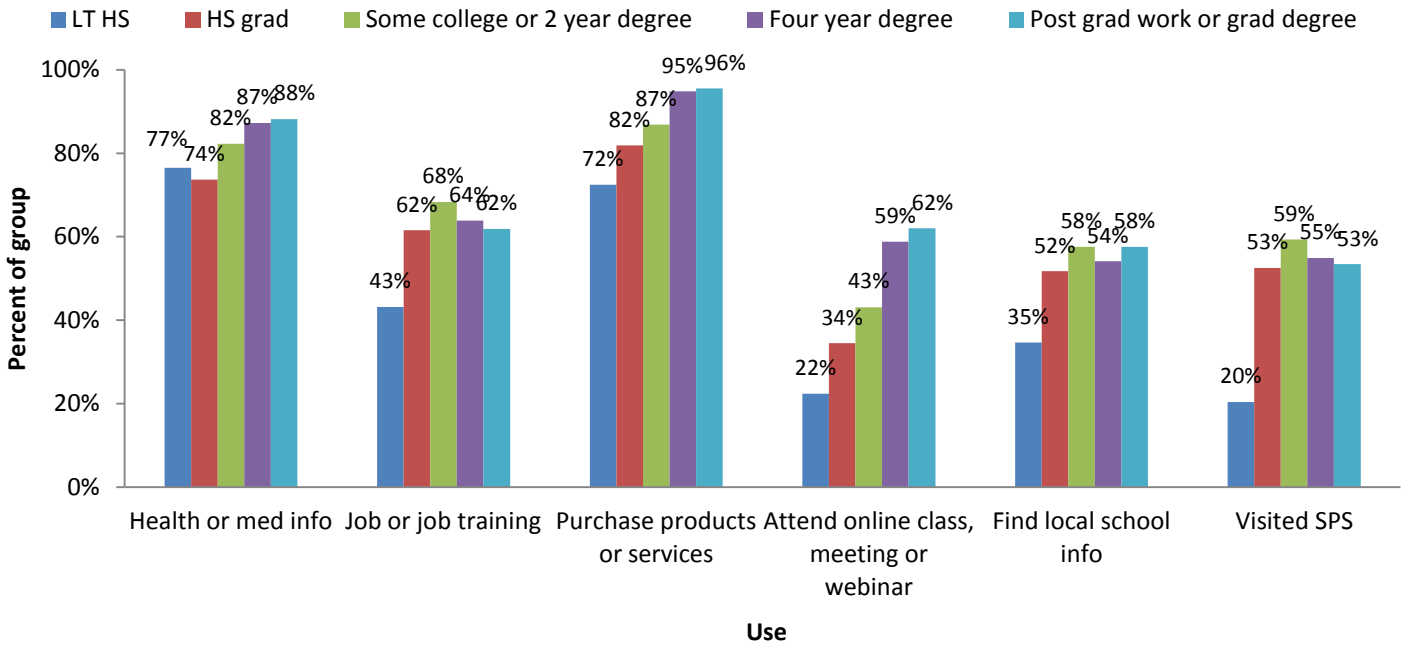


Figure 29b. Use of the Internet for different activities by education

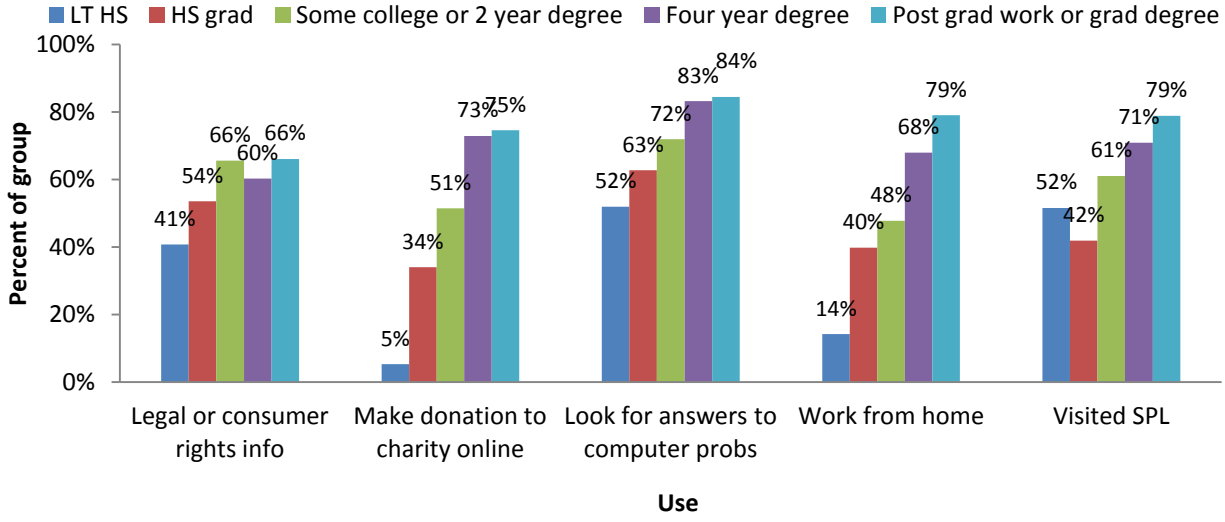


Figure 30. Comfort with different computer tasks by education

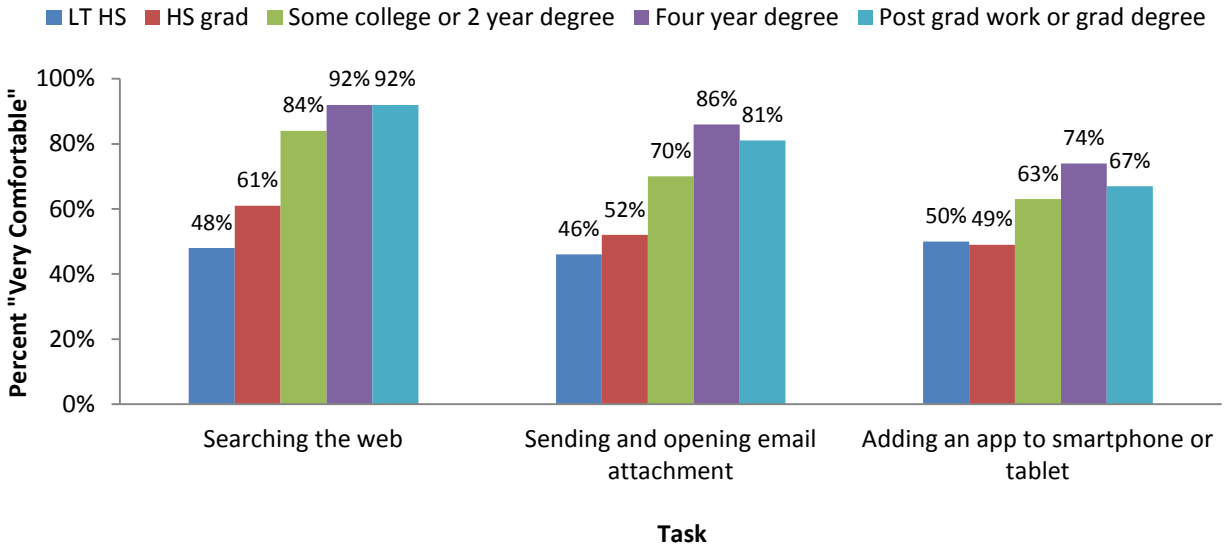


Figure 30 shows that as education rises, so does the "Very comfortable" rating given to performing these Internet tasks. This figure shows that almost twice as many people in the higher education group are comfortable searching the web, for example, compared with people with less than a high school education. A similar, but less extreme pattern is seen with the other two tasks. It's worth noting that about a quarter of respondents overall are still not very comfortable sending and opening email attachments.

Figure 31 shows the greatest effect of education on use of email. Fewer than 80% of those with the least education say they use email and a little more than half in this group say they email often, compared with more than 90% among those with a four-year degree or more. Those with the least education are much less likely to use Facebook, and of those that do, few use it often.

Figure 31. Use of the Internet for communication by education

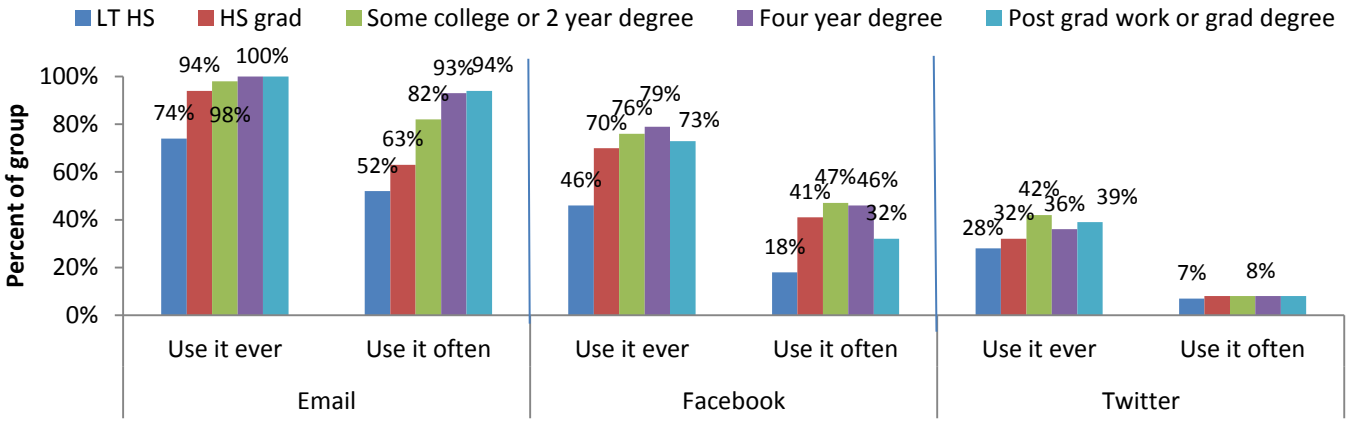


Figure 32. Use of the Internet to watch TV by education

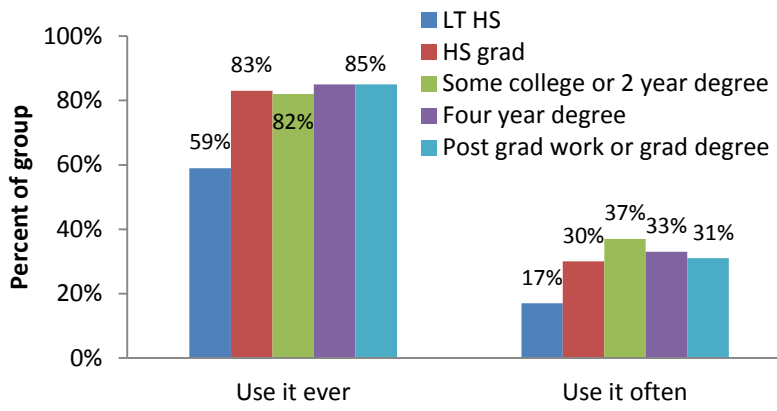
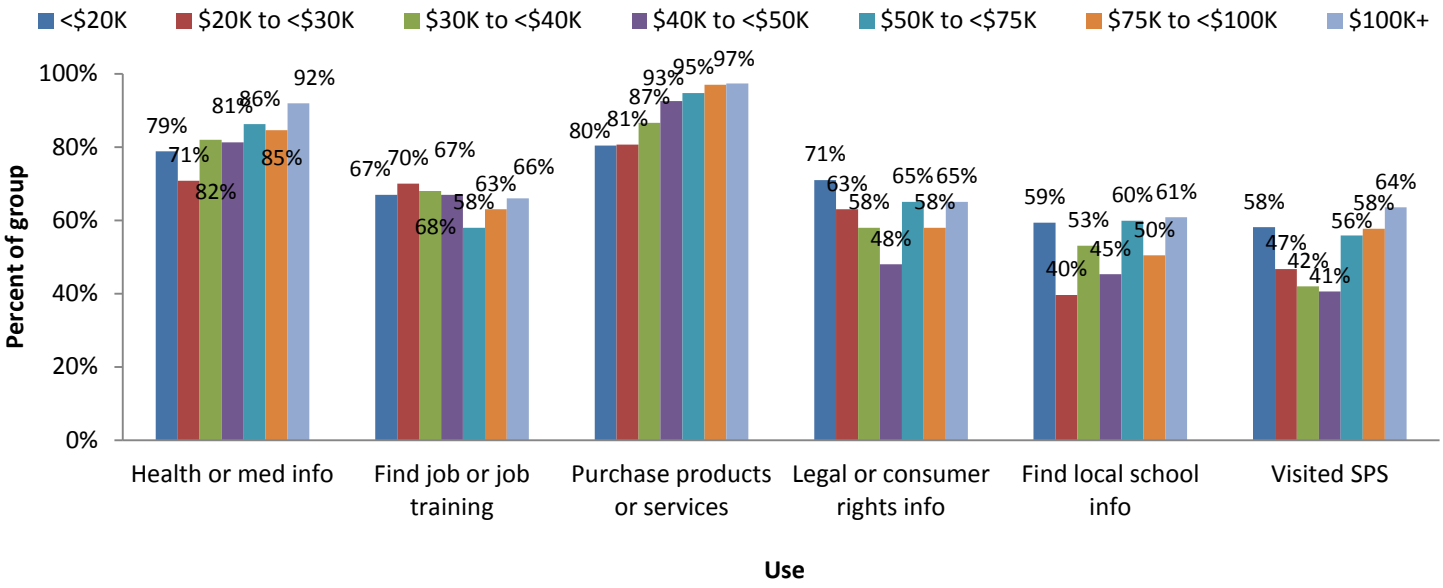


Figure 32 shows that people with the least income are also least likely to watch TV over the Internet, and those that do, watch it less often. For people with at least a high school education, education doesn't seem to be associated with whether they use email, Facebook, or Twitter, or watch TV over the Internet. However, as education increases, so does the likelihood of using email often.

Income: As with education, earlier analyses showed a consistent pattern in which those with less income also have less access to computers and the Internet. Like the analysis above, this analysis also shows that Internet users among those with less income tend to make less use of the Internet than users with more income, though the effect is not as dramatic as it is with education. The patterns of use reported by those in the lowest income categories was diverse and in some ways more similar to those in much higher income categories than those in the adjacent income category. Some of those in these categories may be students or others preparing to or already able to earn higher incomes. However, the

overall patterns holds so that those reporting less than $30,000 per year noted between four and five uses of the Internet, while those with more income noted at least six of the uses, and those with the highest incomes noted an average of a little more than eight uses.

Figure 33a. Use of the Internet for different activities by income



No differences by income were found in using the Internet to visit the Seattle Public Library remotely, look for legal or consumer rights information, find local school information, or find a job or job training.

Figure 33a shows substantial differences in use patterns for other functions by income. Overall, as income increases, so does the use of the Internet for looking for health and medical information, and making purchases, while Figure 33b shows the differences in use patterns for the remaining functions, such as making a donation online or working from home.

Figure 33b. Use of the Internet for different activities by income

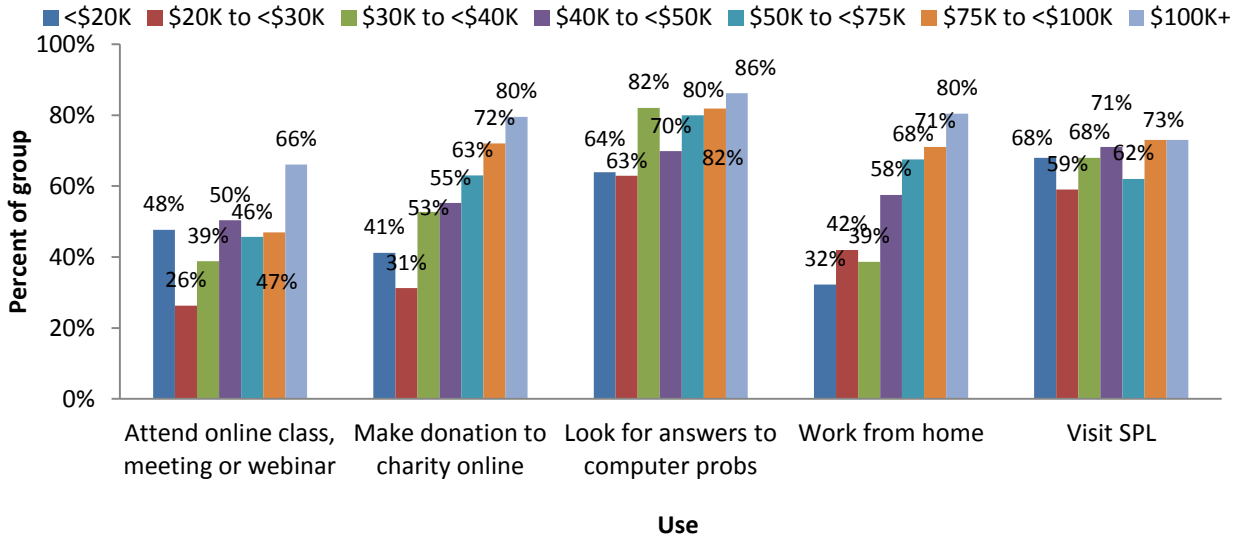
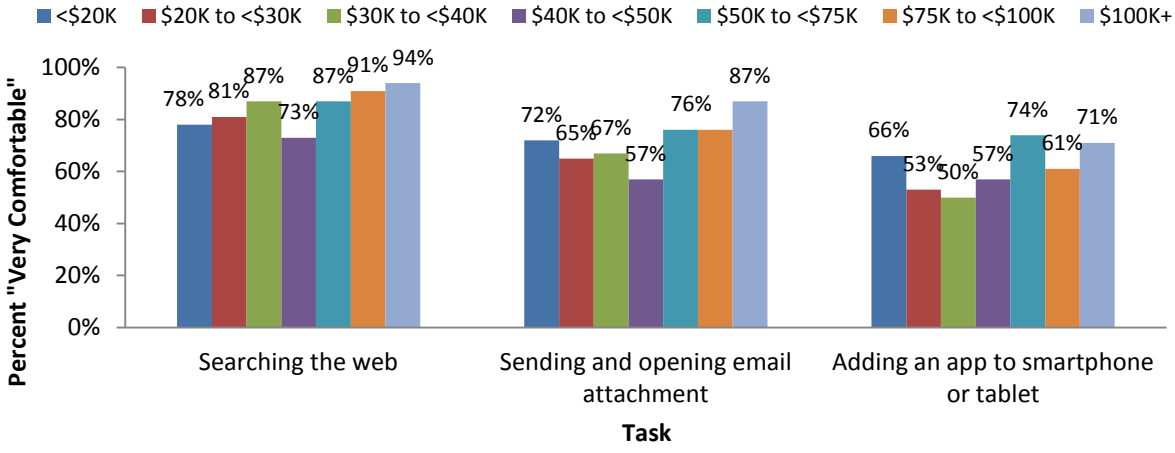


Figure 34 shows a slight pattern where more income is associated with more comfort with these tasks, except for adding an app to a mobile device. Still, for all three tasks, those with higher incomes seem to be the most comfortable. These findings may mean that the "income effect," like the education effect, is more consistent after a certain threshold is reached, possibly because those at higher income levels may consistently share the benefits that higher income affords, while the converse is likely not true for those at lower income levels.

