Who's in the Queue? A Demographic Analysis of Public Access Computer Users and Uses in U.S. Public Libraries

Research Brief No. 4, June 2011

By Carlos A. Manjarrez and Kyle Schoembs

Highlights

- The demographic analysis in this brief dispels some myths about the beneficiaries of public access computer services in U.S. public libraries. Public access computer users largely resemble the general public in terms of age, education, and even in the overall level of home computer and Internet access.
- The fact that many different people report that they are able to fulfill a wide variety of information needs is a clear indication that public libraries are providing much more than basic technology access
- Substantive uses of public access computers mirror the needs people have at different stages of the life course. Young people identify education activities as their main use, people between the ages of 25 and 54 identifying employment activities as their top use, and people 55 and older reporting health and wellness research as the main public access computer use.

Introduction

Over the past decade, policy discussions about public access computing in libraries have focused on the role that these institutions play in bridging the digital divide. In these discussions, public access computing services are generally targeted at individuals who either cannot afford a computer and Internet access, or have never received formal computer instruction and lack the basic computing skills necessary for full digital citizenship.

Following this logic, public access computing could easily be seen as a temporary community service whose need would essentially fall away as more people gain access in their homes. However, this has not been the case. Despite the fact that computer and Internet penetration rates are climbing at dramatic rates,[1] public access computer services in U.S. public libraries continue to be in high demand.

Evidence of this demand can be seen in a number of ways. The *Public Libraries in the United States* survey, which is conducted annually, shows a persistent demand for public access computing services over the past three years of available data, with library staff reporting an average of 1.2 public access computer uses per person in their legal service areas.[2] Results from *Libraries Connect Communities: Public Library Funding & Technology Access Study 2010-2011* provide a particularly poignant measure of demand, with 76.2% of the librarians responding that their facilities have too few workstations to meet their patron's needs, which is up slightly from the pervious year's estimate.[3]

Over the past decade, public libraries have responded to this demand by increasing financial investments in hardware, subscription databases, and computing infrastructure. Specificaly, between 2000 and 2007, the avail-

1 Horrigan, J. B. 2010. *Broadband Adoption and Use in America*. OBI Working Paper Series No. 1. Available at http://online.wsj.com/public/resources/documents/FCCSurvey.pdf.

2 Henderson, E., Miller, K., Craig, T., et al. 2010. *Public Libraries Survey: Fiscal Year 2008* (IMLS-2010–PLS-02). Washington, DC: Institute of Museum and Library Services.

3 Hoffman, Judy, John Carlo Bertot, Denise M. Davis, and Larra Clark. *Libraries Connect Communities: Public Library Funding & Technology Access Study 2010-2011.* Available at www.ala.org/ala/research/initiatives/plftas/2010_2011.

ability of Internet terminals in public libraries increased sharply by 90% on a per capita basis.[4] Database licensing and technology infrastructure projects continue to be the largest categories of expenditure that State Library Agencies report to the Institute of Museum and Library Sciences (IMLS) in their annual States Program Reports.[5]

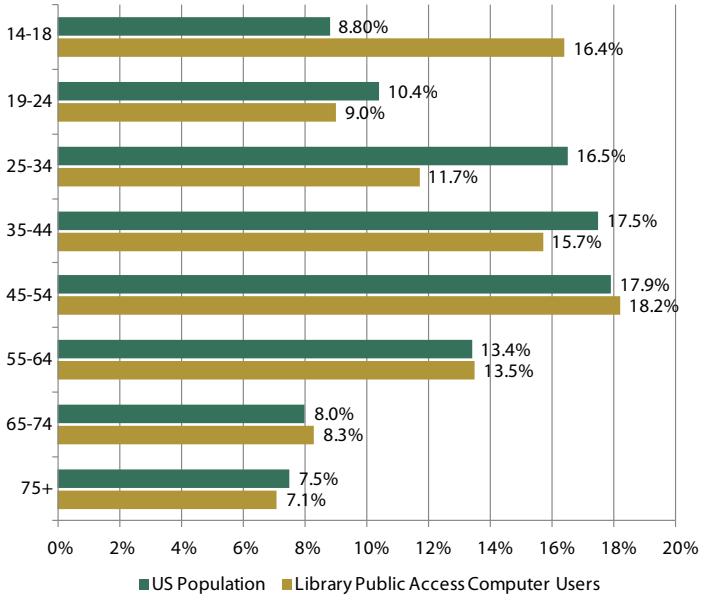
Given the nature of policy discussions and size of the public investments, it may be surprising to some that all of this activity has taken place without a great deal of information about the beneficiaries. Until recently, there was no reliable data about who was making use of these services or what it is they do when they logged on. However, in 2009, researchers from the University of Washington's Information School conducted a national survey called *Opportunity for All* that focused on public access computer users in public libraries.[6] The survey, which collected information from over 40,000 people through a combination of traditional household phone survey techniques and a point-of-service web-based survey, provides a wealth of information about the characteristics of users and the nature of their computer use at the library.

