Public Library Quarterly
Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/wplq20

The Intersection of Public Policy and Public Access: Digital Divides, Digital Literacy, Digital Inclusion, and Public Libraries

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Published online: 14 Mar 2012.

To cite this article: Paul T. Jaeger, John Carlo Bertot, Kim M. Thompson, Sarah M. Katz & Elizabeth J. DeCoster (2012) The Intersection of Public Policy and Public Access: Digital Divides, Digital Literacy, Digital Inclusion, and Public Libraries, Public Library Quarterly, 31:1, 1-20, DOI: 10.1080/01616846.2012.654728

To link to this article: http://dx.doi.org/10.1080/01616846.2012.654728

Public Library Quarterly, 31:1–20, 2012

ISSN: 0161-6846 print/1541-1540 online
DOI: 10.1080/01616846.2012.654728

Routledge
Taylor & Francis Group

The Intersection of Public Policy and Public Access: Digital Divides, Digital Literacy, Digital Inclusion, and Public Libraries

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The terms digital divide, digital literacy, *and* digital inclusion *have been widely used in discourse related to the Internet over the past two decades. Even though these terms are rarely defined and their meanings shift with changes in technology, these concepts have driven many Internet-related policy decisions in public libraries. This article examines what has happened in the gap between concepts and policies, as public libraries organize to provide Internet education, access, and assistance. Following an examination of the meanings assigned to these terms and policy efforts based on these concepts, this article examines the roles of public libraries related to the concepts and the ways in which these roles have been shaped by policies that impact access to information that is increasingly embedded within a range of technologies. The article then explores the ways in which policy could better support public libraries in these roles and the ways that these roles can contribute to public library advocacy and a voice in policy making.*

KEYWORDS public libraries, information access, digital divide, digital inclusion, digital literacy, policy

Received: 10/11; Accepted: 11/11

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The explosion of personal technology in the past thirty years—cell phones, personal computers, Internet access, broadband access, and mobile devices—has created technological divisions between segments of the U.S. population. Various factors, including socioeconomic status, education level, geography, age, disability, language, and literacy, leave large numbers of people underserved, disadvantaged, or underrepresented in technology access and their knowledge of how to use this technology (Jaeger, Subramaniam, Jones, and Bertot 2011). Often, these gaps in access and usage and their policy implications are discussed using the terms *digital divide, digital literacy,* and *digital inclusion.* While these terms frequently arise in political, media, and academic discourse, the myriad definitions ascribed to each term create complications in the development of solutions to the technical, social, and economic disparities previously identified. Sorting out these terms and their roles in policy making are not simply matters of semantics, however. Divisions grow and persist as the Internet and other digital technologies continue to outpace the capabilities of many Americans to access and use them. Moreover, new access issues grow and persist as much new information is created and stored electronically.

The progression from the discussion about the digital divide to digital literacy and now to digital inclusion is neither linear nor clear. In a 2011 interview, S. Craig Watkins, a professor in sociology and media at the University of Texas, discussed the rapidly changing definition of the term *digital divide*, saying:

> I think about 15 years ago when we used the term digital divide, we were talking largely about the question or the concern around access to technology. Fast forward about 10 or 15 years later to 2011, and now when we talk about it, I think it's less about access to technology and more about participation. (National Public Radio 2011)

Herein lies the challenge that differing definitions can cause. Bypassing the question of access and delving directly into participation and usage, some researchers still presume a ubiquity of equal access, a reality that can never be assumed. Access to the Internet, particularly broadband Internet, still remains an important funding issue, as attested by recent government efforts to build out broadband access points (Federal Communications Commission 2010; National Council on Disability 2009).

Historically, as technologies and accompanying infrastructure have begun to evolve more rapidly, access to and literacy in the new technologies have become important aspects of social inclusion at an ever increasing rate (Thompson 2008). The acceleration of the speed of technology adoption can be seen in recent public library history. Almost all public libraries provided public access to the Internet a few years after the launch of the World Wide Web (Bertot, McClure, and Jaeger 2008), but it took forty years for a majority

of libraries to adopt typewriters (Dowlin 1999). The ubiquitous nature of the Internet and accompanying services and technologies now makes equal access to and participation in the online environment a necessity for education, employment, finance, and civic engagement (Jaeger 2011).