Figure 34. Comfort with different computer tasks by income



Income was unrelated to the frequency of use of social networking sites and the frequency of use of the Internet to watch TV, but it was related to frequency of use of email. Specifically, 12% of the Internet users in the lowest income category don't use email, compared to none of those with an income above $30,000, and the percentage of those in each income category that use email "Often" increases from 65% of those with incomes below $20,000 per year to at least 90% of those with incomes above $50,000

per year, with a small dip in the $40K to <$50K category, similar to the dips in the first two tasks in Figure 34 at the same income level.

Children in Seattle Schools: Looking just at respondents with children younger than 18, those whose children attend a Seattle Public School identified fewer Internet uses (7.0 vs. 8.0), including purchasing products or services (92% vs. 98%), making a donation to a charity online (51% vs. 70%), and working from home (59% vs. 81%). Predictably, they were more likely to use the Internet to visit the Seattle Public Schools website (89% vs. 72%). When age is factored into this analysis, the overall number of Internet uses is not different for those whose children attend Seattle Public School and those whose children do not, but the other differences remained. Overall, those with children who attend a Seattle Public School are less likely to say they are "Very comfortable" searching the web (78% vs. 90%), with the other two literacy items showing a trend toward less comfort among those who children attend Seattle Schools. When controlling for age, these effects are strengthened in that *those in the youngest age group whose children attend a Seattle Public School are much less comfortable with these Internet tasks than their age mates whose children do NOT attend the Seattle Public Schools. That is, the youngest parents of Seattle Public School children have the least access to and comfort with computers.* Those whose children attend Seattle Schools also use email and Facebook less frequently. However, when controlling for age, these differences disappear.

Super high speed Internet

The City and those deploying broadband and new application services wanted to know how interested residents are in "super high speed" internet access and services. For this study we used that phrase because most residents do not talk in bandwidth terms or have exposure to fiber enabled speeds. We also described it as potentially enabling activities that you have to do in person now or which take longer. We acknowledge that there is strong debate about what high speed is. In discussions, we referred to fiber speeds and infrastructure enabling real time, high definition, two-way video, based on the City's stated goals of fostering fiber to the premise (home or business). (See Seattle.gov/broadband)

In the survey, Internet users were given this information in order to gauge potential use of fiber and faster speed Internet services: "The City is working on getting super high speed Internet service to Seattle homes… With super high speed Internet, you could do lots of things from home that you have to do in person now. Things like medical appointments, interactive classes or job training, working in a group, or participating in community meetings. It would also be possible to monitor things at home when you're away, or use the Internet to run programs or back up files." These respondents were then asked whether they would be interested in trying any of those functions and if so, which ones were most interesting to them, and what their concerns would be about such a service. Those who were not interested were asked for their concerns. Thus those not interested in the service are included only in the figures related to concerns. Non Internet users are not included in any of the figures in this section.

The online question was asked slightly differently: the options were provided as checkboxes and so respondents were not required to rely on their memory. They were asked to select functions which were of interest to them, rather than of *most* interest to them. In our focus groups, the question was also asked with the options available to refer to, and this was discussed in interviews.

Most (85%) of the Internet users interviewed by telephone indicated that they would be interested in super high speed Internet access, as did all of the online respondents.

Table 17. How Seattleites would like to use super high speed Internet access

	Phone	Online
Medical appointments	64%	83%
Interactive classes or job training	61%	74%
Working in a group	47%	58%
Participating in community meetings	58%	71%
Monitoring home	55%	68%
Running programs from the Internet	56%	71%
Backing up files	59%	80%
None of these things	1%	1%

Table 17 summarizes the interest level of respondents to various functions suggested. About six in ten of the telephone respondents mentioned being able to remotely attend medical appointments, take classes, or participate in community meetings. About the same percentage are interested in being able to back up files online and almost as many are interested in running software programs remotely and monitoring things at home while they are away.

Overall, online respondents expressed more interest in all the functions - possibly because of the way the question was asked, or possibly because they are more interested in technology, or perhaps for both or other reasons. For the online respondents, medical appointments rated highest (83%) followed closely by backing up files (80%) and using high speed for interactive classes or job training (74%). Seven in ten (71%) expressed interest in participating in community meetings over the Internet.

Table 18. Concerns with super high speed access

	Phone	Online
Cost	18%	76%
Security and privacy	41%	28%
Importance of personal contact	8%	7%
Current speed in adequate	4%	8%
Would need extra equipment	0%	16%
Difficult to use, need support	3%	3%
No concern	34%	19%

Table 18 shows different concerns among the telephone respondents and the online respondents. Telephone respondents were most concerned about security and privacy and only about half as many were concerned about the cost of the service, while three-fourths of the online respondents were concerned about cost and fewer than half as many were concerned about security and privacy. Additional analysis was conducted to test whether the dramatic difference in concern about cost between the two samples might be due to differences in income, but analysis showed that the income profiles are similar in the two groups. The effect was observed within each income category: about 20% of the telephone respondents identified a concern about cost, compared with between 70% and 80% of the online respondents. The online responders were also more likely to be concerned that super high speed access would require extra equipment. One-third of the telephone respondents said they had no concern compared with 19% of the online respondents.

Subgroup analysis

All Internet users were asked what their concerns were about super high speed access, regardless of whether they were interested in that service. Cost was not the primary concern of those not interested. The responses that were significantly more common among those not interested in this service were concerns about the importance of personal contact (or fear of losing personal contact) (18% of those not interested and 6% of those interested), and the general view that the internet is currently fast enough (76% of those not interested and 24% of the interested respondents). Those who *are* interested in super high speed Internet access were significantly more concerned about "Security and privacy," (44% vs. 28%).

Gender: Men and women were equally interested in super high speed access and expressed interest in the different services at about the same rate, except for working in a group which was selected by 52% of the men and 42% of the women.

Men and women voiced similar concerns about using high speed Internet services, except that women were more concerned about the loss of personal contact (11% vs. 4%).

Age: People in different age groups expressed different levels of interest in super high speed Internet in a similar pattern to the other age effects above. Eighty-eight percent of those 50 and younger were interested in super high speed access, compared with 82% of those 51 to 64 and 69% of those 65 and older.

Among those interested in super high speed access, the age groups were largely similar in the number of applications they mentioned, though a linear trend was evident in which the number of applications mentioned decreased as age increased. Interest level in several specific applications was similar across age groups, including medical appointments, participating in community meetings, running programs from the Internet, and backing up files. Age groups differed in their interest in interactive classes or job training, working in a group, and monitoring things at home.

Interest in attending interactive classes or job training online or working in a group online decreased as age increased. (Interest in interactive classes decreased from two-thirds of those younger than 36 to about half of those older than 50 and interest in working in a group online decreased from about half of those younger than 36 to about one third of those 65 and older.) Some of this effect may be due to retirement among those in the oldest age group. Finally, age groups differed in their interest in monitoring things at home. Two-thirds of those between 26 and 35 were interested in this application, compared to about half of the other groups. Overall, the percentage of respondents saying they would be interested in none of the mentioned applications was low in every age group, but increased with age from 0% of those younger than 36, up to 5% of those 65 and older.

Respondents in the different age groups were equally likely to say they had no concerns about super high speed Internet access and they were equally concerned about the cost of service and the concern that the service would require extra equipment. Those in the 51 to 64 year old age group were most likely to express a concern about security and privacy (52%) and the youngest respondents were least likely (33%). Interestingly, those in the youngest group were the most concerned about the importance

of personal contact (16%), a concern mentioned by between 5% and 8% of those in the other age groups. Few respondents in any groups were concerned about how difficult super high speed access might be to use, a concern expressed by 10% of those 65 and older, compared with no more than 3% of those in the other age groups.

Race/ ethnicity: Compared with African American and Caucasian Internet users, the Asian/ Pacific Islander Internet users were less likely to be interested in super high speed Internet access (88% vs. 69%). Hispanic/Latino Internet users fell between these extremes (84%). Among those in each group who *were* interested, similar proportions expressed interest in the different applications.

Internet users in different racial/ ethnic groups expressed similar patterns of concern about super high speed Internet access except when it comes to security and privacy. More than half (55%) of African American respondents were concerned about security and privacy, followed by more than 40% of Caucasian and Hispanic respondents, with Asian/Pacific Islanders being least concerned (27% shared this concern).

Education: Interest in super high speed access increased dramatically with education jumping from 62% among those with less than a high school education to 78% of high school graduates and then climbing steadily to 91% of those with post graduate work. However, among those interested in super high speed access, the patterns of interest for the different applications were largely similar across the different education levels with a few subtle differences. A linear decrease in interest in medical appointments was observed as education levels increased so that about 70% of those with less than a high school education were interested in attending medical appointments remotely, decreasing to 57% of those with post graduate work. Interest in backing up files trended in the opposite direction so that about half of those with a high school education or less expressed interest in being able to back up files, compared with more than 60% of those with at least a four year degree.

Those with more education had fewer concerns about high speed Internet services, though the majority in all education levels expressed some concerns. Between 30% and 40% of those with more than a high school education said they have no concerns about super high speed Internet access, compared with about 22% of those with a high school education or less. Respondents at different education levels agreed on most of the concerns, except for concerns about security and privacy, expressed by almost half of those with at least a four year degree and by about one-third of those with less education. Those with a high school education or less were most likely to say that current Internet speed is good enough (more than 10% vs. no more than 4% among those with more education)

Income: Interest in super high speed access was greatest from higher income respondents followed by those in the lower income categories, with lower interest in mid-income ranges. Interest decreased with income from 84% of those earning less than $20,000 per year to 73% of those with income between $30,000 and $40,000, and then increased to 92% among those with incomes of $50,000 or more. Among those with interest in this access, the pattern of responses to specific applications was similar across the different income groups.

Concerns about super high speed Internet access were similar across the income groups.

Children in Seattle Schools: Overall, interest in super high speed Internet was stronger among parents of children younger than 18 than other respondents (89% vs. 83% of those without children under 18), however, Seattle School parents were somewhat less interested than other parents (84% vs. 94%), and younger Seattle School parents (18-25) were least interested (54%). None of the differences in interest in the specific possible uses of super high speed Internet reached statistical significance.

Cable Service

A large section of the survey was devoted to cable service with questions about satisfaction with various aspects of cable service: problems that might have occurred, areas for improvement, and reasons people are considering dropping cable, or never subscribed to cable in the first place.

Table 19 shows that the percentage of cable TV subscribers peaked in 2004 and 2009, and has dropped 13% since 2009. Satellite service is growing steadily from 5% in 2000 to 13% in 2013, a figure also reported by the online respondents.

Table 19. Cable TV and satellite.

	Phone survey				Online survey
Year	2000	2004	2009	2013	2013
Cable TV[18]	63%	65%	68%	59%	71%
Comcast		81%[19]	86%	89%	93%
Wave		8%	5%	6%	6%
Not sure		11%	9%	5%	1%
Have satellite	5%	7%	11%	13%	13%

Table 20. Awareness of City cable support

	Phone			Online
Year	2004	2009	2013	2013
Cable to home for phone, TV and/or Internet			66%	71%
Aware of Cable Office				
Among those with cable TV	26%	23%	21%	
Among those with any cable	X	X	20%	27%
Among non cable customers	25%	32%	X	26%
Aware of basic cable price				
Among those with cable TV		60%	52%	
Among those with any cable		X	52%	62%
Among non cable customers		47%	X	55%

Table 20 shows that about two-thirds of the telephone respondents have cable service for telephone, TV, and/or Internet. About 20% of cable customers surveyed by telephone[20] are aware of the City's Cable Office, and about half are aware of the cable company's basic service package. These figures are somewhat higher for the online respondents (27% and 62%).

[18] Online survey asked about cable service for TV, phone, or Internet
[19] Based on those with cable who responded to this question
[20] Non cable customers were not asked about their awareness of the City's support

Table 21. Satisfaction with cable company customer service and programming

	Phone			Online
	2004	2009	2013	2013
Satisfaction with customer service				
Very dissatisfied	5%	4%	6%	18%
Dissatisfied	15%	10%	16%	28%
Satisfied	66%	65%	61%	50%
Very satisfied	15%	21%	17%	4%
Satisfaction with types and variety of programs and channels				
Very dissatisfied			5%	16%
Dissatisfied			18%	31%
Satisfied			55%	49%
Very satisfied			22%	5%

Table 21 shows that customer service satisfaction is down since 2009, from 86% at least satisfied down to 78% of telephone respondents (and fewer of the online respondents).

About three-fourths of the telephone respondents are also at least satisfied with the types and variety of programs and channels offered by their cable service. Again, fewer of the online respondents are satisfied.[21] Analysis comparing the satisfaction of Wave customer with that of Comcast customers showed no difference in satisfaction.

Table 22. Problems with cable service

Problems with cable service (for those with cable service)	Phone	Online
Cable TV went out - picture, sound, both	61%	32%
Internet service too slow or went out	44%	54%
Wait too long to reach company on phone	44%	38%
Billing problems	27%	36%

Respondents were read a list of problems they might have had with the cable company and asked to say whether they'd had that problem. Online respondents were provided with a list with checkboxes. Table 22 shows that the Cable TV of six of ten telephone respondents had gone out, about twice as many as in the online sample. Forty-four percent each indicated that their Internet service was too slow or went out altogether and that they had to wait too long to reach their cable company on the telephone. Those two problems were significantly more likely among Comcast customers than among Wave customers.

Table 23. Satisfaction with cable company rates

Rates paid for cable service are	Phone	Online
A bargain	2%	0%
Priced about right	17%	4%
Somewhat too expensive	45%	43%
Very much too expensive	36%	52%

Table 23 shows that both telephone respondents and online respondents find the rates they pay for cable service to be too expensive; half of the online respondents and more than one-third of the telephone respondents indicated "Very much" too expensive. The response was similar for customers of both Wave and Comcast.

[21] Remember that the online survey respondents are self-selected, and may well, for example, include people who responded *in order to express their dissatisfaction* with their current service.

Table 24. What customers would like to see more of on cable

Programming of interest	Phone	Online
Local events and stories, government	3%	40%
Educational	15%	38%
Arts and culture	5%	46%
Environment, nature	4%	30%
Diverse ethnic and language programs, international	5%	23%
Family/children's programming	8%	17%
News services, international news	12%	46%
Programs from Canada		31%
None	17%	14%

Telephone respondents were asked in an open ended format what types of television programs they would like to see more of. Online respondents were provided with a list from which they could select as many responses as they liked, in addition to an opportunity to add suggestions that were not pre-coded. Table 24 shows the responses. The most frequently named suggestions by the telephone respondents were educational programs and different types of new services. Not surprisingly, the pre-coded checkbox format, providing suggestions for the online respondents produced more responses. If these options had been read to the telephone respondents, it is probable that more would have endorsed each option.

Table 25. What one thing would most improve cable service?

	Phone	Online survey
What one thing would most improve your cable service		
Nothing at all	7%	2%
Price	63%	71%
Program choices	19%	13%
Customer service	5%	5%
Other	6%	8%

Cable customers find the service too expensive. Cable customers were asked what would most improve their cable service. Table 25 shows that most (63% of the telephone respondents and 71% of the online respondents) answered "Price." Some were also concerned about program choices and a few wanted improvements in customer service. Responses were similar for both cable providers.

Table 26. Likelihood of dropping cable TV within 5 year

	Phone	Online
How likely to drop cable TV in the next 5 years		
Very unlikely	33%	11%
Somewhat unlikely	22%	15%
Somewhat likely	23%	27%
Very likely	23%	47%

Respondents were asked how likely they are to drop their cable TV in the next five years. Nearly half (46%) of the cable customers in the telephone survey are at least "Somewhat likely" to drop their cable TV, as are about three-fourths of the cable customers in the online survey. These responses do not depend on cable provider.