In the subsequent sections, we take a closer look at the demographic characteristics of the public access users. In the first part of the analysis, we compare data collected for the U.S. Impact Study with data from the *Current Population Survey* (CPS) collected in the same year. The purpose of this analysis is to identify who uses public access computers and determine whether or not they differ systematically from the general population. The next section examines how people are using computer resources in libraries and explores how demographic characteristics affect the type of information they access. The final section summarizes the findings in light of national information policy initiatives.

Comparisons of Public Access Computer Users and the General Public

Figure 1 compares the age distribution of public access computer users from the U.S. Impact Study with that of the CPS from 2009, which is conducted by the U.S. Census Bureau. The chart provides an indication of whether or not public access users make use of the service at a rate that would be expected given their numbers in the general population. As can be seen from this chart, the percentage of users for most age categories are comparable to the percentage of people in the same grouping in the general population, except in two cases. In these cases, there is a statistically significant difference between the proportion of public access users in a given age category and the proportion of people in the general population. The proportion of young people between the ages of 14 and 19 who reported public access computer use is 16.4% compared to 8.8% in the general population. Among 25- to 34-year-olds, a significantly lower number reported using public access computers than the proportion found in the general population, 11.7% and 16.5%, respectively. In other words, public access services seem to be an attractive option for young people in their high school years but appear to be less so for a small segment of adults at a prime age for workforce participation.

Figure 1. Age Comparison of Public Access Computer Users to General Population, 2009



Source: IMLS analysis of U.S. Impact Study survey data and CPS (October 2009 Supplement).

4 Henderson, E. 2009. *Service Trends in U.S. Public Libraries, 1997-2007*. Research Brief series, no. 1 (IMLS-2010-RB-01). Washington, DC: Institute of Museum and Library Services.

5 Manjarrez, C., Langa, L., Miller, K. 2009. *A Catalyst for Change: LSTA Grants to States Program Activities and the Transformation of Library Services to the Public* (IMLS-2009-RES-01). Washington, DC: Institute of Museum and Library Services.