But a second issue is the nature and type of Internet access that causes inclusion challenges. Increasingly, populations traditionally excluded from broadband and computing access in the home actually do have Internet access, but via smartphones (Rainie 2010). And yet, not all content accessible via the Internet is mobile-device compatible. Thus, while some populations may have Internet access, significant content may not be compatible with the type of access they have. It is important to note, however, that U.S. wireless carriers are changing their pricing plans to charge by data consumption, and these new volume-based pricing plans may in fact diminish access for populations that otherwise do not have access to the Internet in the home (CNN 2011).

This unequal personal access to online information has been the topic of debate in political, social, economic, and educational forums since the mid-1990s. While the terms *digital divide* and *digital literacy* have entered into common usage, the term *digital inclusion* is still in its infancy. In short:

- Digital divide implies the gap—whether based in socioeconomic status, education, geography, age, ability, language, or other factors—between Americans for whom Internet access is readily available and those for whom it is not. Indeed, even those with basic, dial-up Internet access are losing ground as Internet and computer technologies continue to advance, using increasing bandwidth and demanding high-speed ("broadband") Internet access.
- Digital literacy encompasses the skills and abilities necessary for access once the technology is available, including a necessary understanding of the language and component hardware and software required to successfully navigate the technology.
- Digital inclusion is the policy developed to close the digital divide and promote digital literacy. It marries high-speed Internet (as dial-up access is no longer sufficient) access and digital literacy in ways that reach various audiences, many of whom parallel those mentioned within the digital-divide debate. To match the current policy language, digital inclusion will be defined here as outreach to unserved and underserved populations.

All of these terms are used to reflect a growing realization that technology has become an irreducible component of modern life, and its presence and use has significant impact on an individuals' ability to fully engage in society generally and more specifically in areas such as education, employment, government, civic participation, and socialization.

DEFINITIONS OF TERMS

The inconsistent use of terminology reflects both the newness of these issues and the varying perspectives of stakeholders. When used loosely by government entities, libraries, schools, and other organizations, the confusion leads to lack of consistency and policy clarity. It is a challenge to solve a problem you cannot define, and the inconsistency of definitions has affected policy-making processes that attempt to address these issues.

One caveat—this article focuses on definitions and policies in the United States, but it is important to note that different nations have taken differing definitions of and approaches to digital divides, digital literacy, and inclusion (Barzilai-Nahon 2006; Craven 2011; Dolan and Kahn 2011; Harle and Tarrant 2011; Meneses and Momino 2010; Salvador, Rojas, and Susinos 2010; Stevenson 2009). A review of this literature suggests two conclusions. First, in the United States, policy has given priority to provision for technical means of access rather than social factors related to access and literacy (Warschauer 2003). Second, one curious constant across policy approaches to digital divides in many, though not all, nations has been the failure to involve librarians in the formulation of definitions, policies, or other aspects of the policy-making process (Harle and Tarrant 2011).

Digital Divide

In 1995, around the time of the introduction of the Internet into popular culture, the U.S. National Telecommunications and Information Administration (NTIA) began a series of studies charting American Internet adoption and use. The NTIA studies identified a gap between Internet "haves" and "have-nots" that was soon termed the *digital divide* (NTIA 1998, 1999). According to journalist Steve Cisler (2000), the term digital divide was originally used in a story by journalist Amy Harmon in 1996 to describe the social problem that arises when a person uses digital technology at the expense of his or her real-life interpersonal relationships. Also in 1996, *New York Times* columnist Gary Andrew Poole (1996) wrote "A New Gulf in American Education, the Digital Divide," which described disparities in education between affluent and lower-income schools in Silicon Valley as providing "perhaps the most striking example anywhere in the nation of a widening gap—between children who are being prepared for lives and careers in the information age, and those who may find themselves held back." Regardless of whether Harmon or Poole first coined the phrase, within the year the term was used by NTIA representative Larry Irving when talking about the issues related to unequal ownership of computational technology, and it is through NTIA documents and public speeches that the term gained popularity when discussing Internet access disparities.