Table 27. Reasons for dropping or considering dropping

	Phone	Online
Did you drop cable in the past few years?	35%	46%
Reasons for dropping or considering dropping cable		
Cost/ can't afford	51%	79%
Get video content over the Internet	16%	67%
Get free TV over the air	5%	26%
Get satellite	3%	10%
Can't get cable service	1%	1%
Service problems	6%	17%
Did not like programming	14%	32%
Don't want cable, do/did not like it	9%	28%
Don't need cable (anymore)	7%	30%
Objectionable programming including for children	1%	4%
Choices too confusing	2%	1%

Non cable customers were asked if they dropped cable in the past few years. Table 27 shows that about one third of the telephone respondents. without cable did so, as did nearly half of the online respondents without cable. Those respondents, in addition to those who said they were at least "Somewhat likely" to drop their cable TV within five years were asked for their reasons for dropping or considering dropping. Responses are summarized in Table 27.

The most common reason, especially for the online respondents, is the cost of the service. About half of the phone survey respondents and more than three-fourths of the online participants named cost as the reason for dropping/ considering dropping cable service. Two-thirds of the online respondents add they can get their video content over the Internet. Sixteen percent of the telephone respondents mentioned this option as well.

Respondents provided a variety of other reasons for having dropped their cable service, or for considering whether to drop their cable service. About one fourth of the telephone respondents considering dropping cable TV noted that they can get their video content over the Internet, compared with about half as many (11%) of those who have already dropped it. Those who have already dropped it were more likely than those considering dropping to say they could get free TV over the air (7% vs. 2%) or they could get TV via satellite (5% vs. 1%). Those considering dropping were more likely to note that they don't like the programming (18% vs. 11%) and those who don't have cable were more likely to say they don't want cable or don't like it (12% vs. 4%).

The answers of the online respondents were similar but more extreme. For example, 76% of those considering dropping cable noted that they can get video content over the Internet, compared with 55% of those who don't have cable TV now. Thirteen percent of those without cable TV said they use satellite, compared with 7% of those considering dropping. More than one third (37%) of those without cable say they don't want it or don't like it, compared with 23% of those considering dropping it.

Subgroup analysis

Gender: Men and women replied similarly to nearly all the cable questions, including having cable TV service, satisfaction with various aspects of cable service, likelihood of dropping cable service, reasons for not having the service or for considering dropping it. Men were more likely to say they are aware of the basic cable price (57% vs. 48%).

Age

Subscription to cable service, but not satellite service, is associated with age. Figure 35 shows that as age increases, the likelihood of having cable service also increases substantially from the youngest age group to those 65 and older. This finding may portend important trends from a policy perspective. It is not clear whether pattern might mean that non subscribers become subscribers as they age, or perhaps that seniors are the last remaining loyal customers, and younger residents may not be taking their place when they obtain senior status.

Older respondents are also more likely to be aware of the Cable Office, unless they are 65 and older. The youngest group of respondents and the oldest group are the least likely to be aware of the basic cable package.

Figure 35.
Cable subscription and awareness of City support of cable by age

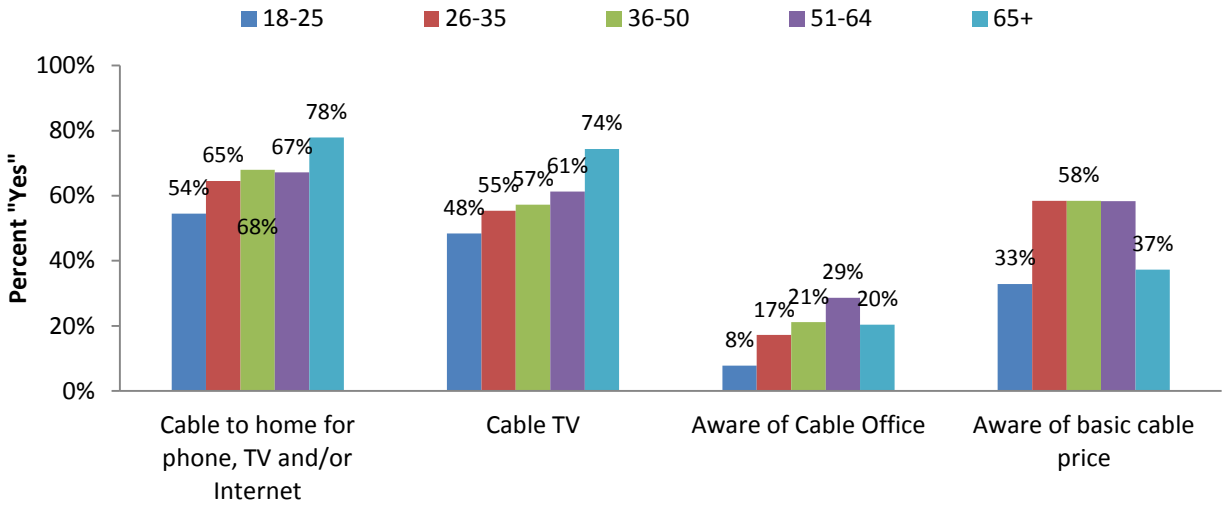


Figure 36 shows the effect of age on satisfaction ratings. The youngest group is the most likely to be "Very satisfied" with customer service and programming, and the least likely to rate the service as "Very much too expensive."

Figure 36. Satisfaction with aspects of cable service by age

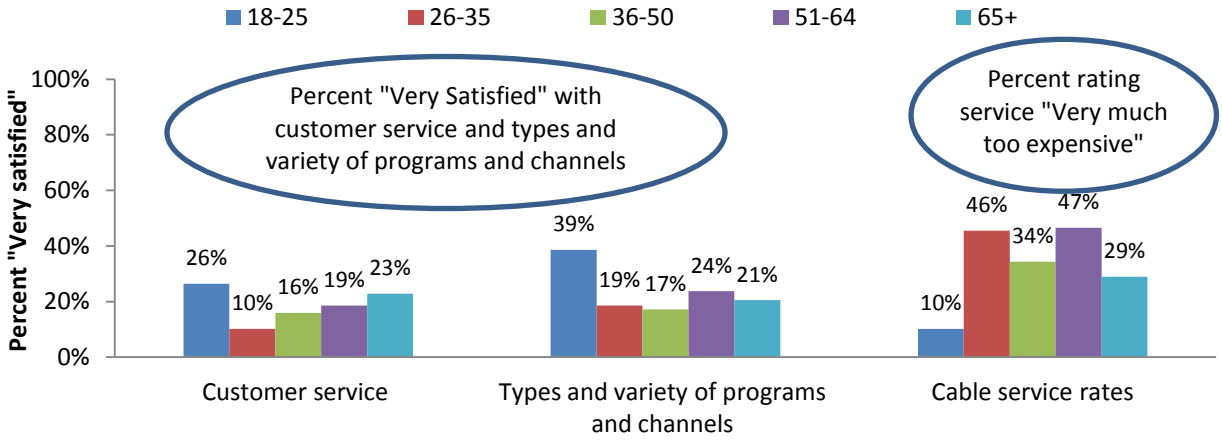


Figure 37 shows that as age increases, the prevalence of concerns about the Internet service, the wait to reach the cable company, and billing problems diminishes.

Figure 38 shows that improvement in pricing is the one thing that would most improve cable service for all the age groups. However, it also shows that prices is a smaller concern for those 65 years and older – followed more closely than in other age groups by a desire for improved program choices.

Figure 37. Prevalence of cable problems by age

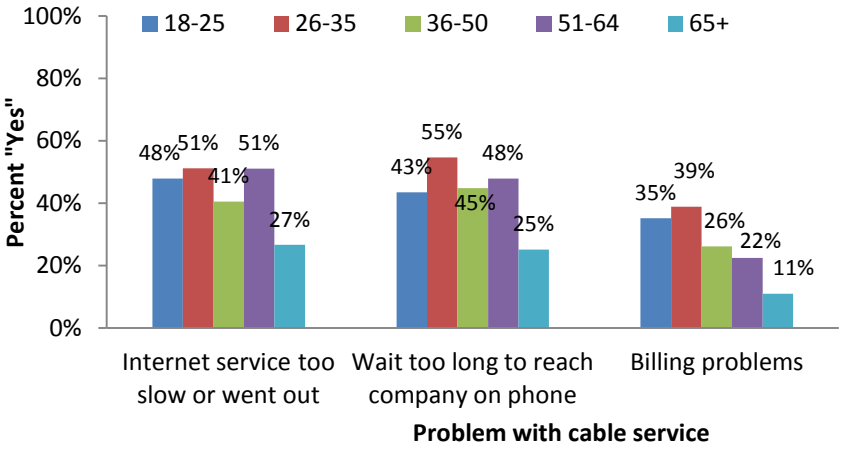
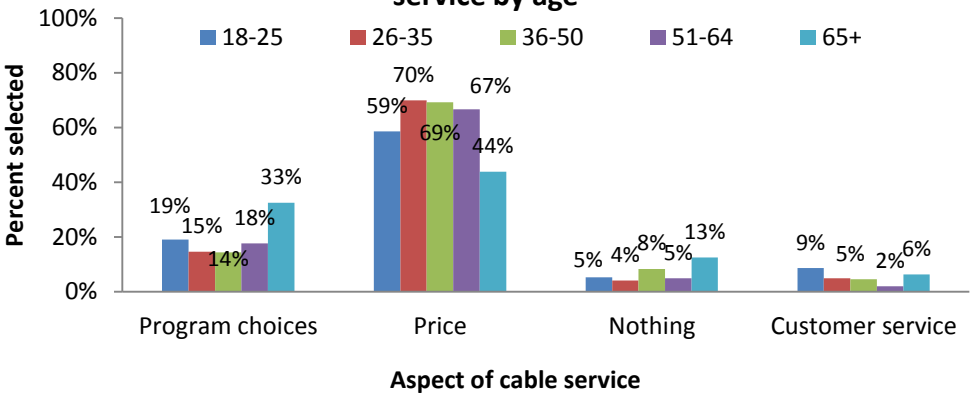


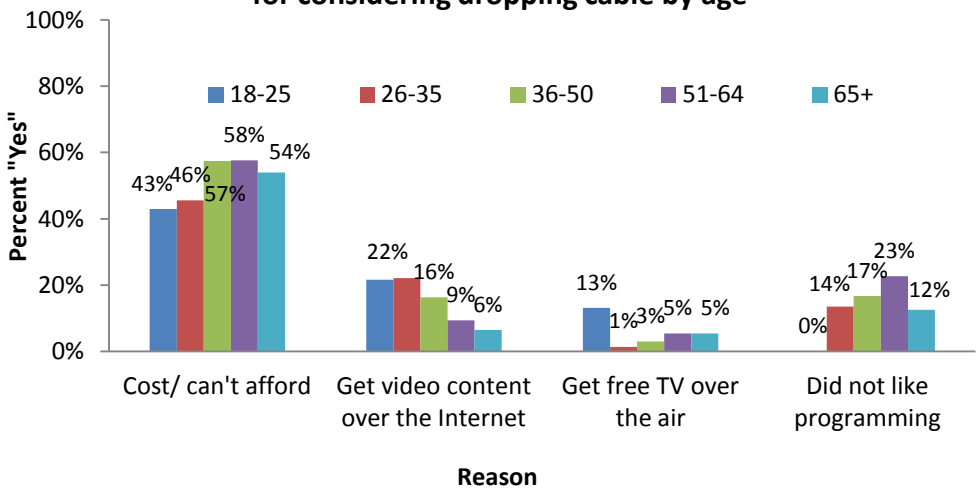
Figure 38. What one thing would most improve cable service by age



Nearly half of current cable customers said they are at least "somewhat likely" to drop their cable subscription in the next five years. Moreover, older customers seem to be the most loyal cable customers, which may have

serious implications for the cable companies going forward and the city revenue tied to cable customer revenues. Cable customers were asked how likely they are to drop cable in the next five years. Overall, 23% said they are "Very likely" and the same percentage said "Somewhat likely." Nearly one-third (31%) of those in the youngest age group said they are "Very likely" to drop cable in the next five years and this percentage decreases across the different age groups to 27% of the next two age groups, 19% of those 51 to 64 and 9% of those 65 and older.

Figure 39. Reason for not having or for considering dropping cable by age



Respondents who dropped cable in the last few years and subscribers who are considering dropping their cable service were asked why they had dropped or were considering dropping. Figure 39 shows cost as the primary reason for not having cable or for considering dropping it. The percentage of people mentioning this reason increases with age, *especially among those who do not have cable currently*. At first, this finding seems curious since price was selected less often by those in the oldest group as the one thing that would most improve their cable service. The explanation is that Figure 39 contains the responses of those who are considering dropping and those who do not currently have cable service. Thus price is an increasingly important reason as age increases for those who do not have service, and still important, but to a lesser extent, for those who are considering dropping service.

Race/ ethnicity:

Overall, respondents in all race/ethnicity categories were equally likely to subscribe to cable TV or cable services in general. However, African American, Latino, and Asian/Pacific Islander respondents account for a disproportionate percentage of satellite subscriptions (one quarter of these respondents have satellite, compared to less than 10% of the Caucasian respondents). Even though likelihood of subscribing to cable wasn't influenced by race/ethnicity substantially, a few factors in cable service were. Specifically, while about half of the telephone respondents overall were aware of the basic cable package, many fewer (39%) of the Asian/Pacific Islander cable customers were aware it, as were many more (64%) of Hispanic cable customers. In a related finding, Asian/Pacific Islander respondents are more likely to say that they don't subscribe to cable or are likely to drop cable because the choices are too confusing (7% vs. <1% of the other groups). This figure increases to 10% of Asian/ Pacific Islanders without cable service.

African American cable customers are among the most satisfied with customer service (25% were "Very satisfied" with customer service compared with 17% of the other groups.) At the other end of the scale, Hispanic cable customers were more likely to rated themselves as "Very dissatisfied" with cable company customer service (13% vs. 4% of the other groups).

Cable customers of different ethnic backgrounds provided different reports of problems with their cable service:

- Asian/Pacific Islander respondents were least likely to say
    - their cable went out – the picture or the sound or both (43%), compared with more than 60% of the other groups;
    - they had to wait too long to reach the phone company (30%), compared with more than 40% of the other groups
- Of those with cable Internet, African American and Asian/Pacific Islander respondents were less likely to say their Internet service is too slow or went out (39% and 49%) compared with Hispanic/Latino and Caucasian respondents (more than 60%)
- Caucasian respondents were least likely to express concern about a billing problem (22%) and Hispanic/Latino respondents were most likely to do so (45%), compared with about 30% of the other groups.

We do not have an indication of the reasons for these differences by ethnicity; it is unlikely to be a specific issue of service to these ethnicities. Further analysis would be needed to determine the association, which could include differences in likelihood to report problems or service differences by geography.

Education:

Analysis shows no difference in cable TV subscription by education level, but a significant linear *decrease* in the rate of satellite subscription as education *increases* from a high of 34% among those with less than a high school education to 19% of high school graduates, 15% of those with some college and 7% of those with a four year degree or more.

Of the few factors related to cable service that seem sensitive to level of education, some may require attention from a policy and education perspective: While respondents across the education spectrum were equally likely to be cable customers, only a quarter of cable customers with less than a high school education were aware of the low cost basic cable package, compared with half of the other education groups.

When asked about satisfaction with the rates paid for cable service, very few (2%) said they thought it was "a bargain," but 10% of those with less than a high school education gave this assessment. Only 17% with less than high school education thought cable rates were "Very much too expensive" compared with at least one-third of the other groups.

Cable customers with the least education were the *least* likely to note any problems with their cable service, often with substantial differences, including:

- The picture, sound, or both went out on their cable TV (34% of those with less than a high school education and almost twice as many in the other groups),
- Of those with cable Internet service, the Internet service was too slow or went out altogether (14% of the group with less than a high school education, and between 58% and 69% the other groups)
- They had to wait too long to reach the cable company on the phone (18% of those with less than a high school education, 39% of high school graduates, and about half of those with more education)

Respondents were about equally likely to say they were considering dropping cable in the next five year regardless of education, noting the different reasons at about the same rates across the education levels. Notably, the exception concerned the option of watching video content online which *none* of those with less than a high school education mentioned, compared with 8% of high school graduates and about 20% of the other groups – and even more (up to 33%) of those with more than a high school education who are considering dropping cable. Those with less than a high school education are as likely to consider dropping as others, but less likely to be aware of the low cost basic cable package or alternative sources of video content.

Children in Seattle Schools: Overall, respondents with and without children younger than 18 at home, whether they attend a Seattle School or some other school, were equally likely to subscribe to cable TV (59%) or any cable service (66%). Looking just at respondents with children younger than 18, those whose children attend a Seattle Public School were less satisfied with cable TV programming (2.8 vs. 3.1) but more satisfied with the technology itself: they are less likely to note that the cable TV went out (48% vs. 63%) and that their Internet service was too slow or went out altogether (38% vs. 66%). Those whose children attend a Seattle Public School were less likely to say that they don't have cable TV or are considering dropping cable TV because they can get their programming over the Internet (9% vs. 22%). Results did not change when controlling for age. However, it is striking to note that in many ways, younger parents whose children attend Seattle Public Schools responded more similarly to older respondents than to their younger counterparts whose children do NOT attend a Seattle Public School.

