Toward Equality of Access

The Role of Public Libraries in Addressing the Digital Divide

REVIEW COMMITTEE

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ABOUT THIS REPORT

Ninety-five percent of public libraries in the United States offer free access to computers and the Internet, often providing the only Internet access for residents of the nation's poorest areas. This report evaluates the importance of these library-based computers in addressing the digital divide.

Drawing from government statistics and independent research, the report finds widespread acceptance of library-based computer and Internet access from patrons and librarians. But more importantly, the report finds that public access computing is benefiting those socioeconomic groups with the greatest need.

However, the report also notes urgent—but manageable—challenges facing libraries as they seek to maintain and further develop their role in providing access to digital information. This valued public service can only be sustained by the continued support of policymakers, librarians, and community advocates.

EXECUTIVE SUMMARY

Public libraries have made tremendous strides in giving people access to technology. Yet, more than 40 percent of Americans still do not regularly use the Internet, and many cite barriers to access or lack of skills as the reason.[1]

The term "digital divide" has been used since the 1990s to describe patterns of unequal access to information technology—primarily computers and the Internet—based on income, ethnicity, geography, age, and other factors. Over time it has evolved to more broadly define disparities in technology usage, resulting from a lack of access, skills, or interest in using technology.

Nearly a decade after the phrase was coined, Internet use has increased substantially among all socioeconomic groups. But despite these gains, recent government data show that significant gaps remain between so-called "haves" and "have-nots." In particular, traditionally disadvantaged groups—including African Americans, Hispanics, Native Americans, and those with lower income and education levels—continue to be less likely than other segments of the population to have the access and skills to effectively use computers and the Internet.

Studies also indicate that physical and sociological barriers—such as concerns over cost, or fears of difficulty—have prevented many non-users from exploring computers and the Internet.

"When we all come together to expand public access computing, children can explore the universe of knowledge, businesses can expand, and communities can thrive."

—Peggy Rudd, Director
Texas State Library and Archives Commission

By reaching nearly all communities, library computers have been an effective way to reach the "digitally divided."

Following years of government and private funding and support, public access computers are now available in more than 95 percent of the nation's public libraries.[2] More than 14 million Americans (about 10 percent of all Internet users) regularly use these computers.[3] Studies confirm that public access computers are popular and that most Americans now expect their library to provide them. According to a recent study conducted by the Marist College Institute for Public Opinion, Americans believe that providing computers for public use is one of the three most important things their library can do.[4] Between 1996 and 2001, library visits increased more than 17 percent, a trend partially attributable to the availability of computers with Internet access.[5]

Moreover, extensive research on how library-based computers are used reveals some key findings:

> **Public library computers are reaching the disadvantaged groups consistently identified as lacking technology access and skills.** To a greater extent than the general population, certain ethnic groups and people with lower income and education levels rely on library computers as their only means of accessing computers and the Internet. The reliance is even more pronounced with children and adolescents in these disadvantaged groups.

> **Library patrons use public library computers to learn basic computer and Internet skills.** As institutions built to promote education and access to information, public libraries are appropriate environments for learning computer and Internet skills. Librarians provide one-on-one training on a daily basis, and evidence suggests that librarians are serving this role well. Information-seeking which then leads to basic computer training—often the progression of instruction in libraries—provides the necessary context to make the training useful and lasting for patrons. Some libraries also are able to provide formal training classes.

> **Library computers are helping patrons communicate, learn, work, and create.** Computer and Internet access allows patrons to keep in touch with family and friends, complete homework assignments, find job listings, and write

reports. Library computers serve the special needs of distinct communities. For example, elderly library users have a significantly higher interest in online medical information.

> **The impact of library computers is especially pronounced in rural communities**. Nearly 80 percent of all library systems serve rural areas and small towns. The benefits of increased access in these communities are numerous and dramatic. Residents now can use library computers to find employment, research health issues, complete academic assignments, or stay in touch with distant friends. Library computers also have led to increased patron visits and enhanced the libraries' standing in their communities.[6]

Despite the successful expansion of public access computers into most libraries, current funding cuts jeopardize these gains. Lack of access could become a problem again—especially in the poorest communities.

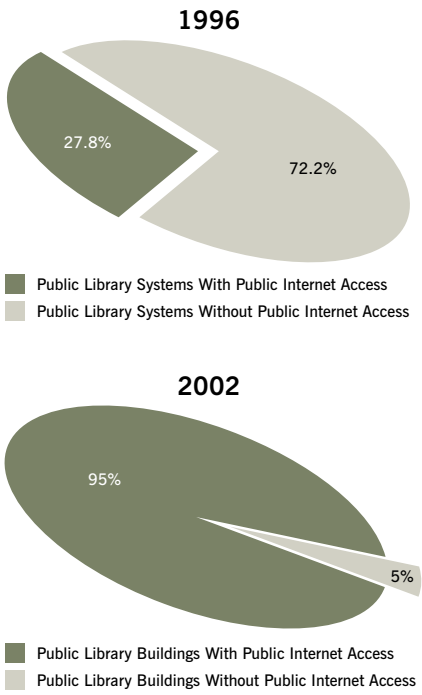
The current challenge for libraries is to sustain their ability to provide public access. This requires ongoing investment and support in five key areas:

- **Hardware and software upgrades**
- **Internet connectivity**
- **Keeping systems running**
- **Staff training**
- **Keeping libraries open**

However, current funding cuts in library staff, services, or building hours threaten the access and opportunities that are the promise of public access computing. Patrons who rely exclusively on library computers—the ones best served by them—are most affected by cuts. Rural and small-town libraries are especially at risk because their funding is less reliable, their staffs tend to be older and less comfortable with technology and they have trouble getting technical support.