When digital divide was coined, there were few households with Internet access and computers in the home, and there were clear divides of access by race, gender, income, and educational levels (NTIA 1998). As defined at that time, the divide focused on access to a device (personal computer) and the conduit (Internet). Over time, as computer and Internet penetration in the home increased and some of the divides closed (though full closure was never achieved), the focus shifted to broadband access, along with the need for a range of technology and information literacies. In short, inclusion, and the notion of inclusion, shifts over time, but changes in terminology have not always followed.

The term digital divide is often used to discuss circumstances where a division pertaining to digital technologies exists, be it differing levels of access to hardware, software, or digital infrastructure, such as broadband Internet (Bertot 2003). In an information-driven, Internet-enabled environment, access to digital resources is a critical component of social engagement. People with the means to access these digital technologies become the haves, who are able to use these technologies for a wide range of purposes. Those without a means to access these technologies become the have-nots, and are often at significant disadvantage. Their access to critical information, including employment, educational, and government resources, is restricted. "The problem of exclusion is exacerbated in social terms even as it statistically diminishes" (Feather 2011, 67). The problem created by the digital divide is primarily one of access. As services and resources become increasingly available only online, the ability to access these resources becomes paramount. It is important to note that many of the people most affected by the digital divide are traditionally underserved populations, such as people with low income levels, minorities, older Americans, and those living in rural areas who may have the most need for specialized services (Federal Communications Commission 2010).

Digital Literacy

Digital literacy builds on the concept of the digital divide to indicate the ability not just to access digital infrastructure but also to utilize it. The term digital literacy also gained popularity in the mid-1990s, as it became clear that simple access to information and communication technologies was not enough to obtain needed information or services; one needed knowledge, skills, and abilities as well (Gilster 1997). Digital literacy generally is used to refer to an individual's ability to locate, evaluate, and use digital information, encompassing both technologies (e.g., computers) and services (e.g., e-mail). It can also include their ability to deal with and make sense of the amount of information they receive (Goulding 2001). The kinds of technologies and level of access available have a significant impact on digital literacy (Meneses and Momino 2010). One specific component of digital literacy

includes what is known as *information literacy*, which is the ability to recognize when information is needed, find and evaluate the information, and use it effectively (Thompson 2008). People with access to digital technologies but who are not digitally literate face unique challenges. While those accessing digital resources in a public library may receive assistance from library staff, as two-thirds of those using library computers do (Becker et al. 2010), such assistance is not available for private or in-home Internet use. In addition to the standard definition of digital literacy, some argue that the ability to create as well as absorb content is a component of digital literacy (Hobbs 2010). From this perspective, digital literacy encompasses what has been termed *media literacy* by many educators to refer to the process of learning to evaluate and create messages through media (Hobbs 1998).

Digital Inclusion

The final NTIA (2000) report during the Clinton–Gore administration was titled "Falling through the Net: Toward Digital Inclusion." Rather than continue to focus on the gaps in technology access between the haves and the have-nots, the term digital inclusion changed the focus of the study to a sociopolitical approach, emphasizing the foreseeable role of digital technology as a means to engage American society. Digital inclusion encompasses approaches to narrowing the digital divide and increasing digital literacy. One recent study identified the underlying components necessary for digital inclusion as adequate funding for technology, sufficient physical and technological infrastructure to support the technology, adequate bandwidth, and sufficient training in using the technology (Becker et al. 2010). If the digital divide and digital illiteracy are the problem, digital inclusion is the proposed solution, representing the ability of individuals and groups to access and use information and communication technologies (IMLS 2011). While digital inclusion is still not clearly defined, the Obama administration's American Recovery and Reinvestment Act of 2009 (commonly referred to as the Stimulus Bill) and its $7.2 billion in funding, "aimed at expanding broadband access to help bridge the technological divide and create jobs building out Internet infrastructure" (White House 2009), have the potential to foster a substantive dialogue as the impacts of this law become clear.