Income: There are many indications of the price sensitivity of cable subscriptions: although the majority of every income group subscribes to cable, the proportion with cable increases with income from about 55% of those earning less than $30,000 per year, climbing to 62% of households with $30,000-$40,000, to between 65% and 70% of households with more than $40,000 per year but less than $100,000, and 78% of those with income of more than $100,000.

Awareness of the City's Cable Office largely decreases as income increases from a high of 36% of those with the least income to 15% of those with the most. This decrease is not steady across the income levels, but the overall downward trend is significant. This difference could be explained by the additional focus of the Cable Office on those with less income.

When asked about problems they may have had with their cable service, the likelihood of identifying problems increased with income. Overall, more than half of the respondents noted that the picture or sound or both went out on the cable TV. About half of those at the lowest income levels noted this problem, increasing fairly steadily to 72% of the highest income group.

Similarly, as income increased, so did the likelihood of noting that their Internet service was too slow or went out altogether. Only about 20% of those in the lowest income group noted this problem, climbing to about 30% of those in the next two income groups, then steadily climbing from 43% of those with incomes of $40,000 to $50,000 to 61% of those with $100,000 or more per year.

Cable customers were similarly likely to drop their cable service over the next five years, regardless of income level. But the reasons given were different. Remembering that non customers were asked why they don't subscribe to cable and those at least somewhat likely to drop their cable service were asked why, these differences emerged across the income groups:

- Non cable customers were more likely than cable customers considering dropping to note that they can get free TV over the air, especially at the lowest income level. Twenty-one percent of non cable customers at the lowest income level mentioned getting free TV over the air, compared with less than half that much in any of the other groups and an overall average of less than 5%.
- Non cable customers in the second income group were much more likely to say they get satellite service (10% of this group overall and 16% of the non subscribers in this group, compared with no more than 4% in the other income groups).
- Among cable subscribers, programming is more likely to be a reason to consider dropping cable for those in the two lowest income groups (less than $30,000 per year) and those with income between $50,000 and $75,000 (between 20% and 27% of respondents in these income groups compared with 7% to 14% of the other income groups).

Taking together respondents' various reactions to their cable providers, our impression is that if customers become increasingly frustrated with expensive cable service and various options, including cable over the Internet continue to arise, the move away from cable is likely to accelerate in the future.

Civic Participation

Just over half (53%) of the 2013 telephone respondents said they participate in a community group, such as a neighborhood association, block watch, school, religious or other type of group. This is about the same as in 2009 (54%), and less than 2004 (71%). In comparison, about three-fourths (77%) of the online responders said they participate in a community group.

Giving opinions

Both the telephone and the online surveys asked how respondents preferred to **give their opinions to** a community group or to the City, though telephone respondents were asked to volunteer responses and online respondents were presented with a list. Telephone and online respondents were about equally likely to select a meeting (34% and 35%), or telephone (both 19%).

Nearly three-fourths (72%) of the telephone respondents selected an electronic method (though one-third didn't specify which one). Thirty-nine percent mentioned email and 15% mentioned a web survey. Many fewer mentioned Facebook or the City's blog (5% each) or Twitter (3%).

The online responders were more likely to select each of these electronic options, with 81% selecting email, 58% selecting a web survey, about a quarter each selecting Facebook and the City's blog, and 9% selecting Twitter. They were also more likely to select texting (10% vs. 5%) or letter-writing (17% vs. 5%).

When asked to select from a list their preferred electronic method for giving their opinions from a list that was read to them or from their previous mentions, about 10% of the telephone responders were unable to give a response. Those that did were mostly likely to select email (75%) or a web survey (22%), but they remained relatively unlikely to select Facebook (10%), a blog (6%) or Twitter (4%). Table 28 combines responses to both questions about giving opinions to community groups or the City.

Table 28. Preferred Electronic Method for Giving Opinion

Method	Phone	Online
Email	75%	85%
Web survey	22%	60%
Facebook	10%	24%
Blog	6%	25%
Twitter	4%	10%

Getting information

Telephone and online respondents were asked to name (telephone) or select from a list of options (online) their preferred electronic (or other) methods for **getting notices and other information from** a community group or the City. These sources (community group or the City) were combined for the telephone survey, but asked separately for the online survey.

Telephone responders were most likely to say "email" (61%) or the City's website (27%), followed by a letter (15%) or a telephone call (11%). Other electronic methods were fairly low with 10% mentioning Facebook, 5% mentioning the City's blog, and 4% mentioning Twitter. An electronic calendar, live chat, a meeting or in person, a flyer or newsletter, media, an app, and word of mouth were each mentioned by 1% or fewer.

Overall, online responders were more likely than telephone responders to select each electronic method for getting information, and were somewhat less likely to select these methods for getting information from the City than from their community group. Specifically, respondents selected email (84% City, 89% community group), a website (52% City or 59% community group), a blog (22% City or 39% community group), or Facebook (22% City or 37% community group). Less commonly selected electronic options include subscribing to an online calendar (7% City or 13% community group), Twitter (12% City or 10% community group), or subscribe to an RSS feed (9% offered only for community groups). The most commonly selected non electronic option was to attend a public meeting (33% offered only for community groups), followed by a print newsletter or other mail (21% City or 19% community group), telephone (5% city or 16% community group), or text (9% City or 13% community group).

Table 29. Methods for Getting Urgent Information

Method for urgent messages	Phone	Online
Email, text, and telephone	89%	97%
Email, text	70%	92%
Email, phone	66%	85%
Text, phone	67%	81%

When it comes to getting urgent messages from the City, such as alerts about utility outages or emergency safety alerts, most of both telephone and online responder groups want the information via email (43% telephone responders and 76% online responders), text message (41% telephone responders and 63% online responders), or telephone (32% telephone responders and 40% online responders). Table 29 shows that with these methods combined, the great majority of respondents - especially online respondents - could be reached with urgent information by a combination of telephone, text, and email; fewer with any pair of methods. Telephone responders also mentioned radio or TV (10%), Twitter (4%), Facebook (3%), or the City's blog (1%). Online responders were far more likely to mention Facebook (20%), Twitter (17%) or the City's blog (11%).

Of the 125 who would not be reached by a combination of email, text, and telephone, more than half (57%) of the 83 telephone responders could be reached by radio or TV and more than half (59%) of the 42 online responders could be reached by Twitter.

Subgroup analysis

Gender: A few differences emerged between men and women in their responses to civic participation, though the similarities were more striking. Overall, slightly more than half of the respondents participate in some type of community group, with more women participating than men (57% vs. 49%). Men and women did not differ in their responses to the preferred electronic method of giving their opinions to the City or a community group. Some differences emerged when asked how they prefer to get information from the City or a community group. Email was the most frequently mentioned method for men and women (61%), followed by visiting the website (27%), receiving a letter (15%), or getting a phone call which was mentioned more frequently by women than by men (13% vs. 7%).

Age: The youngest respondents were least likely to participate in a community group (34%), with participation levels increasing to 51% of those between 26 and 35 and 63% of those 38 to 50. Participation then drops somewhat and levels off at 58%.

Respondents across the age groups were similarly likely to mention **giving their opinions** to the City or a community group by attending a meeting (34%), sending an email (39%), or participating in a web survey (15%), and similarly unlikely to give their opinions by texting (3%), contributing to a blog (5%), or writing a letter (5%).

Older respondents were more likely to mention **giving their opinion** by phone (from fewer than 17% of those 50 or younger, to 37% of those 65 and older). Though few overall mentioned Facebook (5%) or Twitter (3%) as a way to give their opinion, Twitter was more likely in the youngest age group (18-25: 8%) and Facebook was more likely among those 35 and younger (8%). None of the respondents 35 and

younger said they did not want to give their opinion to the City of community group, while those in the older age brackets were increasingly likely to say they didn't want to (from 2% of the 36-50 year old group to 4% of the 65+ group).

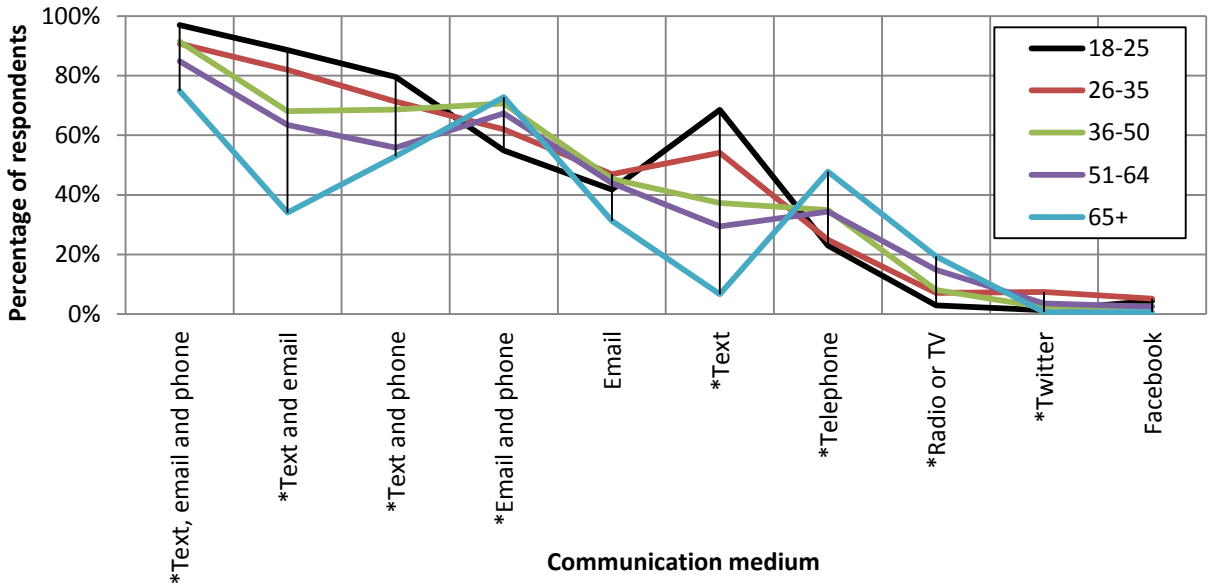
When asked to choose their preference among the electronic options, most respondents of every age group chose email (75%), followed by a web survey (22%). Again, Facebook and Twitter decreased with age so that among those 35 and younger, 15% selected Facebook, compared with only 4% of those 51 and older. Twitter was also more often selected by the younger respondents (8% of those 25 and younger), dropping to between 2% and 5% of the older groups.

Overall, each age group was most likely to mention email as the way they'd prefer to **get information** from the City or a community group (61%), though this was a more popular option among those 25 and younger (68%) and less popular among those 65+ (45%). Slightly more than 60% of each of the middle age groups also mentioned email.

The next most frequently mentioned option in every age group except those 65+ was visiting a website (27% overall; 13% of those 65+). Interestingly, although visiting a website was still the second most frequently mentioned option among those 25 and younger, like the oldest respondents, these respondents were also less likely to mention visiting a website (19%) compared with about 30% of those in the middle age groups.

The next most commonly mentioned options, getting a letter (15% overall) and getting a telephone call (11% overall) were both mentioned more often in the 65+ group (31% and 23%, respectively) than visiting a website. Both options decreased in likelihood as age decreased so that letters were mentioned by 11% of those 25 and younger, and a telephone call was mentioned by 7% of this group. Those 35 and younger were more likely to mention Facebook (17%) decreasing steeply to 6% of the next age group and 3% of the two oldest groups.

Figure 40. Preferred ways of getting urgent information, by age



* age groups differ significantly

Figure 40 shows that when it comes to **receiving urgent information**, between 75% (those in the 65+ group) and 97% (those in the 25 and younger group) would be reached by a combination of telephone, email, and text. Email and phone alone would reach about as many of the seniors, but it adds dramatically to the percentage reached in the youngest group.

Of the senior respondents who would not be reached by some combination of telephone, email, and text, three-fourths (73%) would be reached by a radio or TV announcement and another 13% by word of mouth from friends or relatives, suggesting that part of any urgent announcement might include the suggestion that those hearing it spread the word to their friends, relatives, neighbors, and family members.

Race/ ethnicity: Respondents from different racial/ethnic groups had somewhat different preferred ways of giving opinions and getting information.

More than half of the African American and Caucasian respondents (53% and 59%, respectively) participate in a community group, compared with about one-third of Hispanic/Latino and Asian/ Pacific Islander respondents (35% and 36%, respectively).

Figure 41. Ways of giving opinions, by race/ethnicity

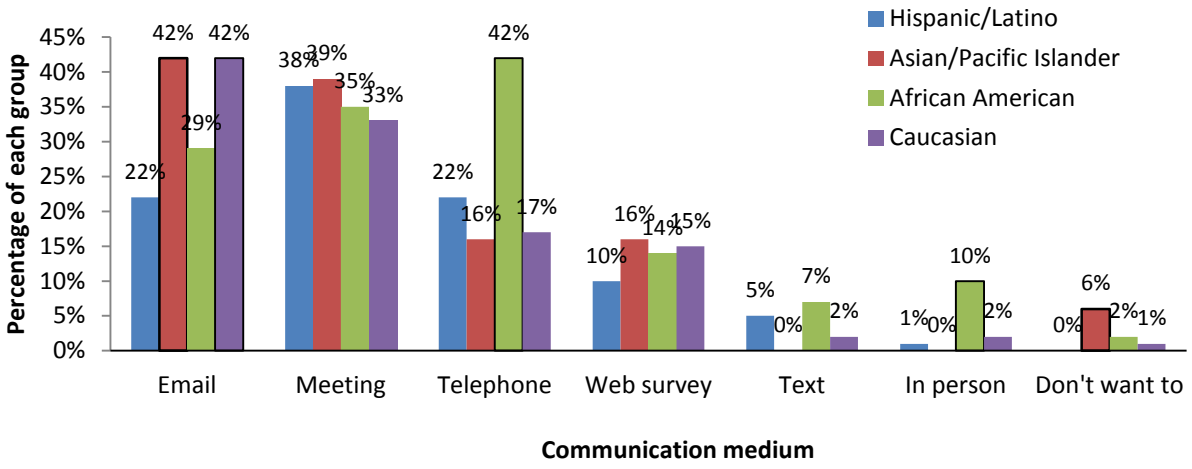


Figure 41 shows that although the general pattern were similar in how respondents want to give opinions to the City or a community group, a few differences emerged that might influence the strategies of different agencies in their opinion gathering processes. Specifically, Caucasian and Asian/Pacific Islander respondents were much more likely to mention email, and African American respondents were much more likely to mention the telephone or an in person meeting. Asian/Pacific Islander respondents were most likely to say that they didn't want to give their opinion.

When asked for the most preferred electronic method of giving opinions, email was the most commonly selected; however, African American and Asian/Pacific Islander respondents were more likely to select email (80% and 85% respectively) than Caucasian and Hispanic/Latino respondents (74% and 63% respectively). A web survey was the next most common response with no significant differences between the groups, followed by texting, mentioned by 14% of the Hispanic/Latino and 13% of the African American respondents, compared with 3% of the Caucasian and less than 1% of the Asian/Pacific Islander respondents.

Figure 42. Preferred ways of getting information, by race/ethnicity

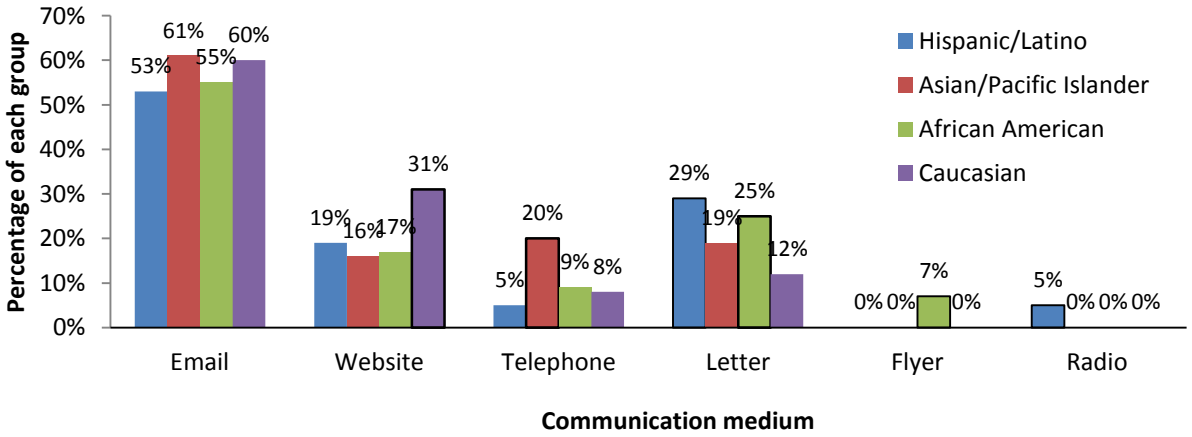


Figure 42 shows that when has how they would like to get information from the City or a community group, the most common response across all groups is email, mentioned by at least half of each group. However, some of the other ways of getting information were selected with different frequency by the different racial/ ethnic groups. Specifically, 27% of the respondents overall mentioned getting information by visiting a website. Closer analysis shows that this figure is composed of 31% of the Caucasian respondents and fewer than 20% of the other respondents. Overall, only 15% of respondents mentioned letters as their preferred way of getting information, but it is important to note that even though letters were mentioned by relatively few Caucasian respondents (12%), they were mentioned by at least a quarter of the Hispanic/Latino and African American respondents.

