The use of public computing facilities by library patrons: demography, motivations, and barriers ☆

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ABSTRACT

Public libraries play an important part in the development of a community. Today, they are seen as more than store houses of books; they are also responsible for the dissemination of online, and offline information. Public access computers are becoming increasingly popular as more and more people understand the need for internet access. Using a series of surveys conducted in 12 libraries across the state of Michigan, the current study is a step towards understanding why the computing facilities are widely used, and what are the motivations behind their use. In addition, barriers and other factors that hinder usage are also discussed. The findings from this study will help policy makers and library administrators evaluate the current allocation of scarce resources, help them promote greater use of the library's resources, and guide their future course of action. The study is conducted as part of a federally funded public computing center grant.

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1. Introduction

As the internet becomes increasingly essential in American society, public computing facilities in libraries bridge a critical gap between those who have internet access and those who lack it. As of October 2010, 40% of Americans reported having no broadband connection, and close to 30% of the households had no internet access (National Telecommunications & Information Administration, 2011). Seven percent have dial-up but not broadband connections (Smith, 2010). The lack of access to a broadband connection can limit access and effective usage of many economic and social resources, such as online learning, e-government applications, health information, employment opportunities online, and basic communication functions such as email and web browsing (Federal Communications Commission, 2011).

This void in broadband and internet facilities is often fulfilled by public computing facilities in libraries that provide computers and free broadband internet access, regardless of the individual's ability to pay. Far from being made obsolete by online information sources, libraries are becoming more critical in the information age. A study by the American Library Association (ALA, 2011) found that 40% of library computer users used the facility for career and employment needs. Close to 32 million people (42%) used the library resources for their education and training needs. A study by the Gates Foundation reported that 77 million Americans depend on the library's resources for their internet use and the ones that are below the poverty line depended on its resources even more (Becker et al., 2010).

Community centers facilities in general, and libraries in particular, have been struggling to keep pace with the increasing need for public computing facilities. The recent economic crises have only increased the patron demand for public computers in libraries that are serving as "America's first responders to the economic crisis" (Rettig, 2009, n.p.). Library budgets have at best remained flat in the aftermath of the Great Recession of 2007–2009, with three-fifths of library systems reporting flat or declining operating budgets in 2011 (Hoffman, Bertot, Davis, & Clark, 2011), and 15% of the libraries reducing their open hours with urban libraries especially hard-hit by the cutbacks (Hoffman et al., 2011). At the same time, demand for public access computers increased year-over-year in 70% of libraries and nearly two-thirds of library outlets are the only source of free internet access in their communities, with over four-fifths of all libraries providing broadband internet access to the public.

The need to improve public access in the U.S. is further underscored by two issues: the nation's mediocre standings in international broadband rankings (International Telecommunication Union, 2010; Organisation for Economic Co-operation & Development, 2009) and the disparities in the internet access that have persisted between urban and rural, majority and minorities, high income and low income, young and old, and highly educated and less educated citizens (Advanced Communications Law & Policy Institute, 2009; LaRose et al., 2011; NTIA, 2011).

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To address these infrastructure needs, the American Recovery & Reinvestment Act (ARRA) (2009) allocated $7.2 billion to extend broadband internet access in underserved and unserved areas (Pub.L. No. 111-5, Sec. 6001, 2009). The U.S. Department of Agriculture (USDA) awarded $3 billion of this total through a program administered by the Rural Utilities Service (RUS) called the Broadband Investment Program (BIP). The National Telecommunications and Information Administration (NTIA) of the U.S. Department of Commerce awarded the balance of the funds through its Broadband Telecommunication Opportunities Program (BTOP). The BTOP funds a wide range of projects including infrastructure construction, community broadband applications through community computing centers, and sustainable adoption projects intended to impact the use of broadband technology for the benefit of health care, education, children, employment, and public safety (LaRose et al., 2011).

Over 250 BTOP awards were made across all 50 states to further community computing centers, basic infrastructure construction, and community interventions to promote sustainable internet adoption. One of the main purposes of the BTOP is to extend broadband access to the segments of the population who do not currently enjoy full access to broadband (e.g., low income, minorities, senior citizens, small businesses), either by increasing the availability of broadband to the home or through the provision of public computing facilities by community anchors such as schools and libraries. The present study focuses on one of these community anchors – libraries – that were funded as part of the BTOP initiative to add public access computers.