But it's not too late to preserve the gains in public access to the Internet that communities all over the country have made. The evidence in this report shows that communities made the right bet when they put public-access computers in their libraries. Now it will require sustained effort, and funding, from policymakers, state librarians, and other advocates to make that investment truly pay off.

Public Libraries Offering Internet Access



Source: U.S. National Commission on Libraries and Information Science and Public Libraries and the Internet 2002 by J. C. Bertot and C. R. McClure

1 THE DIGITAL DIVIDE

An Evolving Debate

Empirical proof of the digital divide first appeared in *Falling Through the Net*, a 1995 report by the U.S. Department of Commerce's National Telecommunications and Information Administration (NTIA).[7] Subsequent NTIA reports confirmed a gap in the use of information technology, attributable largely to socioeconomic factors of race, income, education, and geography. The explicit concern in these reports and among policymakers was that unequal access to computers and the Internet would perpetuate or even exacerbate existing social divisions. Disadvantaged groups were in danger of watching the Information Age pass them by.

National attention on the digital divide perhaps reached its peak in 1999. With the rise of dot-com startups and increasing Internet use, the media highlighted the issue of technology "haves" and "have-nots." Suspicion that market forces alone would not adequately solve technology inequalities led to government involvement (such as the creation of the E-rate, a federal program to offset connectivity costs), while some private organizations targeted their efforts and capital to help narrow the digital divide.

LIBRARIES EASE SENIORS INTO THE DIGITAL AGE

Seniors are defying the conventional wisdom that they are technophobes by logging on to the Internet in increasing numbers and using computers for everything from checking e-mail to managing retirement accounts online. In fact, the 55 years and older segment is the fastest growing Internet demographic group. In recognition of this senior surfing surge, the Cleveland Public Library offers classes that are geared toward enabling seniors to become full participants in the digital age. The classes are well attended, and seniors report feeling more confident with the technology.

Using e-mail to keep in touch with family and friends ranks as the top use of the Internet among seniors. For some, like Sandra Jones from Shaker Heights, Ohio, communicating online took some getting used to. Ten years ago, when e-mail was first instituted at her workplace she used, "to gripe and gripe that we were losing the personal touch." Now her only Internet access is at a public library where she e-mails her daughters in Germany and Hawaii.

Researching information on the Web is another priority for seniors. As more and more services targeting this age bracket move to the Internet, including investment and retirement planning, and social security and Medicare information, it is critical that seniors have access to and know how to find this information. Library computers and training courses go a long way toward ensuring that seniors aren't left out of the digital world.

Loss of the Spotlight…

In recent years, however, the tone of this policy debate has become more muted. Some of this is explained by a change in overall context from the late 90s. A shift in domestic priorities, the onset of major world events, and reduced hype surrounding the Internet all contributed to a reduced focus on the digital divide.

New evidence also seemed to minimize the existence or the consequences of a technology divide. The most recent NTIA report published in 2002, *A Nation Online*, led with an optimistic conclusion that "all groups of individuals are using [computer and Internet] technologies in increasingly greater numbers."[8] Media coverage, far less frequent than before, simply amplified the high-level findings of *A Nation Online* or used other reports to conclude that many Internet "non-users" were voluntarily avoiding the Internet. In light of these findings, previously dire predictions that unequal access to technology would aggravate societal divisions seemed off the mark.[9]

Yet a closer look at the actual data in the NTIA report and other sources confirms that gaps in technology usage among certain segments of the population are still very much a reality.

…But the Problem Still Exists

In aggregate the data do show increasing numbers of Americans using computers and the Internet. But the same data also show that underserved communities—the same ones originally identified in the mid 90s—still lag significantly behind and that the digital divide remains a persistent problem. For example, Internet use among African Americans (39.8 percent) and Hispanics (31.6 percent) substantially trails that of whites. Families with incomes below $25,000 report much lower Internet use (around 30 percent) than those at higher income levels (over 70 percent).[10] While the number of older persons using the Internet continues to grow, adults over 50 are less likely to use the Internet (37.1 percent) than all other age groups.

A 2003 study from the Pew Internet & American Life Project presents a more nuanced picture of the divide today.

The study found that 42 percent of Americans do not use the Internet, sometimes by choice and sometimes because of factors beyond their control. For instance, lack of interest and perceived lack of benefit were among the top responses given for avoiding the Internet. Though not all of these respondents may understand what the Internet has to offer, it is fair to conclude that this segment of the offline population is "choosing" not to participate.