When asked how they would like to get urgent information from the City or community group, 87-92% of each group could be reached by a combined strategy of telephone, text, and email. Asian/Pacific Islander and African American respondents were most likely to mention the telephone (49% and 46% respectively), significantly more than Caucasian and Hispanic/Latino respondents (27% and 26%, respectively). Hispanic/Latino respondents were more likely to mention receiving urgent information by text (50%), compared with Caucasian (41%), Asian/Pacific Islander (33%) and African American (27%) respondents.

Education: Participation in community groups increases with education, from 40% of those with less than a high school education, up to 65% of those with post graduate work or degrees. Significant differences emerged in how respondents want to give opinions and get information based on education. The dramatic effects of education were found among those with the least education. Only 9% of those with less than a high school education mentioned giving their opinions via email (compared with 40% of high school graduates and 45% of others) and none of those with less than a high school education mentioned a web survey (compared with 7% of high school graduates, 13% of those with some college and 18% of those with a four year degree or more). On the other hand, 13% of those with the least education said they'd like to give their opinions in person, compared with 2 to 3% of those with more education. Twelve percent of those with less than a high school education said they don't want to give their opinion (compared with between 1 and 2% of the other groups).

When asked for their preferred electronic method of giving an opinion, all groups mentioned email more than any other method, but it was mentioned by only 53% of those with the least education, compared to between 68% and 81% of the other groups. Interestingly, those with the least education were most likely to mention Facebook (21%, compared with 6% to 14% of the other groups) and least likely to mention a web survey (7%, compared with between 15% and 27% of the other groups).

Those with the least education gave different responses for how they'd like to get information from the City or a community group. Figure 43 shows that unlike those with more education, this group is more likely to choose a written letter (43%) than an email (30%) or visiting a website (7%). This group is also much more likely to mention flyers (9% vs. less than 1% of the other groups).

Figure 43. Preferred ways of getting information, by education

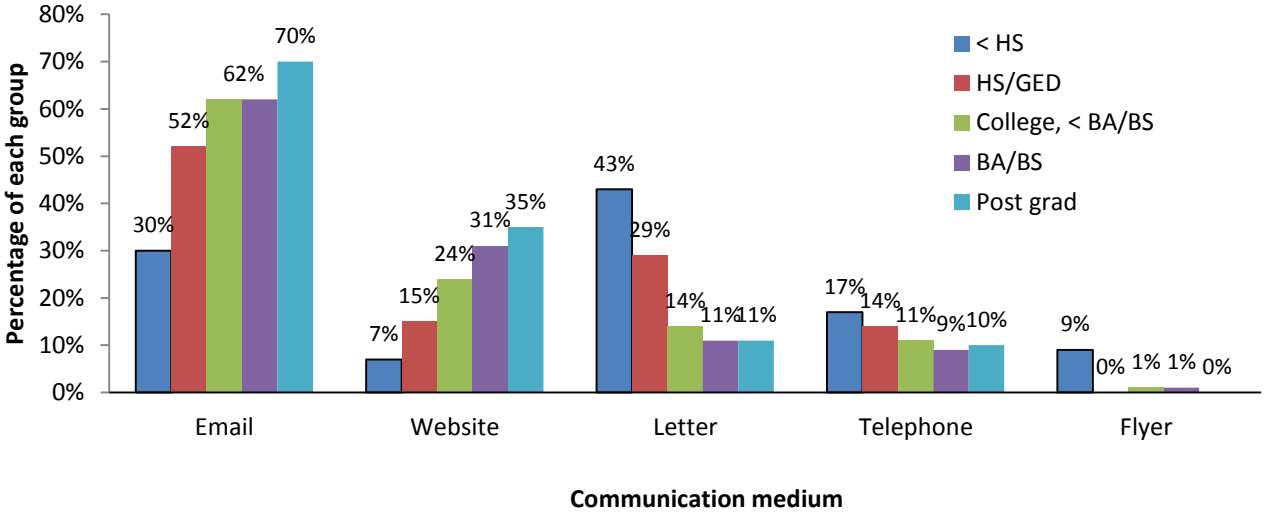
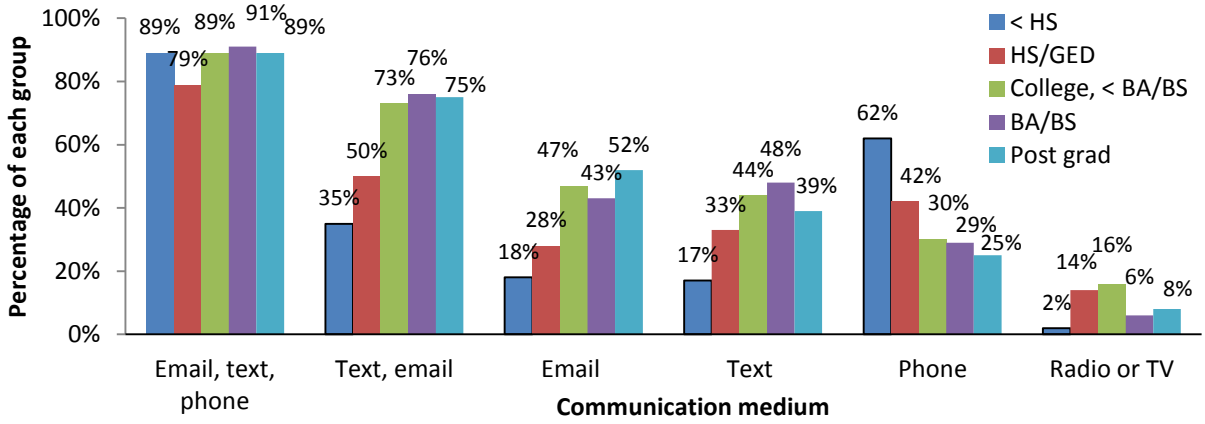


Figure 44 shows that urgent information sent via the combined strategies of email, text, and phone would reach between 79% and 91% of all the education groups. Only about one-third of those with the least education would be reachable by text or email, but 62% are reachable by telephone.

Figure 44. Preferred ways of getting <u>urgent</u> information, by education



Income: The different income groups were largely similar in how they prefer to give their opinions except that those with incomes below $50,000 were more likely to mention using the telephone, and those with higher incomes were more likely to mention web surveys as a preferred electronic method of giving an opinion.

Getting information follows the same overall pattern, with email being the most common response, followed by visiting a website, receiving a letter, and getting a telephone call. Some of these responses varied by income. Receiving a letter of a telephone call were more common at the lower income levels (about 20% for letters and 15% for telephone calls), decreasing to about 7% as income increased.

Between 85% and 92% of all the income groups would receive urgent information delivered via a combination of email, text, and telephone. Those earning less than $50,000 per year were less likely to mention texts and more likely to mention telephone calls, while the reverse was true for those earning more than $50,000 per year.

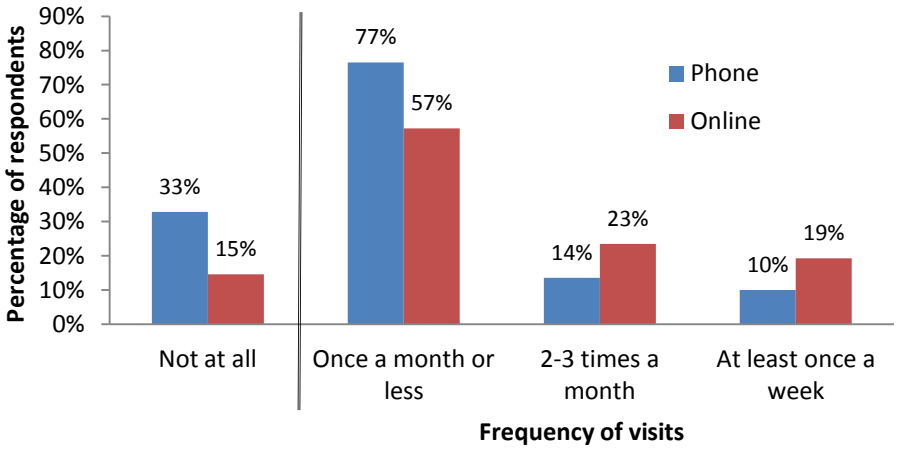
Children in Seattle Schools: Parents of school-aged children were about as likely to participate in a community group regardless of where their children attend school (61% overall), and they were similar in selecting some electronic method for giving opinions to a community group or the city (76%). Parents whose children do not attend a Seattle Public School (SPS) were more likely to name Twitter, both for giving their opinion (7% vs. 2%) and for getting information (8% vs. 1%).

When asked about getting urgent information, 94% of these parents could be reached by a combination of email, text, and phone, whether or not their children attend a Seattle Public School. Looking at each medium separately, parents of SPS children were more likely to name the telephone (43% vs. 27%) and less likely to name email (35% vs. 56%). Of the 17 parents who would not be reached with urgent information by email, telephone, or text, 60% of those with children in SPS and 57% of those whose children do not attend SPS mentioned radio or TV, while the others mentioned some other electronic method (blog or Twitter).

Seattle.gov and the Seattle Channel

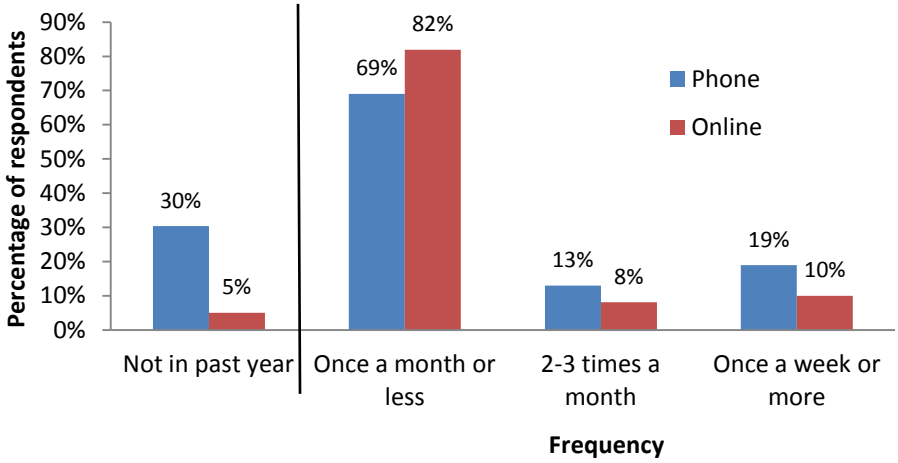
About two-thirds of the telephone respondents and 85% of the online respondents have visited Seattle.gov. The 2009 phone survey results on the percentage of Seattle residents who have visited the City web site were similar. Three-fourths of the Seattle.gov visitors who responded by telephone visit the website once a month or less, compared with 57% of the website visitors who responded to the online survey. (See Figure 45.)

Figure 45. Visits to Seattle.gov



Single or multiple apps: When asked whether they would prefer the city to have a single mobile app or separate apps for different services, of those with an opinion, 56% of the telephone responders endorsed a single app, as did 69% of the online responders. Though it didn't reach statistical significance, people with disabilities were more likely to prefer separate apps for accessing government services via mobile computing (50% vs. 39%) while those without disabilities were more likely to prefer a single app (53% vs. 40%). Because this difference did not reach statistical significance, it may be important to explore this difference to ensure that this group is not further excluded from accessing city services electronically.

Figure 46. Frequency watching the Seattle Channel



About half (51%) of the telephone responders (about the same as 2009's 47%) and two-thirds of the online responders have seen the Seattle Channel. Figure 46 shows that 30% of telephone responders and 5% of online responders have not seen the Channel in the past year. Of the 70% of telephone responders that have, 69% watch it no more than monthly and 19% at least weekly. Among the 95% of online responders who have seen the Channel in the past year, 82% watch it no more often than monthly and 10% at least weekly.

Figure 47 shows that telephone and online respondents alike were most likely to watch the Seattle Channel on TV. Six percent of telephone responders and 18% of online responders watch the Seattle Channel only on the Internet. Seventeen percent of the telephone responders and 21% of the online responders watch it both on TV and over the Internet.

Figure 47. How Seattle Channel is delivered

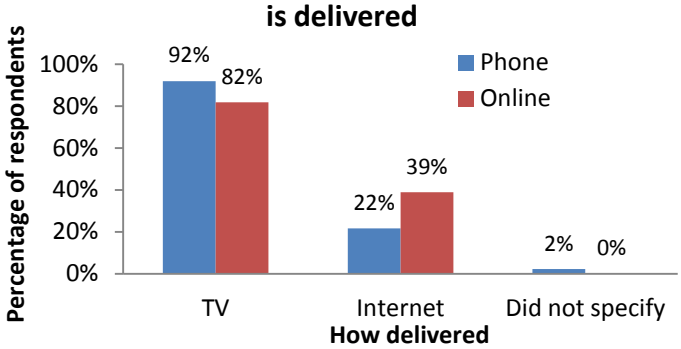


Figure 48. Watching the Seattle Channel compared to last year

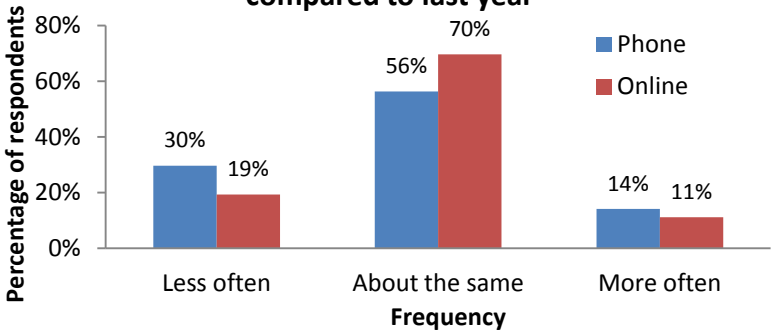
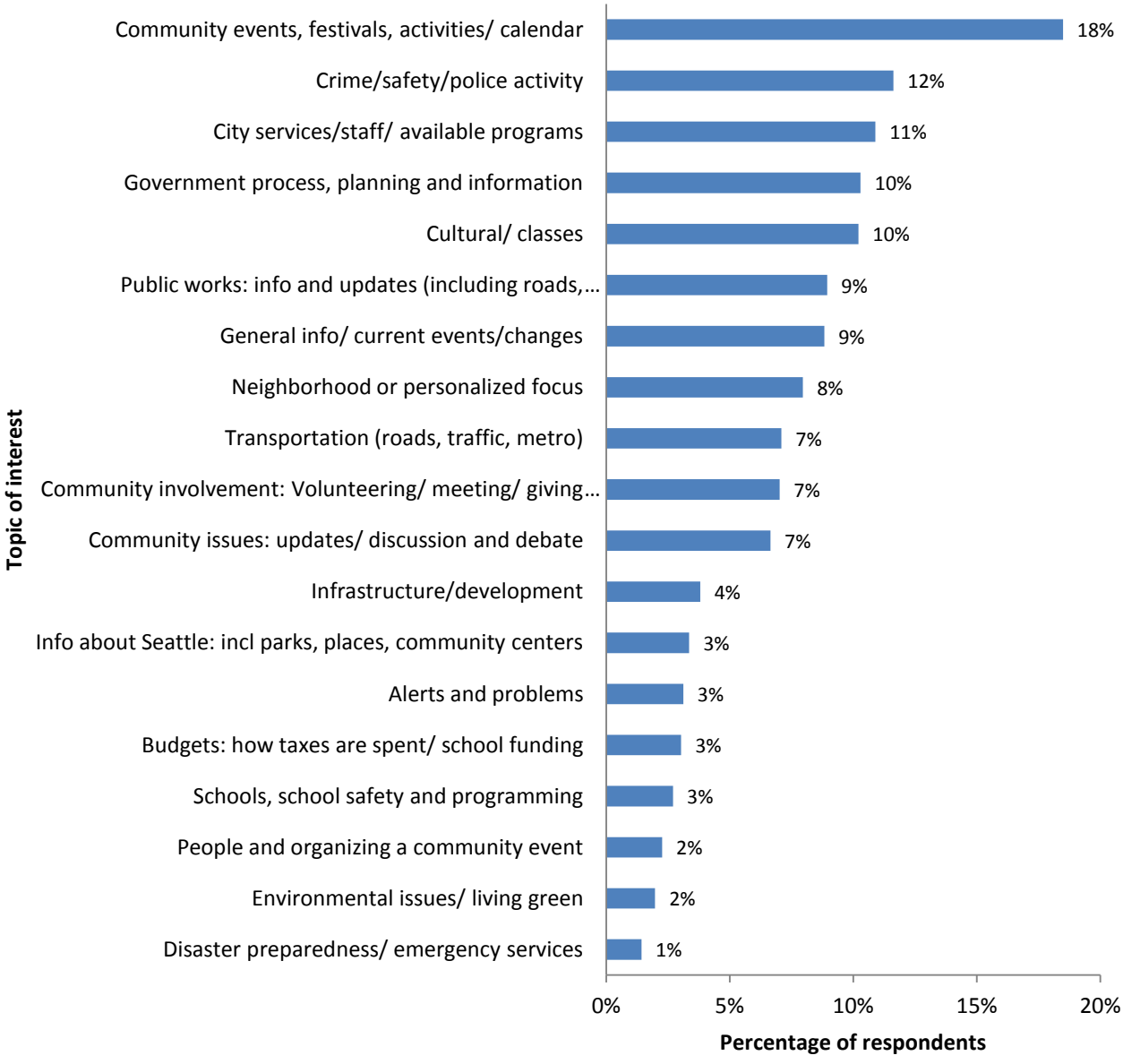


Figure 48 shows that although the majority of Seattle Channel viewers have remained steady in their viewing habits since last year (especially among the online respondents) respondents in both groups were more likely to say that their viewing has decreased rather than increased since last year.