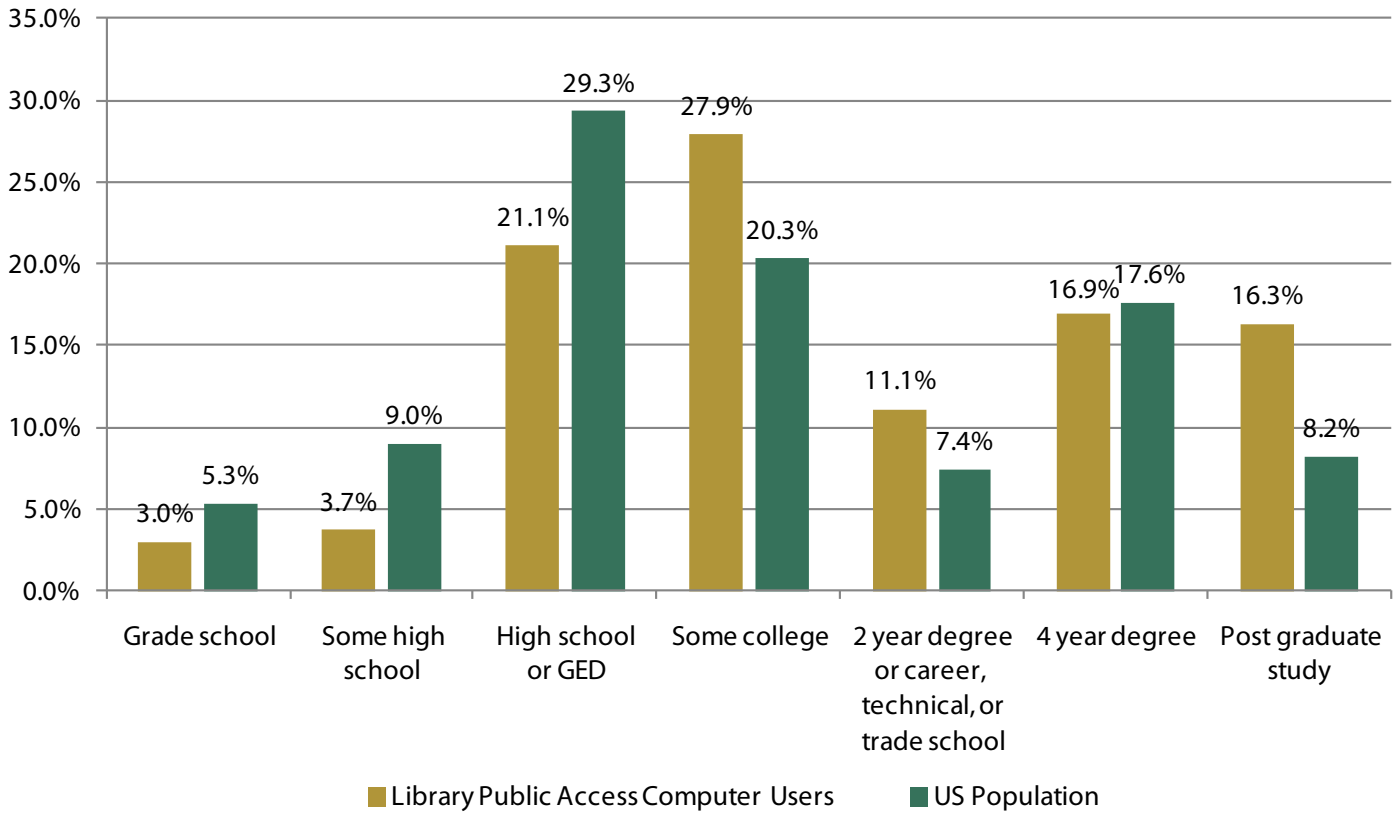
6 Becker, S,, Crandall, M. D., Fisher, K. E., Kinney, B., Landry, C., & Rocha, A. 2010. *Opportunity for All: How the American Public Benefits from Internet Access at U.S. Libraries* (IMLS-2010-RES-01). Washington, DC: Institute of Museum and Library Services.

Another measure that can be used to determine whether or not the public access users are significantly different from the general public is to compare the level of education of both groups. Educational attainment, like age, is highly correlated with computer and internet use.[7] As with the age comparison, the distribution essentially mirrors that of the general population (see Figure 2). The only statistically significant differences observed between the two groups are in the high school diploma category and the category of people reporting postgraduate study. Perhaps more interesting than the differences found within individual age categories is the general pattern that appears across all seven categories. For the three categories at or below the high school diploma level, public access computer users are slightly less prevalent than would be expected given their size in the general population. However, for the three categories above the high school diploma level, public access computer users are slightly more prevalent. In other words, public access computer users appear to have more formal education than the general population, although the observed difference is very small.

A third characteristic that would seem to set public access computer users apart from the general public is their access to computers and Internet in the home. There is a common assumption that public access computer users are generally less likely to have access to computers and the Internet at home, which is why they seek access through their local library. But here again, the available evidence does not provide a clear basis for this claim. Respondents to the Opportunity for All survey were asked a series of questions to determine whether or not they had access to computers and the Internet. Respondents were asked whether or not they had regular access in the home, at their work, at their school, at a community center, or in another place. The

7 Horrigan, J. B. 2010. *Broadband Adoption and Use in America.* OBI Working Paper Series No. 1. Available at http://online.wsj.com/public/resources/documents/FCCSurvey.pdf.

Figure 2. Comparison of Education Attainment of Public Access Computer Users to General Population for Persons Over the Age of 25, 2009



Source: IMLS analysis of U.S. Impact Study survey data and CPS (October 2009 Supplement).

vast majority of the library public access computer users (86.1%) reported they had "*regular access* to a computer and the Internet for your *personal use*" at home. This can be compared to the overall Internet and computer access rate of 90% for the general public in the CPS sample.[8] Furthermore, among the remaining 13.9% of respondents who did not have access in the home, 100% said that they had regular access through their work, school, community center, or another location.