Digital inclusion can reference any strategies to provide training, services, or opportunities designed to address the challenges of the digitally disadvantaged. Components of digital inclusion include economic and workforce development and training (IMLS 2011). For individuals without access, digital inclusion is a means of gaining access to digital resources. Programs such as President Obama's National Wireless Initiative are intended to provide high-speed wireless services to most Americans and remove barriers

to access by lowering the infrastructure requirements with wireless access; Americans need only mobile devices and not costlier computers to gain Internet access (NTIA 2011).[1] While not all Internet-enabled tasks can be completed on a mobile device, this initiative is an example of digital inclusion as policy. For individuals who cannot make the best use of digital resources, digital inclusion refers to training or other opportunities to develop digital skills and comprehension.

GOVERNMENT APPROACHES TO INFRASTRUCTURE

The legislative roots of digital inclusion can be traced to the Communications Act of 1934, in which Congress established the precedent of unifying telecommunications and broadcasting standards to promote widely available nationwide wire and radio communication services in an affordable and nondiscriminatory manner. The Telecommunications Act of 1996 was a comprehensive update and expansion of telecommunications laws, including promoting universal service to people in low-income, rural, insular, high-cost, and other disadvantaged areas to make telecommunications more affordable. The Telecommunications Act of 1996 could not foresee the advent of broadband as a defining communication medium; the language of the law, however, anticipated that there would continue to be advancements in this area and included nonspecific text to allow for the promotion of access to future technologies (Gilroy and Kruger 2002). As telecommunications companies increasingly focus on developing and marketing broadband Internet services, the disparities between Americans who can access the infrastructure and those who can not become more pronounced, leading to what is now one aspect of the digital divide.

No major legislation surrounding the development of broadband access was enacted until the Stimulus Bill. The bill provided $7.2 billion in funding for loans and grants to be offered and administered by the NTIA and the U.S. Department of Agriculture's Rural Utilities Service (RUS). The majority of the funding ($4.7 billion) was to be used to build broadband infrastructure in underserved and unserved areas, with $2.5 billion allocated specifically for rural areas (White House 2009).

The NTIA created the Broadband Technology Opportunities Program (BTOP) as its grants funding arm. In its first round of funding, BTOP provided $293 million to fifty-six grantees, one each from the fifty states, five territories, and the District of Columbia, for a variety of state-level programs intended to increase the level of broadband access and, therefore, encourage digital inclusion (http://www.broadbandusa.gov). Additionally, as their website notes, BTOP committed funds for states to gather data "twice a year on the availability, speed, and location of broadband services, as well as the broadband services that community institutions, such as schools, libraries

and hospitals, use." In collaboration with the Federal Communications Commission (FCC), the data collected were used to develop the National Broadband Map, which launched in 2011 at http://broadbandmap.gov/. The RUS—operating its own funding program, primarily through loans, as the Broadband Initiatives Program (BIP)—provided funding for 285 last-mile projects (providing access to customers), 12 middle-mile awards (transmissions lines for large areas), 4 satellite awards, and 19 technical assistance awards in 45 states and 1 territory (U.S. Department of Agriculture 2011).

In February 2010 the FCC released its *National Broadband Plan*, consisting of recommendations to "guide the path forward through the rule-making process at the FCC, in Congress and across the Executive Branch." The FCC's plan attempts an umbrella approach to the issue of broadband availability and addresses development, economic market forces, policy reform, and policy creation, among other subjects. With regard to digital inclusion, the FCC emphasizes creating incentives to promote digital inclusion, which the report views as the combination of sufficient broadband service, affordable broadband service, and the availability of opportunities to develop the digital literacy needed to use broadband. Perhaps recognizing the broad scope of the aforementioned inclusion efforts, the FCC couches its recommendations in terms of "should," not "must"—a less effective but infallible strategic move should none of the methods suggested come to fruition.

In the plan, several new programs are suggested. Of relevant interest are the Connect America Fund and the proposed method of financially supporting it (Federal Communications Commission 2010). The FCC recommends transferring at least a decade's worth of monies invested in the Universal Service Fund (USF) to expand broadband access. Created by the Telecommunications Act of 1996, the USF is a mechanism by which schools and libraries receive financial assistance (under the E-Rate program) to ensure that Internet connectivity is available to those institutions. Over time, the E-Rate program has been enormously important in the development of Internet infrastructure and connectivity in schools and libraries, providing billions of dollars over the course of a decade and a half (Jaeger et al. 2007; Jaeger, McClure, and Bertot 2005). Currently, virtually all public schools and about half of public libraries benefit directly from E-Rate funds (Jaeger and Yan 2009).