Respondents were asked what they'd like to know more about in their community that the city could share on Seattle.gov or the cable channel. About 70% of the respondents gave an answer. Figure 49 summarizes the areas of interest.

Figure 49. More information about…



Almost one in five respondents want to know about special events or festivals being held. Some specifically asked for free events, others for events for children or youth. Better information about City services also provided a common theme. Respondents want a better understanding of what the City offers and how to access services. Some want to know the name of the person to contact about a program. Some commented on the difficulty navigating the website to find this information.

- INFORMATION ABOUT OFFICES FOR SPECIFIC THINGS, DOG LICENSING. I'M NEW TO SEATTLE. APPEALING A TICKET FOR CAR TAGS. NFORMATION ABOUT ELECTED OFFICIALS. INFORMATION ABOUT FUNDING FOR SCHOOLS. IT WOULD BE HANDY TO KNOW WHERE LOCAL CRIMES ARE COMMITTED. APLACE TO GO FOR INFORMATION ABOUT WHAT ROADS ARE CLOSED.
- COMPLAINT ABOUT CONSTRUCTION, LIKE AN AVENUE TO GET MY COMPLAINTS TO THE PERSON IN CHARGE.
- DEPARTMENT HEADS SHOULD DO SOME TYPE OF REPORT ABOUT WHAT IS GOING ON WITHIN THEIR BUSINESSES.
- HOW TO CONNECT TO TROUBLE SHOOT PROBLEMS, THE EASIEST WAYS TO GET ANSWERS TO NEIGHBORHOOD PROBLEMS.
- COMMUNITY SERVICES, THEY LACK A HIGH PROFILE EVEN THOUGH WE ARE A BIG CITY. THERE IS A LOT OF INFORMATION THAT PEOPLE AREN'T AWARE OF. HOMELESS PEOPLE GO BY THE WAY SIDE, THEY DON'T SEE THE WAYS TO GET THE INFORMATION.
- I WOULD LIKE MORE INFORMATION ABOUT NEIGHBORHOOD SCHOOLS, MORE EASIER TO GET INFORMATION FOR RENTERS AND HOME OWNERS. OTHER PROGRAMS FOR CITY RESIDENTS. ALSO THINGS ABOUT HOW CLEAN THE WATER IS AND WASTE IN OUR CITIES.
- SHOWS BETTER WHO DOES WHAT ON WEBSITES. SHOW NAMES OR WHAT THEY DO. MORE TELEPHONE NUMBERS. BETTER SITES OR MORE COMPREHENSIVE STAFF NAMES AND POSITIONS AND WHAT THEY DO.
- IF THERE WAS A WAY TO REPORT POTHOLES OR ANYTHING LIKE THAT SO THAT ROADS CAN BE ADDRESSED. IT WOULD REALLY BE COOL TO KNOW ABOUT DIFFERENT CITY PEA PATCHES. LOCATIONS ABOUT AVAILABILITY SPOTS. WHERE YOUR NEAREST FIRE STATIONS AND POLICE STATIONS. GENERAL KNOWLEDGE, ESPECIALLY FOR PEOPLE WHO HAVEN'T LIVED HERE FOR A LONG TIME.

Almost as many mentioned getting more information about the City Council process, both the planning function and implementation. Some of the comments were:

- LEGISLATION, WHAT THEY ARE CONSIDERING CHANGING
- I WOULD LIKE BETTER INFORMATION FOR BUILDING LAND USE ACTION MEETINGS.
- ANYTHING POLITICAL AND ENVIRONMENTAL, REPAIRING THE ROADS NEARBY ANY NEW CONSTRUCTION, ANYTHING THAT THE CITY COUNCIL IS VOTING ON AND SCHOOL LEVY TAXES.

- CITY PLANNING, SCHOOLS AND WHAT NEW BUILDINGS WILL BE IN THE COMMUNITY.
- I PROBABLY WOULD LIKE TO KNOW MORE ABOUT THE CONVERSATIONS THAT GO ON IN OUR MEETINGS, WHAT'S BEING DISCUSSED.

Many respondents were interested in learning local crime, especially in their neighborhood and in real time. Some were interested in more global security considerations.

- CRIME RATES. POLICE BLOG SO I CAN KNOW WHAT'S HAPPENING ON REAL TIME.
- A POLICE WARNING, LIKE THERE WAS A WOMAN WAVING A GUN AT THE COMMUNITY CENTER THREE BLOCKS AWAY FROM MY HOME.
- MORE TERRORIST ALERTS. WE NEED TO KNOW MORE ABOUT THE SECURITY OF OUR COMMUNITY OR STATE.

Many comments related to public works, especially road construction and its impact on the quality of life in the surrounding areas. Some examples are:

- NOISE ISSUES IMPACTED BY ROAD WORK, PUBLIC INFRASTRUCTURES AND HOW IT IMPACTS YOUR LIFE.
- CONSTRUCTION OR DEVELOPMENTAL ISSUES GOING ON IN THE CITY; TRAFFIC THAT WOULD IMPACT OUR LIVES IN THE CITY.
- PROGRESS NOTES ON PROJECTS UNDERWAY.
- THE DATES OF STREET REPAIRS.
- THE PROGRESS OF THE TUNNELS AND THE PROGRESS OF THE LIGHT RAIL. BETTER TRANSIT UPDATES.
- UPDATE FROM THE CITY ANY KIND OF OUTAGES AND ROAD CLOSURES. ANYTHING THAT COULD EFFECT MY DAY TODAY AND NEW PROJECTS THAT MAY AFFECT ME AS A CITIZEN.
- IF WE COULD GET INFORMATION ABOUT ZIP CODE, 98118. IF THEY HAVE ANY MEETINGS ABOUT SEWERS OR WATER OR PUBLIC INSTRUCTIONS. IT WOULD BE NICE TO GET AN EMAIL RATHER THAN LOOKING FOR SIGNS OUTSIDE. I WOULD GIVE THE CITY MY EMAIL ADDRESS SO THAT THEY CAN SEND THE EMAIL.

Some mentioned an interest in current events or "what's going on," and others were interested in a discussion and debate about ongoing community issues, such as homelessness. Some of those comments are:

- DEBATES ON HOW TO IMPROVE THE CITY. POSITIVE THINGS THAT ARE HAPPENING, THE WAY PEOPLE ARE INTERACTIVE WITH THE GOVERNMENT IN THE CITY. POSITIVE THINGS, AND SOLUTIONS. THE DEBATE ON COAL. THE SOUND, POLLUTION WITHIN PUGET SOUND. WAYS THAT PEOPLE CAN DEAL WITH NOT HAVING THAT MUCH MONEY.
- MY CURRENT EVENTS.
- SHARE MORE ON WHAT'S GOING ON IN THE NEIGHBORHOOD, MORE LOCAL CONTENT.

- SOMETIMES SOMETHING IS GOING ON IN THE NEIGHBORHOOD THAT WE DON'T KNOW ABOUT. YOU HAVE TO RELY ON TV A LOT, THERE IS ACCIDENTS ON THE FREEWAY YOU DON'T KNOW ABOUT.
- SOMETHING THAT SHOWS WHAT THE COMMUNITY NEEDS ARE.

Subgroup analysis

Gender: Men and women differed in their use of the Seattle Channel and Seattle.gov only in that men were more likely to have visited Seattle.gov (71% vs. 64%). They also differed somewhat on content they would like to see on the Seattle Channel or on the website. Specifically, women were more likely to ask for a place they could find events in the City (23% vs. 13%), they were more interested in a forum for exploring community issues (9% vs. 4%), and they were more likely to ask for a place they could find information about Seattle schools (4% vs. 1%).

Age: Respondents in the youngest and oldest age groups were least likely to have visited Seattle.gov (less than 50% vs. 70% or more), but among the respondents who have visited the City's website, those in the youngest group tend to visit more often (18% visit at least once a week, compared with 6-11% of the other groups). All age groups except those 51-64 prefer that the City services be accessible through a single mobile app instead of separate apps.

The youngest groups were the least likely to have seen the Seattle Channel (36% and 47% of the two youngest groups compared with 54% up to 61% of the other three groups), but among those who have seen it in the past year, viewing habits are similar across the age groups.

Figure 50. Want more information by age group

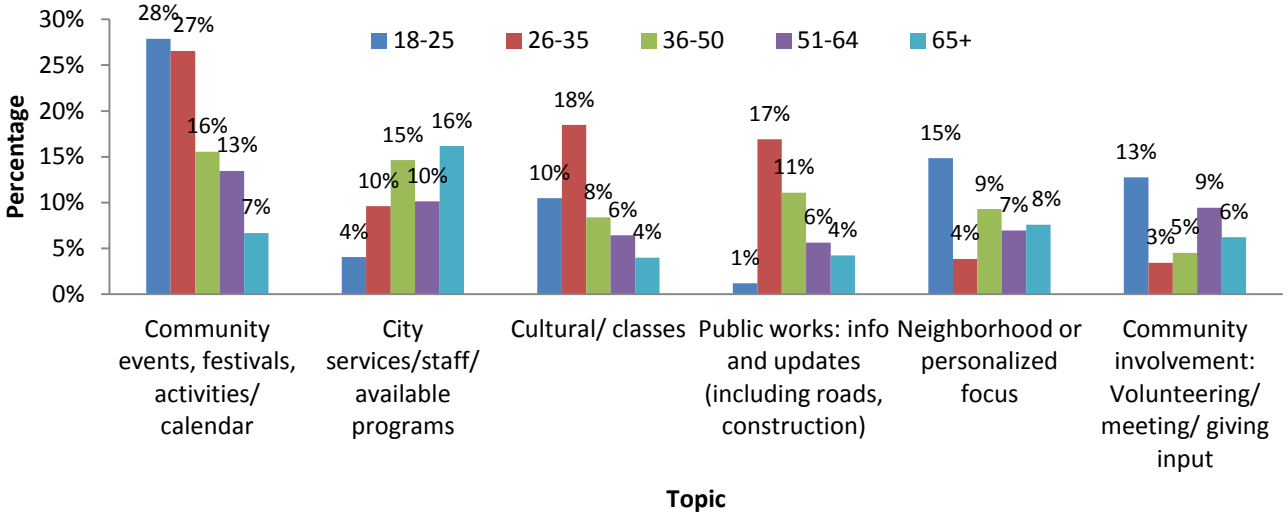
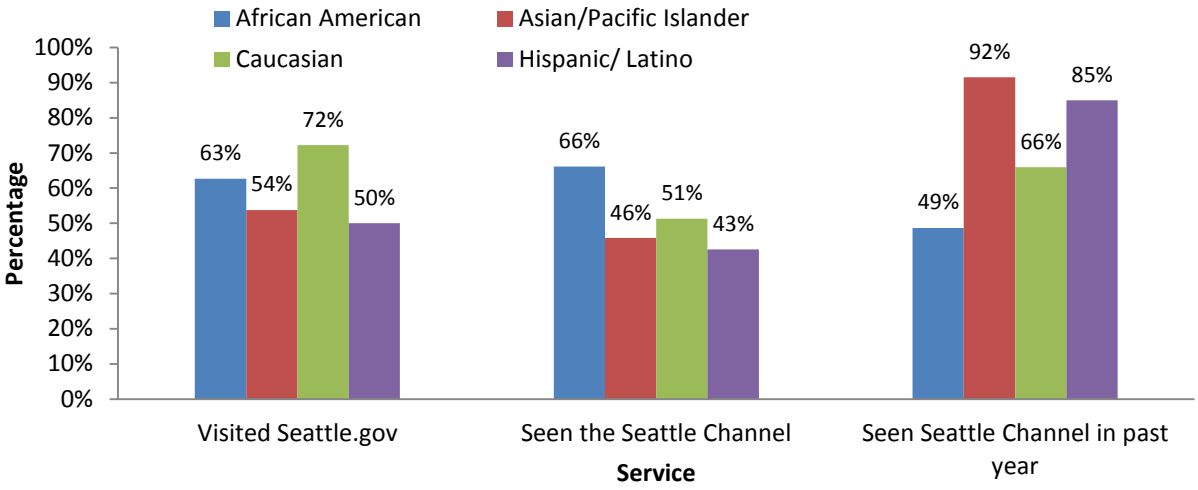


Figure 50 shows that the different age groups have different topics they'd like to find on the Seattle Channel or on the Seattle.gov website. The younger groups were more interested in community events, community involvement, and having the informational personalized for them, or at least for their neighborhood. Seniors were most interested in the services and programs available through the City.

Race/ ethnicity: Figure 51 shows that Seattle.gov is more likely to be visited by Caucasian residents than by members of other racial groups. African American respondents are most likely to have seen the Seattle Channel, but they are less likely to have seen it in the past year and 59% of those who have, watch it less often than they did last year, compared with less than 30% of the others. Asian/Pacific

Figure 51. Use of Seattle information services by race/ethnicity



Islander and Hispanic/Latino respondents watch it more than last year (about a quarter of each group compared with about 10% of the other two).

Asian/ Pacific Islander and Hispanic respondents are less likely to have seen the Seattle Channel, but those that have, are more likely to have seen it in the past year and they watch more often (37% watch at least weekly, compared with 11% of the others). Similarly, although Asian/Pacific Islander respondents are less likely to have visited Seattle.gov, a quarter of those that have, visit at least once a week (compared with 7% of the others). This group is also more likely to watch the Seattle Channel both on TV and over the Internet (27% of this group compared with 13% of the others).

They type of information respondents want to find on Seattle.gov or the Seattle Channel varied by race or ethnicity. Overall, Hispanic/ Latino respondents were more outspoken about the type of information they'd like to find on the website or the Seattle Channel. This includes alerts about problems occurring in the City and especially in their neighborhood (10% vs. 3% of the other groups); disaster preparedness information (7% vs. 1% or less); cultural events (23% vs. less than 10% of the other groups); and with Caucasian respondents, they'd like more information about the City Council process (13% vs. less than 5%); and with Asian/ Pacific Islander respondents they'd like to see more general information and current events from the City (20% and 13% vs. 7%).

Education: Only a quarter of the respondents with less than a high school education have visited Seattle.gov, compared with more than half and up to 83% of the other groups. Respondents in the different education groups are equally likely to have watched the Seattle Channel in the past, though those with the least education were least likely to have watched it in the past year (54% vs. 62% to 86%) and more likely to estimate that they watch it less often compared with the previous year.

Respondents with less education were less likely to mention wanting to find on the website or the Seattle Channel current events or general information, cultural events or lectures, more information about the process of local government, or budgetary information.

Income: Those with less income are less likely to have visited Seattle.gov (51% of those with less than $30,000 per year and 75% of those with more).

Those with incomes below $50,000 were more likely to prefer separate apps for the City's mobile computing functions, while those with higher incomes were more likely to prefer a single app from the City. Those in the lowest income group were fairly evenly split.

Respondents across the income groups were similar in their Seattle Channel viewing, except viewers in the lowest income group were more likely to have seen the Seattle Channel in the past year and they watch more often.

Differences between income groups in what they would like to see on Seattle.gov or the Seattle Channel were slight.

Children in Seattle Schools: Those with children in the Seattle Public Schools were more likely to have seen the Seattle Channel (58% vs. 45%) and likely to have watched it more often (34% watched at least weekly compared with 10% whose children do not attend Seattle Public Schools).

Seattle School parents were less likely to select a single app for the City's mobile software (43% vs. 62%), and more likely to select separate apps (42% vs. 33%) and more likely to say that it doesn't matter or they don't know what an app is (14% vs. 3%).

Parents whose children do not attend Seattle Public Schools were more likely to express an interest in finding information about community events or activities on the Seattle Channel or Seattle.gov (23% vs. 13%) while parents of SPS children were more likely to express an interest in volunteering opportunities or ways to be involved in the community (10% vs. 3%).

Appendix I - Instruments

Telephone survey

City of Seattle
2013 Information Technology Indicators - Cable Needs Assessment
Residential Survey
Questionnaire
City of Seattle

Information Technology Indicators - Cable Needs Assessment

Residential Survey
Questionnaire

Introduction / Screener

Note: Include 2 fields, 1 that indicates whether the number is from the cell phone list or the RDD list and another to indicate whether the interview is done on a cell phone or land line. (Unless you never conduct interviews by cell phone that were reached via RDD.)

INTRO Hello, this is _____ calling on behalf of the City of Seattle from Pacific Market Research. This is not a sales call. It is a study about communication and technology and will help guide city decisions. Everything you say will be kept strictly confidential. For this survey, we would like to speak with someone who lives in this household and is 18 years of age or older. Would that be you?

Qual1 18 or older
1 Yes
2 No

If YES, This call may be monitored for quality control purposes.
If NO, may I please speak with someone in your household 18 years of age or older?

Interviewer note Intro1: if respondent questions whether this is a legitimate survey, please refer to David Keyes 206 386 9759 or go to www.seattle.gov/tech to view past reports.

S1 What is your home zip code?
_____ ENTER ZIP CODE
99999 DON'T KNOW / REF **[SKIP TO THANK9 DISPOSITION = 8]**

S2 To verify, the zip code I entered was [SHOW ZIP CODE ENTERED IN S1]. Is this correct?
1 YES
2 NO [SKIP TO S1]
9 DON'T KNOW / REF **[SKIP TO THANK9 DISPOSITION = 8]**

[IF ZIP CODE NOT IN CITY OF SEATTLE SKIP TO THANK1 DISPOSITION = 12]

S3 [IF ZIP CODE = 98133 OR 98177] Do you live North or South of 145th Street?

