Technology and Computers Assessment:

Contra Costa County Library, El Cerrito Library

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**Introduction**

 Public libraries are often associated with their traditional roles of providing services, information, and programs revolving around print-based resources. As the world around us has become increasingly reliant on technology and more immersed in digital environments, the public library has met these changes by offering the digital content users want and providing open access to technology for all. Public libraries are often one of the only places in communities where individuals can have free and open access to computer terminals and the Internet, in addition, to the resources needed to learn how to use them (Celano & Neuman, 2010). Through this model of open access, public libraries are part of the solution in bridging the digital divide, which is defined as the lack of access to technology by individuals and communities due to a number of factors (Krebeck, 2010). Despite this goal of creating more access to technology, public libraries are also dealing with challenges such as limited space, aging facilities, and lack of funding sources which inhibit their mission of open access to all.

In this report I will be assessing the technology and computer resources provided by the El Cerrito Library, a community library part of the Contra Costa County Library system. The mission of the Contra Costa County Library and the El Cerrito Library is, “Bringing People and Ideas Together”, of which access to computers and technology is an important part. It is the goal of this report to not only assess the current state of computers and technology at the El Cerrito Library, but to also compare these to current best practices in the realms of accessibility and adaptive technology, early literacy, and bridging the digital divide in public libraries. It is also my hope to provide recommendations for the library based on this assessment that can be used to make improvements in providing open access to technology by all community members.

**Community Overview**

El Cerrito is a small city, located in the eastern part of the San Francisco Bay Area in California. The El Cerrito Library, founded in 1913, is a neighborhood library part of the Contra Costa County Library system which is made up of 26 community libraries and outlets. The total population of El Cerrito is 23,549 people. Racially, the city is made up of a majority of Whites [non-Hispanic] (53.3%) and Asians (27.3%), with smaller numbers of Hispanic (11.1%) and Black (7.7%) populations (U.S. Census Bureau, 2013). The median household income of El Cerrito is $83,933, which is higher than the state median of $61,632 (U.S. Census Bureau, 2013). English is the most widely spoken language in El Cerrito, with 63.6% of the population (ages 5 years and older) speaking it only (City of El Cerrito, 2013). Of languages other than English spoken by residents of the city (36.4% of population), Asian & Pacific Islander languages make up the largest percentage at 19.5%, and Spanish and other Indo-European languages comprise 8% each of the population (City of El Cerrito, 2013). 93.4% of adults aged 25 and older are high school graduates, while 58.3% of the population have a bachelor’s degree or higher; both of these percentages being much higher than those of the state (U.S. Census Bureau, 2013).

 According to research by Pew Internet, the percentage of Internet usage in the United States has increased steadily since the mid-1990s (Zickuhr, 2013). In 1995 only 14% of American adults (age 18+) used the Internet, while that number dramatically increased to 85% in 2013 (Zickuhr, 2013). These figures vary when looking at individual factors such as age, race/ethnicity, household income, and educational attainment. 86% of White adults (non-Hispanic) use the Internet, while only 76% of Hispanic adults use it (Zickuhr, 2013). Those who are younger also used the Internet more, with 98% of adults ages 18-29 who use it, while only 56% of seniors ages 65 and older who use it (Zickuhr, 2013). Similarly, household income also is a factor in Internet usage, with only 76% of households that make less than $30,000 per year that use it, while usage jumps to 96% for households that make $75,000+ per year (Zickuhr, 2013). Lastly, 59% of adults without a high school diploma use the Internet, while those with college degrees jump to 96% (Zickuhr, 2013). Of individuals who do not use the Internet, 34% believe the Internet is not relevant to them, 32% feel that the internet is not easy to use, 19% cite the expense of computer ownership and internet connection, and 7% cite a lack of availability or access to the Internet (Zickuhr, 2013). In 2011, 75.6% of households reported owning a computer (File, 2013). In California, 15.4% of the population does not own a computer or have Internet connection at home, and 16.6% of the population owns a computer, but doesn’t have Internet connection (File, 2013). From these numbers it is evident that though disparities in Internet use and computer ownership have decreased since the 1990s, they still continue to persist in this country with people of color, poorer households, seniors, and those with lower educational attainment.