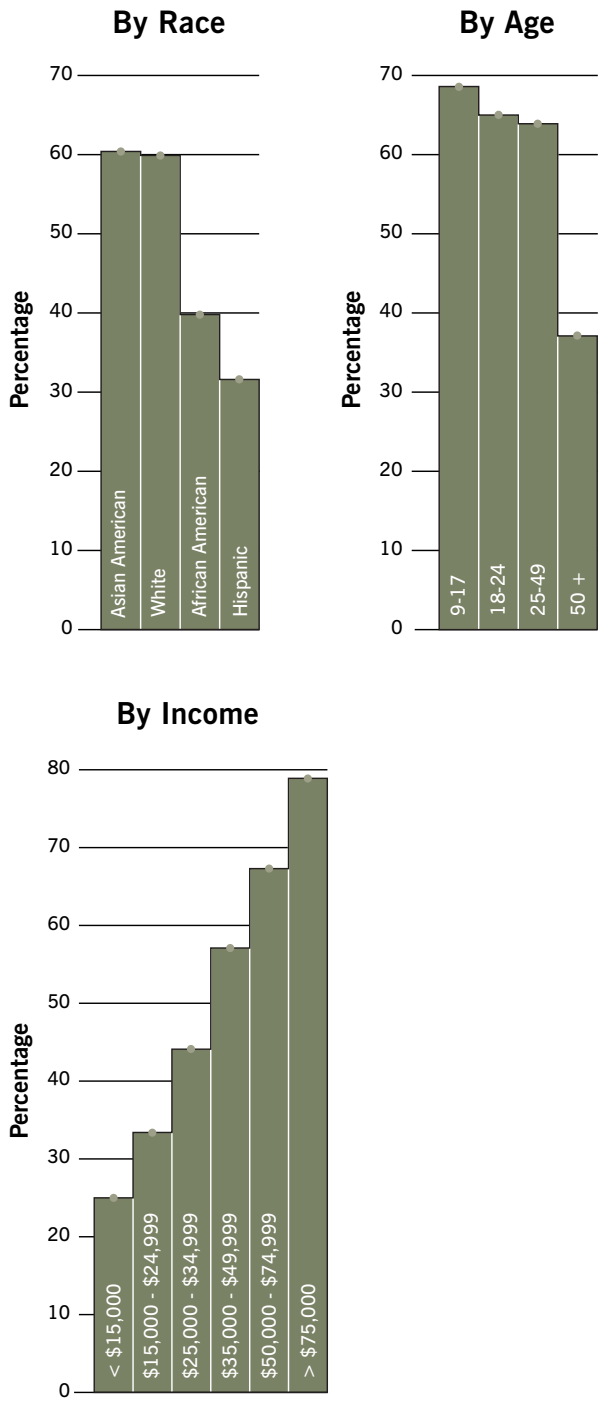
But a large number of responses indicate that *barriers to access* and *lack of skills* are perceived as obstacles to Internet use. Forty-six percent of non-users indicated that "the Internet is too complicated and hard to understand," while another 48 percent indicate "cost" is a reason they are not online. Embarrassment over lack of knowledge and fears over personal ability to learn new skills also surfaced in the study.[12]

For proponents of reducing the digital divide, the Pew findings are significant on at least two levels. First, they underscore that three preconditions are necessary for an individual to achieve technology literacy: the person must have access to technology, the skills and knowledge to use the technology, and the interest to learn and use it. Second, the Pew study suggests that those with interest, but no access or skills—a substantial segment of the offline population—are within the reach of services or programs targeted to assist them.

The most current data sources inevitably lead to the following conclusions:

- **Though Internet adoption rates rose among all segments of the population over the past several years, the rates of adoption are not equal among different groups.**
- **Societal disparities in computer usage, based largely on socioeconomic factors, persist.**
- **Efforts to remove barriers to technology usage, by providing access and skills training, are likely to benefit a substantial segment of the current offline population.**

Disparities in Internet Use



Source: U.S. Department of Commerce, 2002. A Nation Online: How Americans are Expanding Their Use of the Internet

"I think that the computer is a necessity these days. Unfortunately the gap between the haves and have nots is big."

—Community resident (as reported in an anonymous survey)

Selected Reasons Why Non-Users Aren't Online

	Major Reason	Minor Reason	Not a Reason
It's too expensive	30%	18%	42%
I don't have time	29	17	49
The Internet is too complicated	27	19	43
Don't have a computer	11	n/a	n/a

Source: Pew Internet & American Life Project, 2003. The Ever-Shifting Internet Population

Why the Digital Divide Still Matters

Surveying the situation in 1995, the authors of the original *Falling Through the Net* report offered the following observation:

> *[We live] in a society where individuals' economic and social well-being increasingly depends on their ability to access, accumulate, and assimilate information. While a standard telephone line can be an individual's pathway to the riches of the Information Age, a personal computer and modem are rapidly becoming the keys to the vault.*[13]

This argument is even more compelling today. Our society is moving online and continuing to do so. Information resources for every imaginable purpose have migrated online. And our methods of communication are increasingly e-mail based. Without question, if one wants the full benefits of economic and social participation in the United States today, computer skills and Internet access are required.

Equality of opportunity resonates powerfully in American history and culture. The notion that all Americans, by their own choosing, should be able to participate in the current Information Age—or, conversely, that those who are *unable* to use computers and the Internet are *deprived* of opportunities—remains the core concern over the digital divide.

Technology is not a panacea for social inequities, but no one can dispute its transforming effect on our society and culture. Publicly and privately funded attempts to harness this change for maximum public benefit reflect the same sentiment that led to our national system of public schools and libraries—a belief that sometimes creating equal opportunity requires a conscious investment in a public good.

DETROIT'S JOB SEEKERS FIND HELP IN THE LIBRARY

The main branch of the Detroit Public Library holds a vast array of special departments and collections, but one of its most popular offerings is the Career and Employment Information Center. Detroit residents without jobs can access the center to get personalized help in finding employment. Many of those who recently became unemployed feel lost because they are unfamiliar with new ways to conduct a job search in the Information Age.

"When some of these people start looking for a job, they have to play catch up," said Dorothy Manty, librarian at the Career and Employment Information Center. The center provides hands-on computer training in creating a resume, posting it on the Internet, searching Web-based job banks, and filling out online job applications. Since some companies only accept employment applications online, learning these skills is a crucial part of looking for a job.

Manty noted that the Internet has become an essential job search tool in a number of ways, including researching on potential employers. "There's no way anyone would ever go to an interview these days without first looking up the employer on the Internet," Manty said. When library patrons succeed in finding employment, often they'll go visit Manty to tell her about it or to show off their new uniform. But Manty is just as happy when she never sees her customers again: "That usually means they've found a job."