Characteristics of Library Public Access Computer Users

While public access computer users as a group may not vary significantly from the general profile of the American public, that does not mean that there are no important subgroupings within the users themselves. Table 1 provides a comparison of library public access users based on the presence of a computer and Internet in the home. The table highlights differences in demographic characteristics, the frequency of computer use in the library, and the relative availability of computers and the Internet in other venues.

The most notable difference among the public access computer users without home access is the fact that close to two-thirds of the users are men, whereas the gender distribution among people who have computers in their home is more evenly divided. Also, a higher proportion of library public access computer users who lack home access are Black or Hispanic and are more likely to be poor. Though they are poorer as a group, public access computer users without home computers and Internet access are just as likely to be employed as the users that reported having home computers.

Respondents who lack access at home are also more likely to be frequent users of library public access computers than people who have computers in the home. Over 65% of these users reported using computers and the Internet in the library at least once a week or daily, compared to 33% of the public access users who had access at home. They also reported consistently higher rates of access to computers and the Internet in other venues such as schools, work, and community centers. This difference may be explained by the fact that the lack of home access would likely heighten awareness of alternative service sites.

Table 1. Characteristics of Public Access Users by Home Access Type, 2009

User Type and Characteristics	With Home Computer/ Internet Access	Without Home Computer/ Internet Access
Demographic Characteristics (not listed above)		
Male	52.9%	65.4%
Female	47.1%	34.6%
White (Non-Hispanic)	74.6%	61.0%
Black (Non-Hispanic)	10.0%	18.6%
Asian (Non-Hispanic)	4.7%	1.2%
Other (Non-Hispanic)	2.4%	3.4%
Hispanic	8.3%	15.9%
Average age	48 yrs	39 yrs
Schooling above high school diploma	65.4%	50.4%
Below 100% of poverty	13.3%	32.5%
Between 100% and 200% of poverty	26.5%	33.5%
Above 200% of poverty	60.1%	34.1%
Work full-time	59.7%	62.8%
Work part-time	32.6%	29.1%
Frequency of Library PAC Use		
Every day or most days	13.8%	31.6%
At least once a week	18.9%	34.2%
About one to three times a month	21.6%	20.4%
Less than once a month, but more than once a year	27.4%	10.6%
About once a year or less often	18.4%	3.2%
Regular Access at Other Sites		
School	20.5%	35.2%
Work	27.2%	33.2%
Community Center	3.1%	9.7%
Someplace else	6.5%	37.5%

Source: IMLS analysis of U.S. Impact Study survey data.

8 It should be noted that the wording of the questions about home computer and Internet access between the two surveys differs slightly. The estimate of 90% is based on HENET3 variable, which corresponds the question: "Do you/Does anyone in this household connect to the Internet from home?"

Examining the Many Uses of Public Access Computers

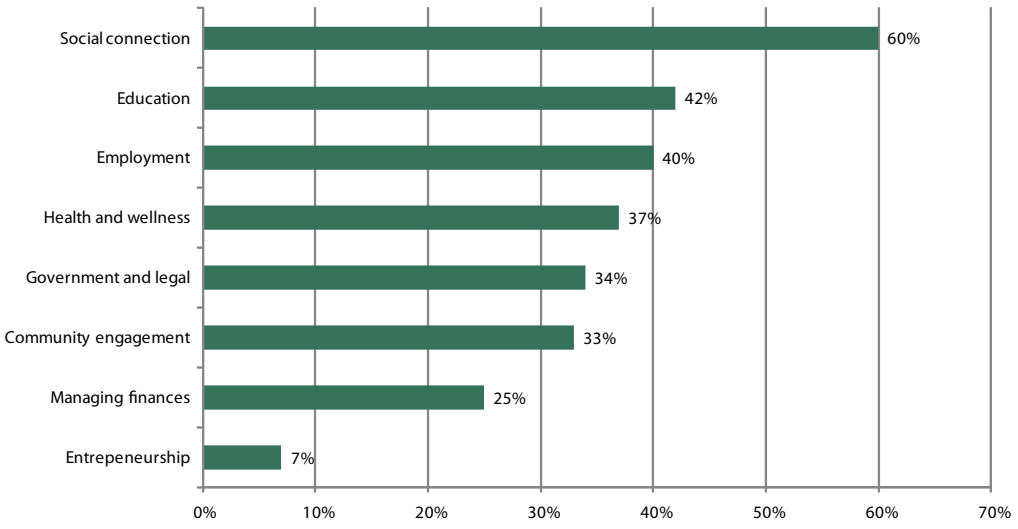
In addition to investigating who made use of public access computer centers, the U.S. Impact Study asked respondents about the type of information they sought when they logged onto the workstations in their local library. There were eight major categories of activities that were examined: social connections/communications, education, employment, health and wellness, government and legal, community engagement, managing finances, and entrepreneurship (see Figure 3). The most frequent use identified by respondents was in the social connection/communication category, which includes a range of activities such as email, chatting, pursuing hobbies, surfing the Internet, or gaming. Overall, 60% of the respondents reported using library computers and the Internet for this purpose, followed by education (42%), employment (40%), and health and wellness (37%).

