# Internet Access and Software Alternatives for Students on the Wrong Side of the Digital Divide

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## INTRODUCTION

When considering higher education and distance and online learning, the topic of the digital divide continues to be both important and vexing. While there has certainly been some progress made in bridging the divide, many students, particularly those in lower income brackets, continue to encounter problems in terms of access to both high-speed connections and software. As these students increase in numbers on our campuses, and as higher education continues to move aggressively towards providing more instruction online, educators must assess how these issues have been and are being addressed.

Reviewing the current literature dealing with education and technology, one can not help but notice few topics engender more research and analysis than the digital divide. In a recent query of ERIC, 361 results were yielded for "digital divide" (ERIC, 2008). This topic surfaces time and again in discussions of the needs of the workplace, educational goals, technological literacy, and international competitiveness. The Digital Divide Council of Florida defines the digital divide as "an individual or community's lack of access to computers and online resources. The digital divide refers to a gap between those individuals who have reasonable opportunities to access technology tools and those that do not have such reasonable opportunities" (Digital Divide Council, 2002). According to a 2005 Pew/Internet report, one in five American adults have never used the Internet or email and do not live in Internet-connected homes, and in general certain groups continue to lag behind: Americans age 65 and older, African-Americans, and those with less education (Fox, 2005). As technological skills and higher education are becoming increasingly required in the workplace, and higher education is becoming increasingly dependent upon computer and Internet technology, what is to become of those not learning and

using these skills, as well as those unable to afford the costs? Inevitably, they will become further and further marginalized within our society, as surely as illiteracy marginalizes citizens.

## BACKGROUND

A variety of solutions have been proposed and are currently being implemented across the nation. One of these is Community Technology Centers (CTCs), a US Department of Education grant-funded project dedicated to creating community centers with Internet-connected publicly available computers in poor and rural areas (U.S. Department of Education, 2005). While the department has funded other projects, these often tend to focus on instruction and innovative uses of technology in education (U.S. Department of Education, 2003) rather than access and availability to computers and the Internet.

A key public institution striving to serve the technological needs of lower income citizens is the public library system. A recent study reports that "99 percent of all U.S. public libraries provide free public access to computers wired to the Internet, compared to 25 percent 10 years ago. Librarians overwhelmingly (71 percent) report that the most important impact of this service is providing Internet access to those who otherwise would not have it" (American Library Association, 2006). The study goes on to state, however, that despite increased demand for library computers there has not been a corresponding increase in their budgets, leaving libraries unable to provide enough workstations and sufficient bandwidth for their users, particularly in poor and rural areas, findings supported by a more recent survey also conducted by the ALA which found that only 1 in 5 libraries reports having enough computers to meet demand and that connections speeds are too slow (Jesdanun, 2007).

Other strategies include grant funding to furnish computers directly to lower income individuals. An example of this may be seen in the T.E.C.H. (Teaching Educational Computers for the Home) project, a state of Florida grant being administered by Santa Fe College in Gainesville, Florida (T.E.C.H. Initiative, 2006). Through this grant 200 low-income students and their families in Alachua and Bradford counties were furnished with a computer, printer, modem, and paid Internet access for a year; software included on these systems includes MS Works 2006. The program requires attendance at a minimum number of training workshops and that a journal be kept regarding the use of the computers for educational purposes.

Another approach has been for broadband providers to partner with educational institutions to offer high speed connections at a reduced rate. Additionally, some providers have made grants available to lower income families for free Internet service. Furthermore, some institutions have sought grants to assist in the installation of Wi-Fi networks on their campuses. This approach effectively provides high-speed service for all students with newer laptops. The US Congress is now considering funding grants aimed at institutions serving minority students to assist with costs (Foster, 2007). All of these possibilities could be investigated by those schools seeking to better support their students and/or their communities.

While these programs are certainly a step in the right direction, the reality remains that many people in our society continue to lack adequate access to computers and the Internet, a situation that negatively impacts their ability to participate in higher education. At the same time, a growing number of higher education institutions, particularly four-year schools, are requiring all students to have their own computers, often specifying that they be costly laptops or tablets. While financial aid can in many cases be used to cover the cost of a computer, for many this is increasingly becoming a burden by further adding to the rising debt levels of students in general, a situation that once again disproportionately impacts lower income students. Furthermore, in an attempt to cut costs, many colleges are also closing or considering the closure of some of their campus computer labs, arguing that students already have access to computers and the Internet, and that funds could be better spent elsewhere. As we have seen above, this is not necessarily the case.

## ATTEMPTS AT BRIDGING THE DIGITAL DIVIDE

### The Alternative of Open Source and Portable Applications

Another issue that must be addressed is proprietary software such as Microsoft Office, which places an additional burden upon students. In addition to needing reliable access to computers and the Internet, students must also purchase expensive software. Facilities providing public access to computers, such as public libraries and campus computer labs, must also purchase licenses for all of the computers hosting such software, increasing operational costs at a time of ever-tightening budgets for all public institutions. An example of this reality may be seen in the T.E.C.H. computers awarded to individuals in Alachua and Bradford counties in Florida described above; while the grant administrators hoped to include the MS Office 2003 suite on the computers, the cost of the licenses proved prohibitive. The reality is that most consumer PCs do not come with MS Office, necessitating that students purchase the software themselves or use campus computer labs – and we return to the problems previously described.

One alternative may be open source software. According to the Open Source Initiative (OSI) (2006), open source software must comply with the following criteria:

1. Free redistribution;
2. Source code;
3. Derived works;
4. Integrity of the author's source code;
5. No discrimination against persons or groups;
6. No discrimination against fields of endeavor;
7. Distribution of license;
8. License must not be specific to a product;
9. License must not restrict other software; and
10. License must be technology-neutral

Open source software is part of a larger movement known as Free/Libre/Open-Source Software, or FLOSS (Wikipedia, 2007a). The open source movement, largely through the work of volunteers and the donations and support of corporations such as IBM and Sun, has produced an amazing collection of software programs that include the Linux operating system, the Sakai

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