2 LIBRARIES AS PUBL

A Brief History

"There is a pivotal role to be assumed in the new electronic age by the traditional providers of information access for the general public—the public schools and libraries."
—Falling Through the Net, NTIA, 1995

Although they refrained from making specific policy recommendations, the authors of *Falling Through the Net* made it clear that schools and libraries were to be part of the solution. Public libraries were a logical fit for any strategy to provide public access across the country. Libraries have the attraction of being:

- **open and accessible to all residents;**
- **community-based with a history and tradition of offering lifelong educational opportunities at no cost;**
- **structured by law to cover 97 percent of the nation's population.**[14]

But it was also clear in the mid 90s that "wiring" the nation's library system would require a substantial investment. In 1996

IC ACCESS PROVIDERS

LIBRARY COMPUTERS OPEN DOORS FOR PHOENIX LOW-INCOME HOUSING RESIDENTS

The Harmon branch of the Phoenix Public Library has taken the idea of serving the community to a new level. In a partnership with Friendly House, South Mountain Community College, the Phoenix Housing Drug and Elimination Program and the Department of Housing and Urban Development, the library created the Harmon Institute, a computer lab dedicated to teaching computer skills to residents of the local housing project. Students are offered a variety of introductory computer-related classes, including basic word processing and resume writing. Because these are college-level courses, students can receive credit at the community college.

Raquel Elizalde started out as a student in a similar program, became a tutor, and is now an instructor with the institute. She said her students have used the skills they've learned to attain employment in a variety of places, including pharmacies, banks, and city offices. "One student is now studying at the university," remarked Elizalde. "She told me the institute was the first step that helped her to continue her education." Elizalde is proud of the fact that her classes are always full, with as many as 20 students attending each day. To ensure turnout remains strong, each semester she passes out fliers all over the area, particularly at the housing project, and posts information on the institute's Web site.

only 28 percent of library systems, most often in urban areas, offered direct patron access to the Internet.[15] The costs of public access—computer hardware, software, and Internet connectivity—were immediate obstacles for most librarians. The widespread lack of in-house technical skills, training opportunities, and staff resources necessary to assume a new service presented other major challenges.

Funds and Support Begin to Flow

Responding to the findings of the NTIA reports, government policy and philanthropic support targeted much-needed funds toward wiring the nation's schools and libraries. The Telecommunications Act of 1996 updated the definition of "universal service" to include the Internet as a communications tool, while giving rise to the Schools and Libraries Universal Service Fund, or "E-rate." The E-rate created a $2.25 billion annual fund to provide discounts primarily on connectivity costs associated with Internet access for schools and libraries. Also in 1996, the Library Services and Construction Act was reauthorized as the Library Services and Technology Act (LSTA) with an increased emphasis on access to technology and collaboration. LSTA authorizes the Institute of Museum and Library Services (IMLS) to distribute federal funds to states that in turn support local library services. Since 1998 approximately $1 billion in LSTA funds have flowed to local libraries.

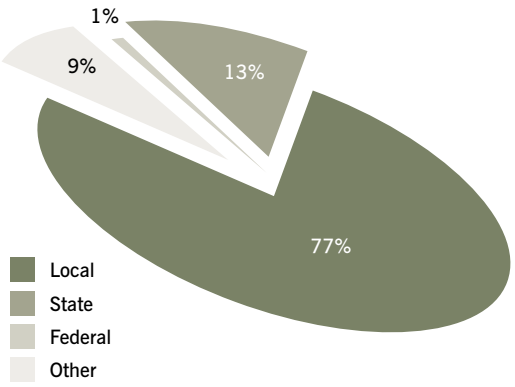
Funding for public libraries was supplemented further in 1997 with a $250 million commitment from the Bill & Melinda Gates Foundation. Its U.S. Library Program reached public libraries in the nation's poorest areas and provided them with public access computers and software, while simultaneously providing training and technical support for librarians. Other funding sources for library-based public access computing included state telecommunications funds, one-time appropriations from state governments, private sector support, and local funding.[16]

Impressive Results

The combined support of government, philanthropy, state and local communities, and librarians resulted in a rapid diffusion of public access computing throughout the public library system—with impressive results.

Today, *more than 95 percent of public libraries offer Internet access to their patrons,* with an average of 7.5 workstations per location.[17] More than 14 million Americans (about 10 percent of all Internet users) access the Internet through computers in public libraries. Though most Internet users in the United States get online from home, public libraries rank fourth among other locations behind work, schools, and someone else's home.[18] The investment in technology and training has allowed libraries to become points of Internet access across the country, reaching communities that were previously unable to participate in online resources.

Public Library Funding Sources



Source: U.S. Department of Education, 2003. Public Libraries in the United States: Fiscal Year 2001

3 PUBLIC ACCESS CO

Evaluating the Investment in Libraries

Extensive surveys confirm that, in addition to being a widespread service, public access computing has been well received. The Marist College Institute for Public Opinion reports that Americans believe computer access is one of the top three services their library should provide. Demand for use of the computers is strong. In fact, the greatest frustration for patrons is often related to too many people wanting to use too few computers.[19] Beneath these broad trends, a visit to most any local library—with computer terminals often continuously full and patrons waiting for their turn—validates the popularity of public access computers.