Figure 3 provides an overall ranking of the eight use categories for all public access computer users. While a single metric for all users provides a useful general benchmark, there are many different factors that might affect the kinds of information resources people access when they log onto computers in their local library. The unemployed may be more likely to access employment resources, young people may be more likely to make use of educational support resources, and the elderly may be more prone to access health information.

To explore these questions, we looked at the relationship between different social/demographic characteristics and the different categories of use from the study. In this analysis, the factors that appeared to have to most consistent impact on the rate and character of public access use were the availability of a computer in the home and the age of the public access computer user.

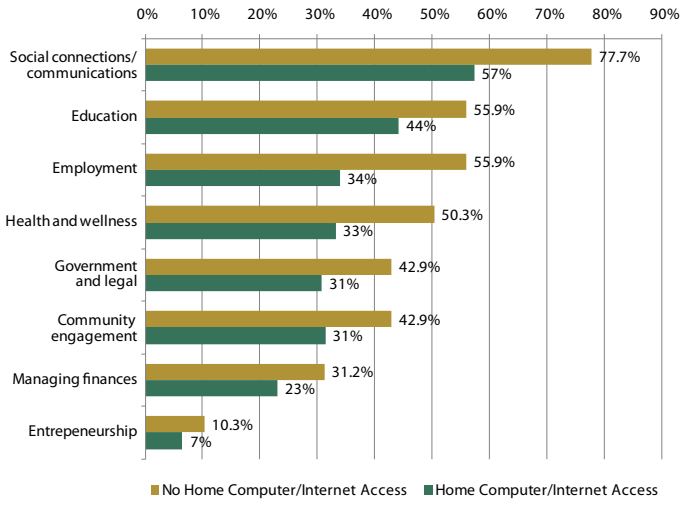
Figure 4 examines the differences in the rates reported for the eight categories, separating out respondents who have a computer and Internet in the home from those who do not. The chart essentially repeats the information from Figure 3 but reports on the two groups separately. Two things stand out in this presentation of the data. First, the pattern of use among people who have computers in the home and those who do not is essentially the same: for both groups, social connections uses were reported more highly than education uses, education uses were reported more often than employment uses, etc. Second, people who do not have access to computers in the home report greater use across all eight activity areas. In other words, the information needs for both groups appear to be essentially the same. The main difference between public access users who also enjoy access at home and those who do not appears to be the frequency at which they make use of different information resources.

Figure 3. Rank of Public Library Internet Use by Subject Area, 2009



Source: Becker, S,, Crandall, M. D., Fisher, K. E., Kinney, B., Landry, C., & Rocha, A. 2010. *Opportunity for All: How the American Public Benefits from Internet Access at U.S. Libraries*(IMLS-2010-RES-01). Washington, DC: Institute of Museum and Library Services.

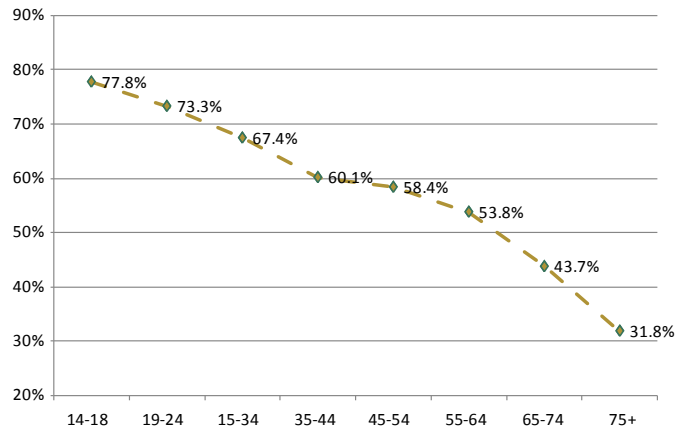
Figure 4. Rank of Public Library Internet Use by Subject Area and Home Access Type, 2009



Source: IMLS analysis of U.S. Impact Study survey data.