When considering acting on the ideas of digital inclusion and thereby bridging the digital divide, divesting the E-Rate program presents a paradoxical approach. Schools and libraries offer Internet services to communities and constituencies who are likely to fall within the Stimulus Bill's mandate of making broadband accessible to unserved and underserved populations. In about two-thirds of communities, public libraries are the only source of free public Internet access, particularly in rural and economically

disadvantaged areas (Bertot, McClure, and Jaeger 2008). Defunding the program obviously will lead to a loss of Internet access in the physical structures where it has been most readily available to the largest number of people who need access. Defunding the E-Rate program also presents another challenge, including the loss of access to those who have no wish for Internet in their homes but still wish to perform Internet-only functions, such as filing taxes.

In 2010 Pew Internet found that 60 percent of American adults use broadband connections at home (Rainie 2010). Nearly 125 million Americans do not use broadband at home, although this could mean in some cases that Internet access exists in the home but that people are using slower access technologies, such as dial-up service (Mandel et al. 2010; NTIA 2010). It should be noted that the term *broadband* includes many different levels and speeds of service, with different nations even having varying official definitions of the term (Mandel et al. 2010). In an Organisation for Economic Co-operation and Development (OECD) 2008 study, the average advertised download speed of 9,640 kilobits per second (kbps), or 9.64 megabits per second (Mbps), in the United States significantly exceeded the FCC minimum definition of broadband as 200 kbps, or 0.2 Mbps, while Japan led the world with 92,846 kbps, or 92.85 Mbps, average advertised download speed.

In a recent survey by the NTIA, however, a staggeringly large number—30 percent of all persons in the United States—do not use the Internet anywhere (NTIA 2010). For certain populations, such as persons with disabilities, the percentage of nonusers of the Internet is even higher (National Council on Disability 2009). In the case of persons with disabilities, the nonusage is directly linked to the laws related to infrastructure and digital inclusion providing explicit permission for providers of access and content to not include persons with disabilities in their services (Jaeger 2011; Lazar and Jaeger 2011).

With respect to digital inclusion and broadband capabilities, the NTIA survey emphasized four major reasons for the even higher number (40%) of those not using broadband at home (NTIA 2010):

- People did not feel they needed broadband
- People felt broadband was too expensive
- Lack of or insufficient end-point equipment (i.e., computers)
- Lack of service availability, particularly in rural areas

The NTIA study ironically demonstrates that the goals of the Stimulus Bill to ensure access to broadband capabilities for all is not the only obstacle—and might not even be the main complication—to fostering digital inclusion and creating a digital nation.

GOVERNMENT APPROACHES TO EDUCATION AND LITERACY

Along with a muddled policy approach to the digital divide and infrastructure, the policy approach to digital literacy and inclusion is contradictory and problematic. In an attempt to address the issues of the digital divide and create a more digitally inclusive infrastructure, several government agencies collaborated to create DigitalLiteracy.gov as an instructional Web site to "serve as a valuable resource to practitioners who are delivering digital literacy training and services in their communities" (DigitalLiteracy.gov n.d.). In accordance with this statement, one of the main menu categories is titled "Find Educator Tools." However, the lack of a clear audience creates some inconsistencies in the Web site's approach. While providing educational tools, materials, and guides for individuals and entities, such as libraries, that are attempting to bridge the digital divide, the site also attempts to speak directly to the have-nots of the digital world. An in-depth review of the site shows that the majority of the Web site appears to speak directly to those very people who do not have Internet access or who prefer not to go online. Within the Digital Literacy Initiative Fact Sheet, the push-pull complications of digital inclusion are perfectly represented by two sequenced bullet points:

- There are notable disparities between demographic groups: people with low incomes, disabilities, seniors, minorities, the less-educated, nonfamily households, and the nonemployed tend to lag behind other groups in home broadband use.
- While there is no single solution to closing the broadband adoption gap, increasing digital literacy skills among nonusers is key to bringing them online and opening doors to opportunity. (DigitalLiteracy.gov 2011)

Identifying underrepresented groups is absolutely necessary in order to target those with the most need of education, attention, and access. But not offering solutions, approaches, best practices, or other means to resolve the disparities (as seemingly evinced by the second bullet point) is problematic.