As more people have discovered and used these computers, libraries have become synonymous with public access. Today, the service has become so normalized that the general public now expect their local libraries to provide computers with Internet access. The Pew Internet & American Life Project found that a majority of both Internet users (76 percent) and non-users (60 percent) knew of public access sites,[20] and that 90 percent

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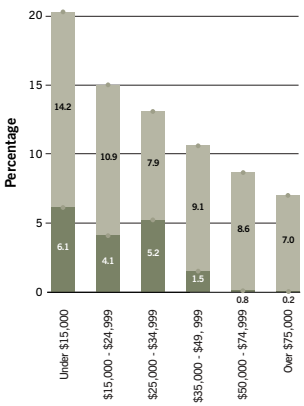
Public Library Internet Users by Income

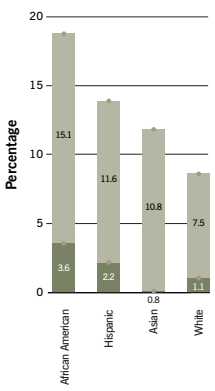


Public Library Users with Other Computer Access

Public Library Users with Exclusive Reliance on Library-Based Computers

Source: U.S. Department of Commerce, 2002. A Nation Online: How Americans Are Expanding Their Use of the Internet.

Public Library Internet Users by Race



Public Library Users with Other Computer Access

Public Library Users with Exclusive Reliance on Library-Based Computers

Source: U.S. Department of Commerce, 2002. A Nation Online: How Americans Are Expanding Their Use of the Internet.

of those aware respondents identified the public library as a point of access.[21] State librarians also report that communities across the nation expect that their local public library will provide computing and Internet services.[22]

Beyond high patron satisfaction and demand, public access computers have revitalized libraries and aided librarians. Librarians across the country report that public access computers enhance the reputations of their institutions and attract new patrons. Nationwide, total visits to the library have increased by more than 17 percent between 1996 and 2001, a trend partially attributable to the introduction of public access computers.[23] The computers enable library staffs to do a better job of providing more information, more quickly. Despite the added concerns that accompany the support of computing services, most librarians report increasing comfort with their responsibilities.[24]

Addressing the Digital Divide

As popular as library computers are with patrons and librarians, an original goal of the investment in libraries was to help "bridge" the digital divide. How have libraries performed against this objective? Again, evidence from national surveys and library-specific research leads to some generally positive conclusions. As originally anticipated, public library computers have played an important role in addressing inequalities in both access to information technology and the ability to use it.

1. Public library computers reach the disadvantaged groups originally identified as lacking access and skills. Government and independent data show that patrons across the socioeconomic and ethnic spectrum use public library computers. But the groups consistently identified as the "digitally divided" rely significantly more on them. This is true along lines of race, income, education, and geographic location:

- **African Americans (18.7 percent) and Hispanics (13.8 percent) use public library computers more than whites (8.6 percent).**[25]
- **Among library users African Americans and Hispanics**

PUBLIC ACCESS REACHES ALL CORNERS OF MAINE

When it comes to Internet connectivity in libraries, Maine always seems to be one step ahead of the pack. In 1996, Maine State Library, Maine Department of Education and others created the Maine School and Library Network, which provided Internet access to every library and school in the entire state. In 2000, the state used a grant from the Bill & Melinda Gates Foundation to add upgraded equipment and training to their already impressive networking capabilities. Still not satisfied with the technological resources it provides to its patrons, Maine State Library is in the process of offering wireless connectivity to up to 50 libraries statewide. "There was a growing awareness in the library community that this was the next step," said John Clark, library systems specialist. Adding to the need to offer this new service was the legislature's decision to equip all seventh and eighth graders with their own laptop. Now, school children can bring their laptops to the library and plug in for instant access to the Internet. "For a lot of these kids who don't have connectivity at home, this effectively expands the school day," said Clark, who pointed out that the service is also geared toward local businesses and visiting tourists who often complain they can't use their laptops at area hotels.

TRAINED LIBRARIANS HELP PATRONS MAKE THE MOST OF TECHNOLOGY

The Arlington County Library in Virginia understands that if patrons are going to use the computer labs to their full potential, library staff must be prepared to guide them. So after opening the first of its two new CyberCenters in February 2000, the library turned its attention to training its staff. Over the past two years, the library has held 73 training classes with almost 650 staff participants. Ronald Altemus, the coordinator of the CyberCenters, explained that training is a must as the library gets new computers and software.

Rather than being seen as a burden, the classes have been popular with library staff. "It allows an interplay and exchange of ideas among staff members," commented Altemus, who said the classes are a great way for staff members from all the different branches to come together. Classes are held in either the Columbia Pike branch, home of the first lab, or the Central branch lab, which opened in June 2001. Having well-trained librarians is particularly important in a community with a large immigrant population. Altemus noted that recent immigrants often come to take advantage of the computers' multimedia capabilities, which allow them to access international radio broadcasts over the Internet so they can keep abreast of what's happening in their home countries.

rely exclusively on the library computer for Internet access to a greater degree than their white and Asian counterparts.[26]

> **Native Americans show an even more pronounced reliance on library computers and are nearly three times more likely to use them than whites.**[27]

Similar and predictable patterns are seen among individuals at different income levels.

> **Lower income users are more likely to rely, often exclusively, on public library computers for Internet access than those with higher incomes.**

> **Those individuals at the lowest income levels (under $15,000) tend to be more reliant on library computers than those at the highest levels (over $75,000) by a factor of two to three times.**[28]

Children and adolescents from certain ethnic groups and income levels are also heavily reliant on library computers for computer and Internet access.[29]

> **Twenty-nine percent of African-American and 20 percent of Hispanic youth use public libraries for Internet access, compared to 12 percent of white youth.**

> **More than 27 percent of youth from families with annual incomes less than $20,000 use library computers, compared to 11 percent of youth from families with annual incomes of more than $75,000.**

Education and employment status of library users are also significant factors.[30]

> **Patrons of all education levels use library computers, but those with less than a high school education are much more likely, once again, to have access only at the library.**

> **Library computer use is more prevalent among, and more important to, the unemployed and those who are working part-time.**

2. Libraries provide an effective environment for basic computer and Internet skills training.

Simply providing an individual with access to computers is not enough to bridge the digital divide; the skills and knowledge to use information technology effectively are equally important. And to begin the journey toward basic technology literacy, one must have the interest to learn. Library environments meet these requirements through their legacy as institutions of public education and, most importantly, through the librarians themselves.