Despite the federal investments, library administrators are unsure if the ARRA, BTOP and other initiatives such as the e-rate program (Funds for Learning, 2012) and changes in the Universal Service fund allocations (FCC, 2011) can keep pace with the growing demand for public computing facilities. Prior to the ARRA, a longitudinal analysis of public libraries survey data suggested that libraries were struggling to cater to an escalating demand for public computing facilities (Becker et al., 2010). More recently, findings from the Public Library Funding and Technology Access project noted that libraries are facing the dual challenges of shrinking state and local-level funding, and the burgeoning demand for service (Bertot & Jaeger, 2011).

Although the large-scale studies discussed above are providing an understanding of the range and amount of public computing services being offered to library patrons, little is known about what motivates patrons to use library computers beyond the commonly known demographic differences. Understanding the psychological drivers of public computing use complements interesting facts about usage along with inferences from the demographic data. In light of the pressing need to use the limited resources more efficiently, understanding the computing needs from the patrons' perspective can also help policy makers and library directors plan the provision of services and facilities more efficiently. From the national policy perspective, it is important to understand the relationship between the provision of internet services and the demand for public access so that appropriate and efficient strategies for sustaining broadband adoption may be devised.

The current study fills a gap in our understanding of the role of public computing facilities by examining them from the perspective of the library patrons. The paper has two foci. First, the study presents the demographics and usage patterns of library patrons. Second, the study analyzes the motivations to use public computing facilities, and the barriers to their utilization. The research is guided in part by the framework of the Theory of Planned Behavior (TPB) to predict future utilization of public computing facilities. Policy recommendations are presented accordingly.

1.1. Libraries and the digital divide

Libraries serve an important role in bridging the nation's digital divide between the haves and the have-nots of internet facilities.

Librarians and library administrators have a considerable responsibility and are increasingly called upon to fill the role of facilitators of computer use in the library whether or not they have received formal training to disseminate IT information. Previous research has examined the different aspects of internet use by library staff such as the attitudes of public library staff to the use of internet (Spacey, Goulding, & Murray, 2004), the impact of the internet on adoption of website resources (Kim, 2010), and the market for internet and library services (D'Elia, Jorgensen, Woelfel, & Rodger, 2002).

There have been relatively few studies about internet usage patterns in public libraries from the perspective of the patrons and these have focused primarily on demographic differences between users and non-users of public computing facilities. A Gates Foundation study by Gordon, Moore, and Gordon (2003) that studied public access computers and libraries in poor neighborhoods directed attention towards the importance of demographic variables such as income, education and ethnicity in determining internet access and use. In a study that examined broadband use in rural communities, interviews with library patrons indicated that in some cases library access was being used in place of home access, including instances in which home computers had been abandoned in favor of library computers (LaRose, Steinfield, Pompliano, Gustad, & Du, 2007). The study also found that patrons used library computers as a supplement to home computers for applications that their slower (or less secure) home connections did not support.

With the growing number of people using public computing facilities and the potential of these facilities to narrow the digital divide, knowledge of internet usage patterns by the patrons can inform library administrators on how best to provide public access and allocate scarce resources accordingly. One research agenda that the current study has is to construct a fuller profile of library patrons who are using the public computing facilities. Beyond the most frequently examined demographic information such as gender, age, income and education, the study also examines geographic information such as the residency status of the library patron as well as usage patterns such as internet access points, reliance on library computers and the applications that are accessed on the library computers. This expanded user profile will help administrators in their allocation of scarce resources to benefit those who are most reliant on public computing facilities. By distinguishing library patrons in terms of their needs, resources can be channeled to the appropriate communities, in which the libraries are located, and not visitors or those who merely use the facilities as a convenience. Thus, we pose the following research question:

RQ$_1$: What groups of library patrons are most reliant on public computing facilities?

Libraries have been found to be particularly important for people who are unable to gain access to the internet in their homes or at other locations. A recent study found that 44% of people in households living below the federal poverty line ($22,000 a year for a family of four) use public library computers and internet access (Becker et al., 2010). The same study also found that among young adults (14–24 years of age) living below the federal poverty line, 61% use public library computers and internet for educational purposes. Other studies have found that lower income patrons were more likely to use library computers for job searches (Brustein, 2009; Gronowska, 2009; Saulny & Cullotta, 2009; Yates, 2009). As such, this study poses the following research question:

RQ$_2$: How does income affect the patrons' dependence on public computing facilities?

1.2. Barriers that affect usage

Besides the commonly examined demographic variables such as income, age, gender, race, and education, other attributes of library patrons