Additionally, devoting resources to an entire "Learn the Basics" section assumes that the people needing to gain digital literacy will somehow intuitively find the site if they manage to obtain Internet access. Because a lack of government literacy is frequently tied to a lack of digital literacy, there are several flaws in the site's approach (Jaeger and Thompson 2003, 2004). A more fruitful approach would perhaps be to design the site's content with and for those community institutions (e.g., libraries and schools) that are best positioned to help meet the challenges of digital exclusion within their communities.

Also, the "In the Community" section discusses online training and digital literacy resources for people with disabilities, yet the Web site suffers

from a clear lack of accessibility for users with different disabilities. Adding to the missing facets of digital inclusion not addressed by DigitalLiteracy.gov is that it exists only in one language, English. These oversights are especially problematic, as persons with disabilities and non-English speakers are two of the groups facing the greatest barriers to digital inclusion (Jaeger 2011; Livingston 2010).

Another institution attempting to define, address, and implement a viable plan for digital inclusion is the Institute of Museum and Library Services (IMLS). As requested in the FCC's *National Broadband Plan*, IMLS created a Proposed Framework for Digitally Inclusive Communities (IMLS 2011). The IMLS defines the goals of digital literacy as falling within the following categories:

- All members understand the benefits of advanced information and communication technologies
- All members have equitable and affordable access to high-speed Internet-connected devices and online content
- All members can take advantage of the educational, economic, and social opportunities available through these technologies

The IMLS framework identifies a total of eleven principles "for focusing efforts in the areas most important for making the entire community digitally inclusive now, for planning for the future, and for identifying areas where special effort will be required" (IMLS 2011). Five of these principles are defined as "foundational principles" with the other six defined as "targeted principles." By initiating the five foundational principles, the remaining six targeted principles ostensibly will be achieved. While the framework is a more coherent approach to digital literacy and inclusion than that of DigitalLiteracy.gov, and mostly in line with the current administration's goals, it is not a plan that is mandated, enforceable, or funded.

THE ROLE OF LIBRARIES

With 16,672 public library buildings in the United States (IMLS 2011), public libraries are in nearly every community. Public libraries provide important public-access computing and Internet access in their communities (Bertot et al. 2011). For example,

- 99.3 percent of public libraries offer public Internet access
- 64.5 percent of libraries report that they are the only provider of free public computer and Internet access in their communities
- 85.7 percent of public library branches offer wireless (Wi-Fi) Internet access

- Overall, public library branches report an average of 16 public-access computers. Rural libraries reported an average of 9.6 public-access computers, suburban libraries reported an average of 19.6 public-access computers, and urban libraries reported an average of 28 public-access computers.

And, although communities have cafés, coffee shops, or other establishments that provide free Wi-Fi, they do not by and large provide public-access computers in conjunction with the wireless access.

In addition to providing public-access technologies, public libraries offer a range of information technology instruction. In 2011 only 13 percent of libraries surveyed offered no technology training, with 38 percent of libraries offering formal training classes, 28.1 percent offering one-on-one trainings, 78.8 percent offering point-of-use assistance, and 29.5 percent offering online training material (Bertot et al. 2011). Of those libraries offering formal information technology instruction, 92.9 percent offer general computer skill classes, 93.5 percent offer general Internet use classes, 81.9 percent offer general online/Web searching classes, 79.5 percent offer general software use (e.g., word processing, spreadsheets, presentation) classes, and 54.5 percent offer online database classes. Thus, as compared to a café or other Wi-Fi venue, public libraries are often the only community-based access point to the Internet, public access computing, expertise, and information (Bertot, McClure, and Jaeger 2008).

Challenges in Public Access

Despite the importance of these public-access technology and Internet-enabled services, public libraries face a number of challenges in their efforts to provide access to and instruction in digital resources. Libraries report across-the-board increases in the use of their public-access technologies, Wi-Fi, training classes, and online resources, thus representing an increase in demand on library resources and staff. These increases have occurred concurrent to dramatic decreases in library budgets, as policy makers apparently experience a disconnect between the significance of digital literacy and inclusion for the next-generation economy while diminishing support for the primary Internet access and training point for those affected by the digital divide. Libraries, however, have not been very successful in articulating to policy makers a clear message of their activities in the age of the Internet.