Today, almost all libraries provide basic computer and Internet training on a daily basis through individual assistance from librarians. Americans are accustomed to asking librarians for help and answers. Nearly two-thirds of computer-using patrons report that they ask librarians for help when they have a problem with library computers.[31] Importantly, the emotional barriers to Internet use referenced in the Pew study—such as fear or misconceptions about difficulty—can be overcome with a helpful, trained librarian. Librarians are serving this role well: 80 percent of patrons report that they are satisfied with the computer assistance they receive from librarians.[32]

Informal, one-on-one assistance from librarians has the additional benefit of teaching basic computer skills in the context of the patron's own search for information. Research in information literacy and user behavior has shown that technology skills are best learned when they are taught in a problem-solving context.[33] An uncertain library patron wishing to engage online resources presents an ideal training opportunity. This is exactly where librarians are making their impact on the digital divide.

Some libraries go beyond one-on-one training and offer more formal training workshops on basic computer skills, accessing the Internet, word processing, or using database applications.

Library Computer Benefits

Keep in touch with family/friends	52%
Write/print reports	42%
Get information about current events	35%
Learn/practice computer skills	33%
Do schoolwork	33%
Learn about medical problem	31%

Source: Andrew Gordon, "The Gates Legacy," Library Journal, March 1, 2003.

Formal classes allow librarians to educate more people more efficiently and provide more advanced training. They also reduce the one-on-one training burden on staff. But lack of resources currently limits most libraries as formal trainers: Among a survey of select states, only 40 percent of libraries offer such formal training, indicating a clear opportunity.[34]

3. Library computers help patrons communicate, learn, work, and create.

Research shows that patrons are using library computers for life-enhancing purposes. Keeping in touch with family, writing reports, doing homework, seeking information, and finding a job all rank highly on surveys of library computer use.[35]

Although library users perform online activities similar to those of the general population, certain disadvantaged groups show different usage patterns based on their needs. Consequently, library visitors in lower-income neighborhoods are more likely to use computers for job seeking needs,[36] while patrons in rural, remote locations are more likely to seek medical information.[37] But the real benefits come into focus on the individual level. As the adjacent sampling of feedback indicates, the opportunities afforded by personal access to library computers are varied, unique, and numerous.

4. The impact of library computers is especially pronounced in rural communities.

Nearly 80 percent of all library systems serve rural areas or small towns, accounting for nearly 17 percent of the total population. Libraries in these often-remote areas are, by their very nature, small facilities with fewer staff and modest budgets. More likely to serve poorer populations with lower literacy rates than their urban counterparts, they represent a large component of the digitally-divided.[38]

Because of these limitations, computers and Internet access have had a particularly strong impact on rural and small town libraries and their communities. Research confirms that these libraries have been strengthened—resulting in tangible benefits for their patrons—in three main areas:[39]

COMMUNITY EFFORT BRINGS TECHNOLOGY TO RURAL MINNESOTA

When the people of Elbow Lake, population 1,275, set out to create a computer lab for Thorson Memorial Library, they made it a community effort. Everyone from the City Council to the Economic Development Association to the local telephone company to ordinary citizens pulled together to secure funding, prepare the facility, and make the lab a place to which people from all over the county would flock. Now that the lab is complete, the people of Elbow Lake and the surrounding communities do indeed come to use the lab's 11 top-of-the-line computers and take advantage of this hands-on learning center.

"It's exciting to see people using the resources in a variety of ways," said Library Director Gail Hedstrom. Kids come in after school to play computer games and do their homework. Adults like to use the built-in tutorials to learn how to use popular software programs. Job seekers check for employment opportunities and write their resumes. Students conduct research, take proxy tests online, and sometimes complete entire college degrees via the Web.

The lab has been particularly helpful to businesses, nonprofit organizations, and government agencies, which use it to conduct seminars and training programs for employees. According to Hedstrom, it's the only place in the entire county with a computer lab for public use. "The lab has really blossomed into a vibrant facility," said City Councilman Dale Champ. "It's been such a tremendous asset to the community."

LIBRARY TECHNOLOGY CONNECTS HARTFORD RESIDENTS TO LATEST NEWS, RESOURCES

When the staff of the Hartford Public Library recognized that the Internet was becoming an essential tool in accessing information, they were determined not to leave the residents of Hartford, Connecticut on the far side of the digital divide. Beginning in 1996, when the library received funding to install computers with Internet access, there was a strong push toward making a wide variety of information available online. Today, not only is the library's catalog of 500,000 books, videos, compact disks and other materials accessible from the Web, a variety of other databases have been created to assist the public in gathering important information.

The Hartford Community Information Database offers information on nonprofit organizations and groups devoted to "social and personal betterment and enrichment." Users of the database can get help with everything from finding a day care center to planting a garden to starting a business. Another handy tool is the database of City Council reports, which contains the minutes of meetings since 1996 and is word searchable. But beyond the creation of these useful online resources, the library has made it a point to educate the community about its availability. "It's been important to the library that we connect with the community and reach out to people," said Catherine D'Italia, public relations and development officer. "We need to put information in the hands of the people who need it."