While access to home computers may not significantly affect the kind of information people seek when they log onto the Internet through public library computers, another demographic characteristic does seem to play a role: age. Figure 5 displays the rate of social connection use (the most prominent among the eight categories) for users of different ages. This chart displays a clear relationship between the use of library computers for social connections and a person's age, with younger users reporting much higher rates of social connections/communications use than older respondents.

Figure 5. Percent of Library Public Access Users Reporting Social Connections/Communications Use by Age Category, 2009



Source: IMLS analysis of U.S. Impact Study survey data.

Table 2 provides a more detailed analysis of the relationship between age and the type of information people seek through public access computers. In this table, we focused on the substantive uses of public access computers for people of different age groups, examining all categories except social connections/communication.[9] To the right of this ranking, we report the top activities that correspond to the major use category. For example, the 14- to 19-year-olds reported education as their top substantive use of public access computers. The activities in the gray area to the right display the top education-related activities among the people who selected the education use.

From this table, one can see that the substantive uses listed by people of different ages essentially follow the needs and preoccupations that people have at different stages of the life course. Young people between the ages of 14 and 24 identified education uses as the top substantive category, people between the ages of 25 and 54 identified employment as the top substantive category, and people 55 and older reported health and wellness as their top substantive use category. Readers will note that for older users, the spread between the top substantive categories (health and wellness) and the bottom categories (civic engagement) is quite small, which suggests that the uses of the older users vary more widely than the uses reported by younger public access computer users.

Discussion

The demographic analysis in this brief provides an opportunity to dispel some myths that have lingered regarding the target service population for public access computer services in U.S. public libraries. Through this analysis, we see that public access computer users largely resemble the general public in terms of age, education, and even in the overall rate of home computer and Internet access.

The fact that many different people report that they are able to fulfill a wide variety of information needs is a clear indication that public libraries are providing much more than basic technology access. If there were no added value to utilizing a computer and Internet services through pub-

9 In this section, we have highlighted substantive uses for two reasons. First, the percent reporting social connections/communications uses are displayed in Figure 5. Second, substantive uses provide more detail about the social needs and interest of the users than communications functions.

Table 2. Top Substantive Uses of Public Access Computers by Age Category, 2009

Age Category	Top Three Substantive Areas	Highest Ranking Activity for Top Substantive Area
		do homework for a class (64%)
	Education (64%)	learn about college degree or certificate programs (28%)
14-18 years	Civic Engagement (34%)	do an online assignment or take an online class (27%)
	Employment (28%)	
		learn about college degree or certificate programs (51%)
	Education (54%)	to do homework for a class (48%)
19-24 years	Civic Engagement (54%)	to apply for financial aid (21%)
	Employment (35%)	
		search for a job opening or career opportunity (84%)
	Employment (56%)	work-related research (64%)
25-34 years	Education (42%)	work on a resume (55%)
	Health (35%)	
		search for a job opening or career opportunity (80%)
	Employment (45%)	work-related research (67%)
35-44 years	Education (41%)	work on a resume (54%)
	Health (37%)	
		search for a job opening or career opportunity (80%)
	Employment (49%)	work-related research (65%)
45-54 years	Health (44%)	work on a resume (51%)
	Education (44%)	
		learn about a disease, illness, or medical condition (88%)
	Health (46%)	learn about diet or nutrition (65%)
55-64 years	Employment (43%)	learn about a medical procedure (58%)
	E-government (42%)	
		learn about a disease, illness, or medical condition (87%)
	Health (39%)	learn about a medical procedure (62%)
65-74 years	E-government (39%)	learn about diet or nutrition (62%)
	Civic Engagement (33%)	
		learn about a disease, illness, or medical condition (96%)
	Health (37%)	learn about a medical procedure (67%)
75+ years	E-government (33%)	learn about diet or nutrition (57%)
	Civic Engagement (26%)	

lic libraries, then there would be no reason for the 86.1% of respondents who reported also having regular home access to make use of these services in their local library. Indeed, a recent Federal Communications Commission report found that even among households that enjoy broadband access, 33% report having used computers in the library.[10] These statistics clearly demonstrate that people are not going to the library simply to use the hardware. They are going to the library to complete school assignments, to find a job, to learn more about health and wellness issues, and much more. With a combination of: accessible hours and locations, a wealth of digital and hard copy content, computer and Internet access, and professional library staff, it's not difficult to see how many different people may find public libraries to be a more efficient place to meet their information needs than the computer in their home.