[IF NECESSARY, PROBE: 'North or South of the Seattle Golf and Country Club?]

1 NORTH OF 145TH STREET **[SKIP TO THANK1 DISPOSITION = 18]**
2 SOUTH OF 145TH STREET
9 DON'T KNOW / REF **[SKIP TO THANK9 DISPOSITION = 8]**

GENDER ENTER RESPONDENTS GENDER

1 MALE
2 FEMALE

A. Access to information technology

A1. TECH CHECKLIST

I'm going to start by naming some technology that you might use.

INET1. Do <u>you</u> personally use a computer or the Internet?

1 YES, a computer (but not the Internet)
2 Yes, the Internet (but not a computer)
3 Yes, a computer and the Internet
4 NO to both
8 DON'T KNOW
9 REFUSED

For each thing I name, please say if you have it.

[If necessary, Do you have …]

TC1 Cable TV from Comcast/Xfinity or from Wave (formerly Broadstripe)

1 YES, Comcast
2 Yes, WAVE
3 Yes, don't know which one
0 NO
7 Don't have a TV
8 DON'T KNOW
9 REFUSED

TC2 [Do you have] satellite TV

1 Yes
0 No
8 DK
9 Ref

Interviewer note: if INET1=4 skip to TC5.

TC3 [Do you have]…a working desktop computer, laptop, netbook computer or some combination of these?

1 Desktop
2 Laptop
4 netbook
3 desktop and laptop
5 desktop and netbook
6 laptop and netbook

7 all three
0 NONE
8 DON'T KNOW
9 REFUSED

TC4 … a tablet, such as an I-PAD, Surface, or Galaxy? [allow multiple response; do not read]

1 Yes, Tablet (I-Pad, Surface, Galaxy)
2 Yes, Kindle or Nook (if offered by respondent)
3 yes, something else
0 No
8 DON'T KNOW
9 REFUSED

Interviewer note A1.1:

If the interview is being conducted on a cell phone, ask about landline/if it is being conducted on a landline, ask about a cell phone]

TC5 …a [cell phone for yourself/land line in your home]? [allow multiple response; autofill 1 or 2 depending on whether they were reached by cell or landline; ask about the other]

1 Have cell phone
2 Have land line
8 DON'T KNOW
9 Refused

Interviewer note A1.2:

a. If R indicates that this is their cell phone (if you asked about cell) or is their landline (if you asked about landline), repeat TC5, asking if they have the other.

b. If TC5 <> 1, skip to A2. Internet Access

TC6 Is your cell phone a 'smartphone,' such as an iPhone, Android, or Windows phone [If necessary, explain "a smartphone is one that can use the Internet for email, web browsing or social media"]?

1 Yes
2 No
8 DON'T KNOW
9 Refused

A2. INTERNET ACCESS

Interviewer note A2.1: If INET1 <> 2 or 3 skip to Interviewer note A2.6

Now we have a series of questions about your use of computers and the Internet.

INET2. Where are all the places that you accessed the Internet in the last year? [Do not read; allow multiple response; note order of mention.]

0 Do not use the Internet [verify with INET1]
1 At home
2 At work
3 At school
4 At the library
5 At a community center

6 At a neighborhood coffee shop or restaurant
7 Anywhere/ everywhere
8 Friend's or relative's house
9 other (specify)_____
88 DON'T KNOW
99 REFUSED

Interviewer note A2.2. If INET2 <> 4 or 5, ask "Any place else, like a library or community center?"

Interviewer note A2.3: If INET2=1 or 7 continue. If INET2 <> 1 or 7, skip to Interviewer note A2.6

INET3 What type of Internet service do you have coming into your house? [Allow multiple responses; do not read but prompt with options if necessary, starting with DSL from the phone company to other paid wireless]

2 DSL from phone company (Could also be stated as Century Link or Covad)
3 Internet from Comcast/Xfinity or Wave cable
4 Cell phone with Internet data plan (3G or 4G, from Sprint, AT&T, Verizon)
5 Other Paid Wireless Internet without phone service (3G or 4G, Clear, Sprint card, Mi-Fi) [skip to Interviewer note A2.4]
6 Free WIFI
14 WEB TELEVISION
1 Dial up modem
0 Don't have home Internet [skip to Note A2.6]
7 OTHER [SPECIFY] _____ [
8 DON'T KNOW /don't remember
9 REFUSED / NO MORE APPLY

Interviewer note A2.4: if Respondent says "wireless" prompt for "Is that a paid service like Sprint or Clearwire? Or free WIFI"

INET4. What one thing, if anything, would improve your internet service the most? Would it be [rotate these options]…

1 speed,
2 price,
3 customer service,
5 nothing at all or
6 something else? _____
8 Don't know
9 Refused

Interviewer note A2.5: if R wants to select more than one, force one choice with something like "Yes, we understand but can you pick the most important one?"]

Interviewer note A2.6: [IF INET1 = 1 or 4] add "While I understand that you do not use the Internet yourself, we are still interested in your opinions about what the needs of other residents when it comes to computer access and safety and security on the Internet. You can base your answers on anything you might have heard, seen or

read."

INET5. Thinking about Seattle as a whole, how important do you think it is for all Seattle households to have high speed internet access overall? Would you say that it is…

4 Very important
3 Somewhat important
2 Not really that important
1 Not important at all
9 DK/NA

INET6 How confident are you that financial transactions on the Internet are secure and private where 1 means not at all confident and 5 means very confident? [IF NEEDED: Please base your response on anything you might have seen, read or heard.]

1 Not at all confident that financial transactions are secure
2
3
4
5 Very confident that financial transactions are secure
7 DON'T KNOW / DEPENDS
8 REFUSED

Interviewer note A2.7: this question should be asked of non Internet users and Internet users who don't have Internet at home or don't have a dedicated line for Internet.
If INET2=1 or 7, skip to A3
If INET1 <>2 or 3, ask "use the Internet"
If INET1=2 or 3 and INET2 <> 1 or 7, ask "have a separate Internet service to your home (like Cable, DSL, or dial-up)?"

INET7. What are all the reasons that you don't [use the Internet/have a separate Internet service to your home (like Cable, DSL, or dial up)?] [Allow multiple responses; don't read; note order of mention; prompt for additional]

1 Computer or other device COST / TOO EXPENSIVE
2 Internet COST/ Too Expensive
3 Don't want it; don't need it, don't like computers, don't like the Internet/ no time to learn about it or to use it/ not relevant to me
4 Lack of knowledge: don't know how to use it/how to choose it/ don't know about the Internet/ don't know how to set it up
5 Other Access: Have it on my tablet, smart phone or mobile device, my neighbor's is unlocked, sufficient access elsewhere like school or work, get free WIFI
6 Computer-related safety/security (viruses, worms, personal information, credit card, identity theft)
7 Safety for Children: don't want kids to use it/ Worried about inappropriate content for children
8 No device don't have computer or Internet device at home
9 Problems with service (cable, DSL, telephone)
10 I **do** have home Internet [Verify with INET3 if answer this response]
11 OTHER [SPECIFY]_____
88 DON'T KNOW
99 REFUSED / NO MORE APPLY

INET8 How much, if anything would you be willing to spend per month for Internet service? $ _____ENTER DOLLAR AMOUNT (RANGE = 0-99)

Interviewer note A2.8:
IF INET1=1 or 4, skip to Interviewer note C.1

A3. COMPUTER AND INTERNET USE

Next I'll read you a list of things you might do on the Internet. For each one, please tell me if this is something you use it for, whether on a regular basis or sometimes. This could be at home or some other place.

[ROTATE USE1 TO USE11]

[IF NECESSARY: Do you use a computer/the Internet to…]

USE1 Get health or medical information

1 Yes
0 No
8 DK
9 Ref

USE2 Look for a job or job training

1 Yes
0 No
8 DK
9 Ref

USE3 Purchase products or services

1 Yes
0 No
8 DK
9 Ref

USE4 Attend an online class, meeting or webinar

1 YES
0 NO
8 DON'T KNOW
9 REFUSED

USE5 Find legal or consumer rights information

1 Yes
0 No
8 DK
9 Ref

USE6 Find local school information

1 Yes
0 No
8 DK
9 Ref

USE7 Make a donation to charity online

1 Yes
0 No
8 DK
9 Ref

USE8 Look for answers to computer problems

1 Yes
0 No
8 DK
9 Ref

USE9 Work from home

1 YES
2 NO
8 DON'T KNOW
9 REFUSED

USE10 Have you ever visited the Seattle Public Library site at SPL.org

1 YES
2 NO
8 DON'T KNOW
9 REFUSED

USE11 Have you ever visited a Seattle Public Schools web site?

1 YES
2 NO
8 DON'T KNOW
9 REFUSED

Read: Next I'm going to list some ways people use the Internet for communication or entertainment. For each one, please use a scale from 1 to 3 to say how often you use it (if at all) where 1 means infrequently (less than once a week), 2 means occasionally (once a week or more, but less than daily) and 3 means often (at least once a day). If you don't have one of these accounts or don't use it, just say that. (Rotate USE12 to USE14)

USE12 How often do you use Email?

0 Don't have it/ don't use it/never
1 Infrequently (less than once every couple of weeks)
2 Occasionally (up to a few times every week or so)
3 Often (at least several times a week)
8 Don't know
9 REFUSED

USE13 [If necessary: How often do you use] Facebook

0 Don't have it/ don't use it/never
1 Infrequently
2 Occasionally
3 Often
8 Don't know
9 REFUSED

USE14 [If necessary: How often do you use] Twitter

0 Don't have it/ don't use it/never

1 Infrequently
2 Occasionally
3 Often
8 Don't know
9 REFUSED

USE 15 How often do you watch TV and video over the Internet (via YouTube, Hulu, Netflix, AppleTV, Roku, etc)

0 Don't have it/ don't use it/never
1 Infrequently
2 Occasionally
3 Often
8 Don't know
9 REFUSED

B. Literacy

Now we'll go through a few more Internet tasks. This time I want to know how comfortable you are completing these tasks, so for each one. please use a five point scale where "5" means you are "very comfortable" and "1" means you are "not at all comfortable" completing that task. You can also use any number in between If you have never done this task, please just tell me that.

How comfortable are you…

LIT1 Searching the web

1 NOT AT ALL COMFORTABLE
2
3
4
5 VERY COMFORTABLE
6 NEVER DONE THIS TASK
8 DON'T KNOW
9 REFUSED

Interviewer note B.1: If USE12=0, skip to Interviewer note B.2

LIT2 Sending and opening email attachments, like photos or documents

1 NOT AT ALL COMFORTABLE
2
3
4
5 VERY COMFORTABLE
6 NEVER DONE THIS TASK
8 DON'T KNOW
9 REFUSED

Interviewer note B.2: If TC4 <>1, 2, or 3 and TC6 <> 1, skip to Interviewer note C1

LIT3 Adding an application (app) to your smart phone or tablet

1 NOT AT ALL COMFORTABLE
2

3
4
5 VERY COMFORTABLE
6 NEVER DONE THIS TASK
8 DON'T KNOW
9 REFUSED

C. High Speed Uses

All Respondents
If INET1=4 → Cable section
Interviewer note C.1:
The City is working on getting super high speed Internet service to Seattle homes and we want to find out if residents would be interested in some of the things they could do with it.
[If INET1 <> 2 or 3, add "even if you don't use the Internet now"]

HS1. I'm going to list some of things that this service would let you do, or do better than now, I'd like to know whether you'd be interested in trying any of them, and if so, which ones seem most interesting to you.
With super high speed Internet, you could do lots of things from home that you have to do in person now, like medical appointments, interactive classes or job training, working in a team, or participating in community meetings. It would also be possible to monitor things at home when you're away, or use the Internet to run programs or back up files. As long as there was adequate security and privacy, would you be interested in trying any of these things?

I'm going to list some of things that this service would let you do, or do better than now, I'd like to know whether you'd be interested in trying any of them, and if so, which ones seem most interesting to you. With super high speed Internet, you could do lots of things from home that you have to do in person now. Things like medical appointments, interactive classes or job training, working in a group, or participating in community meetings. It would also be possible to monitor things at home when you're away, or use the Internet to run programs or back up files. As long as there was adequate security and privacy, would you be interested in trying any of these things?

1 Yes
2 No [skip to HS3]
8 Don't know [skip to HS3]
9 Refused [skip to HS3]

HS2. Which of those things would most interest you? [Allow multiple response, do not read unless R requests it]
1 Medical appointments
2 Interactive classes or job training
3 Working in a group
4 Participating in community meetings

5 Monitoring home
6 Running programs from the Internet
7 Backing up files
8 All of them
9 None of them
10 Other (specify) _____
88 Don't know
99 Refused

HS3 What would be your concerns, if any, with using super high speed Internet in these ways? (Do not read, allow multiple response)

1 Cost
2 Security and loss of privacy
3 In-person contact is better/fear of isolation/ not enough in person contact/ spend too much time away from other people
4 Current Internet is good enough
5 Don't have / would need extra equipment
6 Hard to learn/ Complicated to use
7 The Internet is already fast enough for what I use it for
8 Other (specify) _____
0 none/ no concern
88 Don't know
99 Refuse

D. Cable

Interviewer note D.1: If TC1 <>0 or INET3=3 (cable TV or cable Internet) continue with CABLE1. If TC1=0 AND INET3 <> 3, skip to CNOT1

READ: Now we have some questions about your cable service

CABLE1. How satisfied are you with the customer service from your cable company? Would you say you are…

4 Very satisfied
3 Satisfied
2 Dissatisfied
1 Very dissatisfied
8 DK
9 Refused
7 Not applicable

CABLE2. Using the same scale, how satisfied are you with the types and variety of programs and channels on your cable service? [If necessary: Would you say you are…

4 Very satisfied
3 Satisfied

2 Dissatisfied
1 Very dissatisfied
0 Don't watch cable channels
8 Don't know
9 Refused
7 Not applicable

CABLE3. I'm going to read a list of problems that you might have had with your cable company. For each one, please say whether or not you've had that problem. The first one is:

1 Your cable went out – the picture, sound or both
2 Your Internet service is too slow or went out altogether [omit if INET3 <> 3]
3 You had to wait too long to reach the company on the phone
4 Billing problems
5 Anything else? _____
0 None
14 Don't know
15 Refused

CABLE4. Would you say the rates you pay for your cable service are:

1 A bargain
2 Priced about right
3 Somewhat too expensive
4 Very much too expensive
8 Don't know
9 Refused
7 Not applicable

CABLE5. What types of television programs would you like to see more of? _____

CABLE6. Are you aware that the City has an office to help with things like cable company customer service, and cable TV discounts for senior citizens and people with disabilities?

1 Yes
2 No
8 DON'T KNOW
9 REFUSED

CABLE7. Are you aware that cable companies offer a basic tv channel package for under $25 a month?

1 Yes
2 No
8 DK
9 Refused

Interviewer note D.2: if respondent asks questions about this lower cost option, refer them to the city's cable office (Seattle.gov/cable or 206 684 8498).

CABLE8. What one thing, if anything, would improve your cable TV service the most? Would it be…[Rotate these options]

1 price,
2 program choices
3 customer service,
0 nothing at all or
4 something else? _____
8 Don't know
9 Refused

Interviewer note D.3: if R wants to select more than one, force one choice with something like "Yes, we understand but can you pick the most important one?"]

CABLE9. How likely are you to drop cable television service in the next 5 years?

4. Very likely [skip to CNOT2]
3. Somewhat likely [skip to CNOT2]
2. Somewhat unlikely [skip to CB1]
1. Very unlikely [skip to CB1]
8. Don't know [skip to CB1]
9 Refused [skip to CB1]

CNOT1: You mentioned earlier that you don't have cable service. Did you drop cable in the past few years?

1 Yes
2 No
8 DON'T KNOW
9 Refused

Interviewer note D.4:
if CNOT1=1, ask "Why did you decide to stop your cable service"
If CNOT1=2,8 or 9 ask "What are all of the reason you don't subscribe to cable TV?"
If CABLE9=3,4, ask "What are the reasons you are [very likely/ somewhat likely] to drop your cable service?"

CNOT2: What are all the reasons you don't subscribe to cable TV/ Why did you decide to stop your cable service? /What are the reasons you are likely to drop your cable service?]
[Do not read; allow multiple response; note order of response]

1 Cost / can't afford it/ reduced household income/problems in the economy/ trying to save money

2 Get video content directly over Internet, or through service or device like Hulu, Netflix, YouTube, AppleTV, Amazon, Roku or other
3 Get free TV over the air
4 Get satellite
5 Can't get cable service here
6 Service problems
7 Lack of interesting programs/ did not like programming
8 Don't want cable or more channels/ did not like it/ did not want it anymore
9 Don't need it/ No longer needed/ did not use Cable TV
10 Too many objectionable programs including objectionable programming for children (note if they specify type of objection but do not probe) _____
11 I don't/didn't understand cable and all the choices
12 Other _____
88 DON'T KNOW
99 REFUSED

E. Civic Participation

Read Intro: Now we have some questions about you as a city resident and a member of your local community.

CB1 Do you participate in any type of community group, like a neighborhood association, block watch, school, religious group, or any other type of group?