> *Access to information.* Historically, budget and space constraints have severely limited the selection of books and other printed materials available to these libraries. Now, public access computers allow patrons to connect to vast resources available via the Internet. A previously unavailable world of information is within reach of these communities. In addition to faster access to news and e-mail, the ability to independently gain medical information—often in short supply in more remote areas—has been of particular benefit to rural library patrons. For students in these remote areas, Internet access greatly enhances their ability to use reference materials from state-supported online databases of academic and mainstream publications.

> *Increased library traffic.* Public access computers are popular and have drawn the small town communities into their local library. Over the last five years, nearly 90 percent of these rural and small town libraries experienced a noticeable increase in traffic after public access computers were installed. Furthermore, librarians also report that new patrons drawn to the library by the computers often begin using other library services. Approximately half of rural and small town libraries report an increase in circulation since public access computers were installed.

> *Librarian satisfaction.* In the past few years many of these small libraries received computers with Internet access for the first time. The role of librarians in these communities as both technology provider and community educator was crucial for public access computing to be successful. Today, research confirms that these librarians have embraced their new responsibilities enthusiastically. Though the computers bring new stresses, the librarians report an increase in job satisfaction since the arrival of computers. Their support has allowed rural and small town communities to participate fully in the opportunities afforded by library computers.

On the Front Line of the Digital Divide

Today nearly all U.S. public libraries, even in some of the poorest areas of the country, have public computer terminals

with Internet access. Considering the library's traditional mission of providing access to information, public access computers are indeed a logical fit. Library patrons enjoy and benefit from their presence. Heavy use and high demand for time on the computers is the norm. Librarians, key to supporting a quality user experience, have embraced their role in providing public access. In addition, the computers have helped strengthen public libraries themselves, resulting in higher overall traffic and enhanced presence in the community.

Libraries are on the front lines of efforts to reduce the digital divide. Patrons with little or no other access to the Internet rely on library computers. Public access to the Internet affords these patrons new opportunities for learning, working, creating, and communicating. But the essential, unique ingredient of public access in libraries is the trained librarian who can provide support and assistance.

Of course, though the broad trends are encouraging, not all library computer experiences are alike. The quality of access continues to vary substantially between poorer libraries and well-funded ones. This is evident in age and quality of hardware and software, availability of computer terminals and connectivity speeds. Some libraries offer a wide range of training classes, while others offer none at all because resources are tight. Many non-users do not realize that their local library provides free access to a computer terminal with an Internet connection.[40]

Despite these shortcomings, the evidence strongly affirms the original goal of making libraries points of public access to the Internet. The Pew Internet & American Life Project reminds us that patrons must have access to computers and interest in using them before they can develop technology skills. Libraries provide the ideal environment for this mix. Library computers attract a self-selecting stream of "interested" users, in a setting that is conducive to learning and asking for help. Librarians who provide either formal or informal assistance at that moment of interest provide the necessary context for the training to be meaningful and lasting. The result is that beyond just providing simple access, libraries are effectively helping people bridge the digital divide.

"The library computer was the only source for me to search for jobs while I was unemployed. I did not have a computer of my own and the nearest friend [or] relative with computer access was an hour drive away."

—Library patron

4 THE CHALLENGE AH

Cementing the Gains in a Climate of Funding Cuts

With 95 percent of public libraries offering direct Internet access to patrons, the first phase of library-based public access computing has drawn to a close. The promise of reducing access barriers to technology through public libraries has largely been realized. Looking forward, the challenge is to *sustain* this initial investment in technology. In some libraries this means expanding or improving computer services; in others, it simply means keeping existing computers running. In almost all cases, local libraries will need help.

The lifeblood of public access computing, as with any library service, is a consistent funding source. The costs of providing computing services to the public are ongoing and unavoidable. But unlike in the late 90s—when the digital divide was a national priority, addressed during a time of economic prosperity—guaranteeing support today is far more challenging.

Severe budget crises have led to state cuts in funding for public libraries across the country. With millions of Americans

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"As a director, the greatest challenge is to keep our technology going."

—Library director

relying on their local library's computers, the funding cuts have an additional harsh dimension: cuts in library services inevitably erode the gains made in recent years to reduce the digital divide.

Keeping Public Access Alive in Libraries

Libraries are already beginning to witness the sensitivity of public access computing to funding shortages. Underlying the overall funding crisis are five specific areas where libraries need ongoing assistance and where support from public and private sources is crucial:

1. Hardware and Software Upgrades

Hardware and software are the most recognizable costs. Heavy demand from patrons means that library computers are subject to constant use. The public access environment places

a heavy toll on sensitive equipment such as the keyboard and mouse. Consequently, regular computer lifecycles are often shortened due to inexperienced users and nonstop activity. The replacement or upgrading of computers is an inevitability. Often it is only through one-time grants that libraries are able to meet their hardware and software replacement needs.

2. Internet Connectivity

Far less appreciated by the public, telecommunications and Internet access costs are an ongoing concern for public libraries. In addition, the pressure to upgrade to broadband access only increases as online content becomes richer. Here, the libraries most in need have relied on the federal E-rate program, which offers deep discounts in connectivity costs. Many libraries are using E-rate funding to cover monthly telecommunications and Internet access fees, while others have used the E-rate program to purchase higher bandwidth Internet connectivity sooner than they could otherwise have afforded.[41] But the continuance of the E-rate is far from guaranteed, a point of concern for librarians and proponents of reducing the digital divide.[42] To illustrate the dependence on the E-rate program, a recent multi-state survey of librarians asked them to rank a list of concerns over public access computing. Hypothetically removing E-rate funding caused "connectivity" to jump from the lowest rank to the highest.[43]

3. Keeping Systems Running

Ensuring that computers are working increases a community's return on investment in public access computing. Yet, in-house technical support is often unavailable to all but the largest libraries. For the rest, the prohibitively high cost of support often leads to downtime for computers.