One can easily imagine an alternative future for public access services in libraries. Had public libraries not made early investments in information technology or had they failed to keep pace with rapidly changing information technology environments and the public demand for up-to-date hardware and digital content, it is likely that they would not enjoy such widespread use. The investments over the years have been considerable and have enlisted many different actors. At the federal level, the Library Services and Technology Act, E-Rate funding, the Technology Opportunities Program, and the Rural Broadband Development Program have all contributed to the infrastructure found in public libraries. At the state level, coordination and plan-

10 Horrigan, J. B. 2010. *Broadband Adoption and Use in America.* OBI Working Paper Series No. 1. Available at http://online.wsj.com/public/resources/documents/FCCSurvey.pdf, p. 20.

ning activities by state library administrative agencies have combined federal and state dollars to leverage the state's purchasing power for hardware and digital content and provided staff development training across their states. Local funding, which covers the vast majority of public library expenditures in the United States, have clearly helped make public access computing a nearly ubiquitous service in public libraries—one that continues to be relevant for all segments of their communities.

Of course, the future of public access computing services is not certain. Constrained budgets at the federal, state, and local levels continue to challenge state and local library administrators to provide this capital-intensive service, while at the same time cutting expenditures across the board. At the state level, state library administrative agencies have reported much more pronounced reduction in staff and revenues than they have experienced in recent years.[11] Future support for high-demand library services will depend heavily on the sector's ability to communicate the value of these services and identify specific ways in which they improve the lives of individuals and build stronger communities.

A new initiative by IMLS provides an opportunity to make a clearer case of how public access computer services through libraries make a difference in communities. In response to a recommendation in the National Broadband Plan, IMLS, working in cooperation with the University of Washington and the International City/County Manager's Association, has developed the *Framework for Digital Inclusive Communities.* The principals for this framework are not focused on the technological aspect of the public access services, but rather on the social and economic aspects of inclusion. They address availability and affordability, digital literacy, consumer protection, and accessibility for people with disabilities. The targeted principals are substantively focused on issues such as education, economic development, health care, public safety, and civic engagement. By directly linking library services to social and economic concerns, the sector can broaden the narrow stereotype some segments of the public have of the library, as a mere provider of books and remedial computer support for a narrow demographic, to include its role as an important contributor to wide variety of community development needs.

Carlos Manjarrez is the Director of the Office of Planning, Research, and Evaluation. Kyle Schoembs is a research assistant in the Office of Planning, Research, and Evaluation.

About the Institute of Museum and Library Services: IMLS is the primary source of federal support for the nation's 123,000 libraries and 17,500 museums. The IMLS' mission is to create strong libraries and museums that connect people to information and ideas. The IMLS works at the national level and in coordination with state and local organizations to sustain heritage, culture, and knowledge; enhance learning and innovation; and support professional development.

Suggested Citation: Manjarrez, C., & Shoembs, K. 2011. *Who's in the Queue? A Demographic Analysis of Public Access Computer Users and Uses in U.S. Public Libraries.* Research Brief series, no. 4 (IMLS-2011-RB-04). Washington, DC: Institute of Museum and Library Services.

The U.S. Impact Study was conducted by the University of Washington in summer of 2009. The mixed method national survey was administered at the point-of-service in public libraries across the country via a web-based tool and as a national household survey. There were over 48,000 respondents to the study in the public data file. This data set provides information on the demographics of respondents and the nature of their public access computer use. For more information about the database, please contact Carlos Manjarrez at the Office of Planning, Research and Evaluation. The CPS is a monthly survey of households conducted by the U.S. Census Bureau for the Bureau of Labor Statistics. It provides a comprehensive body of data on the labor force, employment, unemployment, persons not in the labor force, hours of work, earnings, and other demographic and labor force characteristics. The 2009 computer use data is collected through a supplement to the CPS. The survey has included questions on Internet use since 1997.

11 Henderson, E., & Lonergan, J.. 2011. *Majority of States Report Decline in Support for Library Services*. Research Brief series, no. 3 (IMLS-2011-RB-03). Washington, DC: Institute of Museum and Library Services.