As reported by libraries (Bertot et al. 2011):

- 76.2 percent have insufficient public-access Internet workstations to meet patrons' needs during at least some part of a typical day.
- 44.9 percent indicate that their Internet connection speed is insufficient to accommodate patron demand some or all of the time.

- 77.2 percent have space limitations that prevent additional workstations, while 54.4 percent state that the lack of electrical outlets or sufficient cabling are significant barriers to adding workstations or laptops.

With increased usage, these added pressures on the network and infrastructure are occurring as library funding is being cut at local, state, and federal levels around the nation (Bertot, Jaeger, and Greene in press; Sigler et al. 2012). These overwhelming demands refute assertions that public libraries have benefitted from the focus on digital divides, digital literacy, and digital inclusion simply because they have received funding for technology from private sources such as the Bill and Melinda Gates Foundation (e.g., Stevenson 2009).

And, a simple lack of access is not the only driver of this usage. The U.S. IMPACT study reported that of the 45 percent of public library visitors who used the Internet in 2010, 75 percent had access to the Internet at home, work, or elsewhere (Becker et al. 2010). It is likely the presence of a helpful, skilled librarian who can assist those who lack the necessary information-literacy skills required to fill out online forms or search for vital information that draws these individuals to the public library to go online (Jaeger 2008; Jaeger and Bertot 2009; Jaeger et al. in press).

Libraries continue to lead the way with digitally inclusive programs such as the New York State's Education Department initiative—highlighted on the DigitalLiteracy.gov site—to "[teach] digital literacy courses at computer learning centers in 13 libraries across upstate New York." News organizations such as the *Washington Post* (Roso 2011) have also highlighted how libraries continue to be the go-to resource for people intent on not just accessing the Internet but also expanding their job skills and therefore their hireability for future employers. Many other libraries have created partnerships with local community organizations to ensure that community needs—from access to food to mental health services to employment services—are available to community members through creative uses of the Internet (Bertot, Jaeger, and Greene in press; Sigler et al. 2012).

However, these efforts to increase digital literacy and digital inclusion have not been rewarded through policy decisions and point to the discrepancy in the public library funding model—wherein public libraries are increasingly envisioned as part of the national infrastructure to promote connected and digitally inclusive communities (Federal Communications Commission 2010), but the funding sources for public libraries are almost entirely local. The defunding of public libraries at both the state and local levels while they are increasingly important to ensuring Internet access and training is a significant issue. But policy discrepancies exist at the federal level as well; for example, the FCC proposal to defund the E-Rate while simultaneously featuring libraries prominently in the National Broadband Plan. It is unclear at this time the extent to which libraries benefitted from the

Stimulus Bill broadband funds, because many successful nonlibrary or non-state library agency–led applicants may or may not have included libraries in their deployment of broadband.

CONCLUSION: RECONCILING POLICY AND PRACTICE

Because the NTIA BTOP, RUS BIP, and other Stimulus Bill–funded programs are currently underway, a complete picture of the success (or failure) of this large undertaking cannot yet be judged. The fact remains, however, that the United States, for all its technological achievements, has lagged behind many other industrialized nations in the establishment of comprehensive and competitive information-access programs. The argument may be made that, regardless of whether certain segments of the population will continue to opt out of the use of broadband technology in the home even if it is made available and affordable, it is important that future generations currently living in unserved, disadvantaged, or underserved populations will have the choice to opt in.

For these populations, the public library currently stands as the primary resource through which Internet access, education, and resources are available. As a result, public libraries are relied on more than any other cultural institution to overcome the digital divide, teach digital literacy, and foster digital inclusion. As detailed previously, the federal policies in this area acknowledge this reality, relying specifically on public libraries in a number of ways to promote digital literacy and digital inclusion. Yet, public libraries are predominantly excluded from the funding made available for digital literacy and digital inclusion, and are excluded from the decision-making processes related to policy in this area.