4. Staff Training

A recent survey in 10 states found that nearly 40 percent of libraries do not offer any formal technology training for their staff, despite the many benefits that result.[44] A trained librarian

A VIRTUAL COMMUNITY FOR LIBRARIANS

Librarians are the backbone of public access computing, sharing information and support to help patrons get the most from their online experiences. Whether the task is checking e-mail, surfing the Web, or searching job databases, librarians are there to answer any questions that arise. But when librarians have questions where can they turn? WebJunction—http://webjunction.org—is an online resource that provides practical information that addresses real problems that librarians face every day.

The Web site offers technical support and advice on topics that range from how to buy hardware and software to tips for conducting outreach campaigns to promote the library's activities. The heart of the site is the "Community Center," which is powered by librarians and others who facilitate public access computing. Here, members offer knowledge and encouragement based on experience. "Sharing common problems and finding solutions to those problems is never more than a few mouse clicks away," said Harry Pike, a librarian and network administrator at The Goodwin Library in Farmington, New Hampshire. "As a librarian, tech person and online conferencing devotee, WebJunction combines the best of all my worlds!"

Continued learning and staying on top of trends allows librarians to be more effective in their role of technology facilitator and to better assist the public in gaining access to the power of the online world.

COMPUTERS IN LIBRARIES, COMMUNITY CENTERS PROVIDE ONLY ACCESS FOR NATIVE COMMUNITIES

Native Americans living on rural tribal land are often the most isolated people in the United States. Many reservations lack the basic infrastructure—roads, water, power, and telecommunications—that urban areas take for granted. Statistics from the 2000 Decennial Census estimated that 67.9 percent of all American Indian households living on American Indian reservation and trust lands had telephone service, compared with 94.6 percent for all American homes. In New Mexico, a state where 10 percent of the land is tribal, home computer ownership for Native families is estimated at 14 percent and home Internet access at 8 percent. Clearly, Native communities face a significant digital divide and tribal libraries lead the way in providing access and training for their communities.

The Pueblo of Jemez is a small Native community of 2,000 people located 50 miles northwest of Albuquerque, New Mexico, and for most members of this community the Jemez Pueblo Community Library offers their primary access to computers and Internet. Librarian Tamara Sandia describes an overwhelming demand for computer usage at her library. Surveys have shown that 70 percent of the library's patrons are there exclusively to use the computers. "We know that most people come here because our connectivity is fast and because we're willing to help with research, applying for jobs, and for e-mail." The library also has a two-page waiting list of names for computer classes. Librarians Sandia and Shelley Waquiu teach basic computer classes—introductions to word processing, spreadsheets, Internet searching, and e-mail—in both English and their Towa language.

who is comfortable with technology provides users with a more productive experience—or, as is needed with some embarrassed first time users, a "safe" one. Trained librarians expand their abilities beyond locating printed sources to finding digital information or imparting basic computer skills. Trained librarians also can perform basic troubleshooting functions that keep computers working. Staff turnover increases the necessity of ongoing training.

By contrast, a librarian who is uncomfortable with computers will point individuals to terminals with a warning of "you're on your own," and be unable to offer support for novice users. Untrained librarians are unable to address simple technical issues, leading to poor user experience and even computer downtime.

5. Keeping Libraries Open

In a disturbing trend across the country, many libraries—big or small, urban or rural—are reducing their services or building hours to meet ever-shrinking budgets.[45] Dwindling levels of access to the public library have always been a disservice to communities, but now these cuts limit computer and Internet use for some patrons who rely on the service.

Most at Risk: Rural and Small Towns

Remote, isolated libraries face even greater risks. More than in other communities, these libraries are actually in danger of losing their public access services altogether.

Every one of the five concerns above is an especially urgent problem in these small town libraries. Many of these libraries must cover their public access costs using one-time donations. Libraries in these areas rely heavily on E-rate or LSTA funds to cover their connectivity and sometimes cannot navigate the complex E-rate application. The staff is often older and less experienced or comfortable with technology, and staff turnover is likely to exacerbate the problem. For isolated libraries not associated with regional support cooperatives, securing technical support is particularly difficult. The costs of bringing an outside technician from a distant location can overwhelm tiny operating budgets. Since they rarely interact with other

librarians, they are unlikely to learn the "best practices" that support public access computing.[46]

Preserving public access in rural and small town libraries will take a sustained commitment from the public and the private sector. These libraries serve the very communities identified as technology "have-nots" in early digital divide reports, and, as mentioned, their ability to provide access to computers and the Internet has dramatically benefited their communities. They should not be left to slide back into further isolation.

"Having access to computers is a blessing for many families ... that would never have the Internet available to them. Even small, rural communities—especially small towns—are no longer left off the information highway."

—Librarian

CONCLUSION

A Public Good Requiring Continued Support

The digital divide is persistent and still with us, but public libraries are making a difference. On a national scale, library computers have helped reduce barriers to accessing technology and are well suited for basic skills development. The strong positive response from both patrons and librarians, combined with the clear importance of technology literacy in today's world, justifies continued investment and support in public access computers and the library infrastructure necessary to support them.

In today's Information Age, to empower individuals in the use of technology is to support the fundamental American ideal of equal opportunity. Policymakers, librarians, and communities must continue their commitment to this standard of equality—and to the simple truth in nearly all areas of the United States: Today, if you can reach a public library, you can reach the Internet.

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