 It is important to note that in El Cerrito persons 65 years old and older make up 17.9% of the population, which is significantly higher than the overall state percentage of 11.4% (U.S. Census Bureau, 2013). According to the American Community Survey (U.S. Census Bureau, 2007-2011), there are 4,873 students currently enrolled in public schools located in El Cerrito. Additionally, the American Community Survey estimates that from 2009 to 2011, the percentage of children in El Cerrito with disabilities (serious difficulties in areas including hearing, vision, and cognitive ability) totaled 2.8% of the under age 18 population (Kidsdata.org, 2013). Pew Internet conducted a national survey that determined 27% of American adults “live with a disability that interferes with activities of daily living” (Fox, 2011, p. 2), which include physical, mental, emotional, and cognitive functions. It also found that Americans living with disability are more like to live in lower-live in lower income households, low levels of education, and are more likely to be older (Fox, 2011). Lastly, Pew Internet also found that adults with disability are less likely than other adult to use the internet, with only 54% of adults with disability who use the Internet as compared to 81% of adults who report no disabilities (Fox, 2011).

**Description of Library Technology and Computers**

 With a facility of only 6,400 feet, the El Cerrito Library is much smaller when compared to the newer library facilities of the Contra Costa County Library (Burr Consulting, 2013). Due to the limitations of an aging building, the El Cerrito Library is only able to provide 6 Internet computers for patron use. These PC computers are limited to use by time, and will automatically log patrons off when their time is completed. Of the 6 Internet computer terminals, 3 are 1-hour computers, 2 are 30-minute computers, and 1 is a 15-minute express computer. 1-hour computers can be reserved up to 2 days in advance, while the 30-minute computers can be reserved for same day use only. Computer uses are limited to a maximum of one hour of computer time per day, across all libraries in the system. Computers can be reserved from catalog computer terminals located in the library, or from the Contra Costa County Library website. All computers require a Contra Costa County Library card, except for the 15-minute express terminal. The 1-hour and the express computers are located near the Adult area of the library, while the 30-minute computers are closer to the Children’s area. Interspersed with these Internet PC computers are computers where patrons can access the library’s online catalog, but not any other Internet sites or other computer programs.

 These computers run the Microsoft Windows XP operating system, and include the following software: Internet Explorer 8, Microsoft Office 2003, Adobe Acrobat Reader, Power DVD, WordPad, CD Utilities, and McAfee security software. According to correspondence with a Contra Costa County Librarian, these computers do not have filter software on them. The El Cerrito Library also provides free Wi-Fi access for patrons who chose to bring their own Internet-enabled devices to the library. Printing is available to all patrons at the library, either from the Internet computers or through Wi-Fi. Printing costs 10 cents per page, and all computers and printing available end 10 minutes before library closing time. The library also has a copy machine available for use, and costs 15 cents per page.

**Critique of El Cerrito Library Provisions**

*Quantity and Quality of Computers*

 During my visit to the El Cerrito Library, I noticed that computers were constantly in use. I saw many patrons who wanted to use computers, but were unable to because they were either all in use, or reserved by other patrons. According to a 2006 Needs Assessment of the El Cerrito Library, the number of computers is insufficient for the population of the city (Page & Moris, 2006). The assessment recommended an increase to 54 public access Internet computers, yet seven years later, the situation remains unchanged (Page & Moris, 2006). The main roadblock in adding more computers to the El Cerrito Library is its aging facility (Page & Moris, 2006). The library was originally built in 1949, and remodeled and enlarged in 1960, but has not undergone any expansions since. In a review of the El Cerrito Library, the Contra Costa Local Agency Formation Commission, classified it in “poor” condition, the lowest possible rating (Burr Consulting, 2013). Additionally, in 2011, a group of concerned El Cerrito residents formed the El Cerrito New Library Committee to garner community support and raise funds for a new library facility but the cost of a new facility remains unfunded (El Cerrito New Library Committee, 2013). The PC computers in the library seem out of date, and keyboards and mice appear quite worn from heavy use. While the computer monitors are flat-screen LCD, they are not wide-screen like modern hardware. Though there is standard software included on all of the Internet computers, most of it is very out of date. For example, it was recently announced that after April 2014, Microsoft will no longer provide support or updates to the Windows XP operating system or Office 2003, both of which are used on library computers (Microsoft, 2013).