Further exacerbating this disjunction between federal policy and public library practice in terms of digital literacy and digital inclusion, public library budgets have been heavily reduced during the economic downturn of the past several years, even though the use of libraries has skyrocketed (Sigler et al. 2012). While governments at all levels are relying on public libraries to ensure digital inclusion, the same governments are reducing the funding of the very libraries that are being relied on. This places public libraries in an untenable situation of meeting greater service demands and greater service expectations with fewer resources by which to meet these demands and expectations.

If this situation is to be addressed, the solution can only be found in reconciling the incompatibility between funding cuts at the state and local level, as well as limited support at the national level, with the increased view at the federal level that libraries are part of the solution to large-scale technological problems. As with many other current areas of information policy, this situation evidences a clear lack of harmonization between major policy

goals (Shuler, Jaeger, and Bertot 2010). Simply put, public libraries cannot be simultaneously promoted as the solution to digital-divide issues by the FCC, IMLS, DigitalLiteracy.gov, and other government agencies and forced to face the significant reduction of the small amount of federal funding they receive by taking the funding away from the E-Rate program to meet other policy goals.

No other cultural institutions are prepared to serve the public in the digital-literacy and digital-inclusion capacities the way public libraries do, because of a lack of sufficient public-access technology and a lack of the ability to provide education and training related to the Internet. As such, the change has to be in policy rather than practice, unless the federal government opts to abandon policy focus on promoting digital literacy and digital inclusion.

Three core changes could help harmonize the policy and practice of digital literacy and digital inclusion. The first is extremely straightforward—when demanding more of libraries to fulfill these digital literacy and digital inclusion functions, do not reduce library funding. The proposal to take any E-Rate funds, while state and local governments are drastically cutting library budgets, will not serve to increase digital literacy and digital inclusion. Libraries have been placed in the social role of ensuring digital literacy and digital inclusion and their support from all levels of government needs to increase to a level that such services, training, and resources can be adequately provided.

Second, policy making related to the digital divide, digital literacy, and digital inclusion needs to bring public libraries into the discussions, designs, and decisions. A place in the policy-making process for libraries would have quickly illuminated the problems with relying on libraries while cutting their funding, though libraries as a group have not sufficiently articulated the message of their activities in this area to policy makers. Additionally, the input from the social instructions that work to foster digital literacy and digital inclusion into the development of DigitalLiteracy.gov would likely have resulted in a Web site far better equipped to promote digital literacy and digital inclusion.

In addition, though there are attempts to create and foster partnerships between libraries and government agencies that could benefit communities greatly, they may not come with the funding, governance, or other structures necessary to ensure success. One example is the partnership between the IMLS and the U.S. Department of Labor (IMLS n.d.). Announced in June 2010 with the intent of bringing together the Department of Labor's employment services and one-stop career centers and libraries as community-based institutions, there is little evidence of a broad national collaboration. For example, the resources provided on the IMLS Web site are more than a year old, and when one heads to the CareerOneStop site (http://www.careeronestop.org/) one cannot find materials directed at libraries that want

to partner and/or engage the Department of Labor's resources. Indeed, the resources are directed at the public seeking employment and/or training and do not seemingly consider that those in need of assistance may not have access to, or be facile with, Internet-enabled technologies to take advantage of the provided resources and information. However, for librarians to be able to successfully fulfill these needs, library and information service (LIS) programs will need to place far greater curricular emphasis on the educational and social service roles of librarians in promoting digital literacy than most LIS programs currently do.

And, finally, libraries need to take more initiative in terms of advocacy. Libraries have accepted—and in most cases embraced—these responsibilities without the needed support from governments. Public libraries must make a stronger, more public case for the support they need. Without changes in policy in this area, public library roles in promoting digital literacy and digital inclusion will not be sustainable. For each member of a population that is disadvantaged in terms of digital literacy and digital inclusion, and for society as a whole, such an outcome would have dismal consequences. Without the public library as capable intermediary, the gaps between the digital haves and the digital have-nots will quickly escalate as digital inclusion becomes more and more central to participation in education, employment, government, and many other areas.

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NOTE

1. According to 2011 Pew Internet and American Life reports, 83 percent of American adults own mobile phones and 42 percent of these own a smartphone (or 35% of the total adult population) (Smith 2011).

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