1 Yes
2 No
3 DK
4 Refused

CIVIC1 When you want to <u>give your opinion</u> to a community group or the city, would you prefer to do it in a meeting, by phone, or electronically, like using email, Facebook, Twitter, texting, a blog comment, or a web survey? (Do not read; allow multiple response)…

1 In a meeting
2 By phone
3 Electronically [if R specifies which electronic medium, skip to CIVIC3]
4 Email [skip to CIVIC3]
5 Facebook [skip to CIVIC3]
6 Twitter [skip to CIVIC3]
7 Text [skip to CIVIC3]
8 Blog comment [skip to CIVIC3]
9 Web survey [skip to CIVIC3]
10 By letter
11 Don't/Wouldn't want to [skip to CIVIC3]
12 Other _____ [
88 DK
99 Refused [skip to CIVIC3]

Interviewer note E.1: If CIVIC1 = 1,2,10,12 (if Other is something non-electronic), ask "Even though your first choice is a non-electronic method, among the different electronic options, which would you prefer?", otherwise, ask CIVIC2 as it reads.

CIVIC2 Of the different electronic options, which do you prefer?

1 email
2 Facebook
3 Twitter
4 By text
5 Blog comment
6 Web survey
7 Other _____
9 none
88 DK
99 Refused

CIVIC3 How about <u>getting</u> information you want from the City or a community group? Among the electronic options for getting information, which would you prefer? Or if you prefer some other way, you can say what that is)[If necessary: Do you prefer print or some electronic way, like email, text, Facebook, Twitter] (Do not read; allow multiple response)

1 e-mail
2 Facebook
3 Twitter
4 text
5 Blog post
6 their website
7 Calendar subscription
8 Printed letter through the post office
9 Telephone
0 none, don't want alerts
10 Other (specify)_____
88 Don't know
99 Refused

CIVIC4 How about getting urgent alerts? [If necessary, explain, "like utility outages or emergency safety alerts?"] What do you prefer then? (Do not read, allow multiple response)

1 e-mail
2 text
3 Facebook
4 telephone
5 Twitter
6 Blog post
7 Other (specify)_____
0 none, don't want alerts
88 Don't know
99 Refused

G1. City of Seattle WEB Services and Seattle Channel

WEB1 How often, if at all, do you visit the City's website? Would you say you visit at least once a week, 2-3 times a month, once a month or less, or not at all?

[READ AS NECESSARY]

3 At least once a week [skip to note G1.1]
2 2-3 times a month
1 Once a month or less
0 Not at all/ never
8 DON'T KNOW
9 Refused [skip to note G1.1]

Interviewer note G1.1: If TC6 <> 1 and TC4 <> 1,2,3, skip to SEA1

WEB2 If you know what an app is, would you prefer the city have one app or separate apps for different services?

1 One app
2 Separate apps
3 Doesn't matter/no preference
4 Don't know what an app is
5 Something else (specify) _____
8 Don't know
9 Refused

G2. Seattle channel

The next few questions are about the Seattle channel. This is the city government channel with a wide range of programs about city issues, arts, people, and services.

SEA1 Have you ever seen the Seattle Channel, cable channel 21 or on the Internet (at seattlechannel (dot)org)? PROBE: Was it on cable, the Internet or both?

1 Yes, (specified on tv)
2 Yes (specified on Internet)
3 Yes (specified both TV and Internet)
4 Yes (did not specify)
5 NO **[SKIP TO SEA4]**
6 Don't know about it **[SKIP TO SEA4]**
8 DON'T KNOW **[SKIP TO SEA4]**
9 Refused **[SKIP TO SEA4]**

SEA2 How often do you watch the Seattle Channel? Would you say you watch it at least once a week, 2-3 times a month, Once a month or less, or have you not watched it in the past year.

[READ AS NECESSARY]
[IF DON'T WATCH REGULARLY ENTER CHOICE 1 "Once a month or less"]

3 At least once a week
2 2-3 times a month
1 Once a month or less
0 Have not watched in the past year
8 DON'T KNOW

9 Refused

Interviewer note G2.1: If SEA2=0, ask ["Did you watch it the year before?"] and if NO, code as 2; if YES, code as 1.

SEA3 [Do you watch the Seattle channel more often, less often or the same amount as a year ago/ Did you watch it the year before?]

3 Watch it more often now
2 Watch it about the same
1 Watch it less often now
8 DON'T KNOW
9 Refused

SEA4 What would you like to know more about in your community, that the city could share on its web site (Seattle.gov) or cable channel? [Prompt only if needed: This could be anything of interest to Seattle residents – how-to information, things about the city, government, cultural events, people, our homes, businesses, or community services…

Note specific topics: _____

H. DEMOGRAPHICS

Now I just have a few final questions for statistical purposes - to help us group your answers with others. Let me assure you that all of your responses will be kept strictly confidential.

DEM1 How many people, including you, live in your home?

__ ENTER NUMBER IN HOUSEHOLD (RANGE = 0-99)
999 REF

DEM2 **[IF DEM1 > 1, continue; else skip to DEM4]** How many children under the age of eighteen live in your household?

__ ENTER NUMBER OF CHILDREN (if 0, skip to DEM4)
99 REF

DEM3 Do any attend a Seattle Public School? _____

1 Yes
2 No
8 DK
9 Ref

DEM4 Is your age between?

1 18 to 25,
2 26 to 35,
3 36 to 50,
4 51 to 64, or
5 65 years of age or older?
9 REFUSED

DEM5 What is the last year of schooling you completed?

[IF COLLEGE DEGREE PROBE: Would that be a two year or four year degree?]

1 Grade School or Some High School,
2 High School Graduate,
3 Some College, Technical or Vocational School or Two Year Degree,
4 Four Year College Graduate, or
5 Post Graduate Work or Graduate Degree?
9 REFUSED

DEM6 What is the primary language spoken at your home?

1 ENGLISH
2 SPANISH
3 OTHER [SPECIFY]_____
9 REFUSED

DEM7 What race or ethnicity do you consider yourself? (Allow multiple response; If multiple response, ask "Which do you consider to be your primary race?" and store under DEM7primary).

1 African American,
2 Asian / Pacific Islander,
3 Caucasian,
4 Hispanic / Latino, or
5 Native American / American Indian
6 OTHER [SPECIFY]
9 REFUSED

DEM7Prim Which do you consider your primary race? [select options from response to DEM7)

1 African American,
2 Asian / Pacific Islander,
3 Caucasian,
4 Hispanic / Latino, or
5 Native American / American Indian
6 OTHER
7 Mixed race or no primary
9 REFUSED

DEM8. Do you work at a paying job?

1 YES [Skip to DEM8b]
2 NO
8 DON'T KNOW [Skip to DEM9]
9 REFUSED [Skip to DEM9]

DEM8a. Are you a…(allow multiple response)

4 Student [skip to DEM9]
5 Homemaker or stay at home parent [skip to DEM9]
6 Unemployed [skip to DEM9]
7 Retired [skip to DEM9]
8 Disabled [skip to DEM9]
9 REFUSED [skip to DEM9]

DEM8b Would that be…(allow multiple response) ?

1 Full time
2 Part-time

3 Self employed
9 REFUSED

Interviewer note H.1: If DEM8a=8, replace "Do you have a disability, handicap or chronic disease that makes it harder…" with "Does your disability make it harder…"

DEM9 Do you have a medical condition, disability, or chronic disease that makes it harder for you to use the Internet or to participate fully in work, school, housework or other activities?

1 Yes
2 No
3 DK
4 Ref

DEM10 Was your 2012 total household income…

1 Less than $20K
2 $20K to less than $30K
3 $30K to less than $40K
4 $40K to less than $50K
5 $50K to less than $75K
6 $75K to less than $100K
7 $100K or more
9 DK/REF

Those are all the survey questions we have at this time.

THANK Thank you very much for your time and the useful information you have shared. Have a good evening.

[PRESS ANY KEY TO END INTERVIEW]

INTNUM ENTER INTERVIEWER NUMBER

___ ENTER NUMBER

THANK1 Thank you for your time, but we today we are interviewing residences located within the City of Seattle boundaries.

[PRESS ANY KEY TO CONTINUE]

THANK9 Thank you for your time, but we cannot continue without that information.

[PRESS ANY KEY TO CONTINUE]

DISP #	DISPOSITION	DISPLAY TYPE	PROPERTY	INCIDENCE
		P/S/I/H	A/B/C/N/R/F	D/B/I
1	No Answer	P	N	D
2	Busy	P	B	D
3	Answering Machine	P	N	D
4	Disconnected / Nonworking	P	F	D
5	Soft Refusal (Callback To Convert)	P	R	D
6	Hard Refusal	P	F	D
7	Never Call	P	F	D
8	Screener Refusal	H	F	D
9	Communication Barrier (not due to Language)	P	F	D
10	Language Barrier (Spanish)	P	F	D
11	Language Barrier (Asian)	P	F	D

12	Language Barrier (Other)	P	F	D
13	Language Barrier (Not Determined)	P	F	D
14	Callback Introduction	P	C	D
15	Callback Interview	I	C	I
16	Mid-Terminate	I	F	I
17	NQ – Under the age of 18	H	F	B
18	NQ – Out Of Area (not Seattle resident)	H	F	B
40	Complete	H	F	I

Paper survey questions administered at focus groups

City of Seattle

Michael McGinn, Mayor

Department of Information Technology
Erin Devoto, Chief Technology Officer

2013 Information Technology Participant Survey

Questions?

Contact Elizabeth Moore
(206 533 0231 or liz@appliedinference.com)

David Keyes at the Department of Information Technology (206 386 9759) or David.Keyes@Seattle.Gov

Date: ___/___/___

If you have Internet at home, how does it come to your house?
❑ DSL (CenturyLink) ❑ Cable (Comcast or WAVE)
❑ Cell phone/tablet data plan ❑ Other_____

Which of these things do you have? ❑ A cell phone ❑ a smartphone (with Internet)
❑ A home computer ❑ a laptop computer ❑ a tablet ❑ A home land line
❑ Internet access at home ❑ Internet access on a mobile device (iPhone, Blackberry) ❑ Cable TV

Which do you use?
❑ Computer ❑ Internet ❑ smartphone ❑Wi-Fi ❑ Texting ❑ Email attachments

How do you use a computer? ❑ Don't use ❑ Search the Internet ❑ Sell goods or services
❑ Contribute to blog or wiki ❑ Shop online ❑ Online class /Webinar ❑ Find health information
❑ Finding information about local businesses ❑ Look for answers to computer problems
❑ Get information about my community ❑ Work from home ❑ Check on my kids' school
❑ Visit the library ❑ Send money to friends/family ❑ Watch TV programs (Hulu, Netflix, etc)

How skilled are you with computers? ❑ None or Not very skilled ❑ Know what I need to know
❑ Can figure out new programs as I need them ❑ Skilled (sometimes help others) ❑ Expert

Where do you use computers and the Internet? (Check the places where you do most of your computing) ❑ Home ❑ Work ❑ School ❑ Friend's or relative's ❑ Café/ restaurant
❑ Library ❑ Community Center/Technology Center ❑ Other_____

Are you satisfied with your Internet and cable…

	speed	reliability	cost	customer service
Internet	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
Cable TV		❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No

How do you prefer to watch TV programs or movies? (Please rank your top 2 or 3 ways of watching TV using "1" to mean what you do most often.)

_____ Cable TV _____ Over the Internet (Hulu, Netflix, AppleTV) _____ Free TV over the air
_____ Satellite _____ Other _____ _____ Don't watch

What one thing would most improve your Internet or cable service?

	nothing	speed	price	customer service	reliability	don't have
Internet	❑	❑	❑	❑	❑	❑
Cable TV	❑		❑	❑	❑	❑

How much, if anything, would you be willing to pay per month for Internet access or for *faster* Internet access?

❑ Nothing ❑ Less than $5 ❑ $5-$10 ❑ $10-$20 ❑ $20-$30 ❑ $30-$40 ❑ $40-$50

These next questions are to help us understand more about the views of different subgroups. Your individual responses will not be identified.

Gender: _____

Race or Ethnicity: _____

Language spoken at home: _____

Age: ❑ 18-25 ❑ 26-35 ❑ 36-50 ❑ 51-64 ❑ 65 or older

Others at home:

❑ Other adults ❑ Children younger than 18 ❑ Children 18 and older ❑ Alone

If children, do any attend Seattle Public Schools? ❑ Yes ❑ No

Employment:

❑ employed ❑ retired ❑ homemaker ❑ a student ❑ disabled ❑ unemployed

2012 household income:

❑ $0 to $20,000 ❑ $20,000-$30,000 ❑ $30,000-$40,000 ❑ $40,000-$50,000
❑ $50,000-$75,000 ❑ $75,000 -$100,000 ❑ $100,000 or more

Education completed:

❑ Less than high school ❑ High school graduate/ GED
❑ Completed some college or a two-year degree ❑ Completed a BA/BS
❑ Completed post graduate work or degree

How often do you use or check...?

	Daily	Few times per week	Weekly	Less than weekly	Don't use
Email	❑	❑	❑	❑	❑
Facebook	❑	❑	❑	❑	❑
Twitter	❑	❑	❑	❑	❑

How would you like to give your opinions to the City on things you care about, like crime, parks, youth programs, housing, energy, and utilities?

❑ telephone survey ❑ calling in to a meeting ❑ email or online survey
❑ discussion on the Internet ❑ an in-person focus group ❑ text
❑ attending a city-wide meeting ❑ attending a community meeting ❑ Twitter
❑ Facebook ❑ Blog comment ❑ Letter
❑ none ❑ other _____

How do you want to get information from the City on things you care about?

❑ from the radio ❑ from the TV news ❑ from the newspaper
❑ from the city's website ❑ from other community members ❑ notices in the mail
❑ from the Seattle Channel ❑ from text messages on the cell phone ❑ email
❑ Facebook ❑ recorded telephone or cell phone messages ❑ Twitter
❑ None ❑ other _____

If you or someone you know doesn't use computers or the Internet, why not?

❑ Computer too expensive ❑ Internet service too expensive ❑ Don't want it/ no need
❑ Don't know about it ❑ Worried about computer-related security ❑ Safety for children
❑ Service problems ❑ Other _____

Have you ever visited Seattle's website, Seattle.Gov? ❑ Yes ❑ No

Have you ever seen the Seattle Channel on cable or on the Internet?

❑ No ❑ Yes, cable ❑ Yes, on the Internet

How do you prefer to make contact with the government?

❑ Email ❑ Facebook, Twitter ❑ In person ❑ By telephone ❑ By letter ❑ By text

Other comments?

Appendix II - Methods Detail

Weights

Weights were calculated with the aim of producing a dataset that reflects the population of Seattle in terms of ZIP code distribution, age, education, race/ethnicity, and income.

In the initial step of this iterative process, Seattle population figures were gathered from City resources and deviations of the telephone survey sample from the City distribution were computed for each demographic. This was done by subtracting the category's prevalence in the sample from that category's prevalence in the population. For example, 1.64% of the City's population was estimated to live in ZIP code 98101, compared with 1.99% of the sample population. The difference between the survey value from the population value is -0.00365. For the purpose of weights, the average deviation of the categories was needed, so each difference was squared. For ZIP code 98101, the value squared was 0.00001264. The average of the squared ZIP code differences was 0.000055125. That average, which ranged from a low of 0.00055125 (ZIP code) to a high of .009732 (education for those under 25) provided an estimate of how closely the unweighted distribution of the sample matched the City's population.

Starting with the demographic with the greatest deviation, weights were calculated for each category that would reduce the sum of the squared deviations in the target demographic category to 0. For example, 33 people (4.41% of the respondents over 25 years of age) reported less than a high school education, compared with 7.70% of the City's population. Thus each of those 33 people would need to represent some of their neighbors as well as themselves. The weight that gives those 33 an appropriately "stronger" voice was 1.75. At the same time, 498 (66.58% of respondents over 25) reported at least a four year college degree, compared with 56.2% of the City's population. Thus the views of that group would be overrepresented in this sample without a correction. The weight that corrects this overrepresentation for this group is 0.844, somewhat "weakening" the voice of each respondent in this group. After applying these weights, the deviation from the population values for education was 0, but the differences between the sample and the population values had also shifted for each of the other demographics. The next step in this iterative process was to recalculate the average of the squared deviations for each demographic category after applying the weights for education. The average of the squared deviations ranged from 0.0 (education) to 0.00410 (age). Using the method described above for education, weights were calculated for the different age categories. These weights were combined with the weights for education by multiplication and applied to the sample.

This process was applied next to the income categories and finally to the race/ethnicity categories until the average deviation of any category was within the 95% margin of error for that demographic. The demographic with the largest average deviation following the weighting procedure was education among those older than 25. Table 1 provides the education distribution of the population over 25, and the corresponding distribution of the sample.

Table AII-1. Population and weighted sample distribution of education for those 25 and older

Education Category	Population	Sample with final weights
Less than high school	7.7%	6.3%
High school graduate/ GED	11.7%	10.8%
Some college or a two-year degree	24.4%	24.6%
At least a four year degree	56.2%	58.0%

This process was repeated for the online survey so that each dataset could be analyzed independently or together with appropriate distribution.

Limitations

The data throughout the report are limited in that people who are willing and able to respond to a telephone survey, and persevere throughout it may also be different in other ways from other community members represented by their responses. Online survey results are limited in additional ways. Specifically, these respondents are more likely to be comfortable using computers and the Internet, and for some, specific interests may have motivated them to take the time to respond. Because of the lack of random selection, these respondents cannot be thought of as representing City residents overall. Accordingly, the phone survey provides the most statistically valid population data, though the online survey provides valuable insight into online users and had a higher number of younger respondents, who are more likely to be "digital natives." Despite limitations, this study provides the most current and comprehensive snapshot of Seattle residents' adoption of technology available today.