Most problematic about the number of computers available at this library is that there are no dedicated computers for use by only children and teens. During my visit to the library, I observed 4 children, using the two 30-minute computer stations located in the Children’s area. Though young people have been shown to use the Internet more than other age groups, factors such as household income can have an effect on their access to computers and the Internet. Donna Celano and Susan B. Neuman (2010) argue that children develop computer proficiency outside of school, and that this proficiency requires lots of hands on time with technology. Low-income children are less likely to have computers and Internet access at home, and rely on a “safety net” of places such as libraries and after-school programs (Celano & Neuman, 2010). For these children, computer time is a “precious commodity”, and they often “must compete with adults for time slots on the libraries’ public computers” to “pack any work they need to finish into the time when school lets out…and when the library closes” (Celano & Neuman, 2010, p. 68). By not providing computer terminals specifically limited to teen and child use, the library is preventing low-income individuals from developing the basic technology skills needed to succeed in today’s world. This lack of access “translates into unequal access to information, causing a steadily growing knowledge gap between low- and middle-income children” (Celano & Neuman, 2010, p. 70). Technological advancement of the library’s youngest patrons can also be supported and enhanced through early literacy computer terminals. One such computer that is popular in libraries is the AWE Early Literacy Station, which is specially designed for children from the toddler stage through second grade (Brisco, 2010). These computers are specially designed for the youngest learner, with large touch-screen monitors, colorful keyboards and mice, and a plethora of educational software in seven curricular areas (Brisco, 2010). These computers are very popular in library preschool playrooms, because they focus on educational content, do not connect to the Internet, and are designed for children with a variety of skill levels (Dickerson, 2012).

Lack of money and space will continue to be issues with the quantity and quality of computers provided by the El Cerrito Library. Charles County Public Library in Maryland came up with a solution to the problem of space limiting their ability to add computers by finding a service location outside of the library (Krebeck, 2010). Through a partnership with local government, the library was able to open a computer center in a local community center. With this center the library was able to offer more public access computers to the community, in addition to Wi-Fi for users (Krebeck, 2010). While this solution is not a replacement for a full-service branch, it offers “a budget-friendly option for quickly expanding high-demand service into the community” (Krebeck, 2010, p. 15). As the El Cerrito Library is located next to the El Cerrito Senior Center and Fairmount Elementary school, these could be potential partnership opportunities the library could look to for computer centers. Another option for the El Cerrito Library would be to explore alternatives to its current reservation system, which relies primarily on the First-Come-First-Served (FCFS) strategy. In a study conducted at the Metropolitan Library System, Southern Oaks Library in Oklahoma, alternative computer reservation strategies were used to shorten wait time for patrons who want to use computers (Williamson, 2012). These alternative queuing strategies include: Shortest-Job-First (SJF), Highest-Response-Ratio-Next (HRRN), and Shortest-Job-First with feedback (SJF-FB) (Williamson, 2012). It was demonstrated that these non-FCFS strategies have the overall ability to lower wait times for patrons (Williamson, 2012).

*Locations and Appropriateness*

 As noted previously, the El Cerrito Library exists in an undersized and aging facility. Because of this, the electrical infrastructure not only prevents more computers from being added, it also affects the placement of current computer terminals (Page & Moris, 2006). The location of the computers appears haphazard and poorly placed. The majority of computers are placed in high-traffic and noisy areas, which is both distracting to users, and provides little privacy. Also, all of the 30-minute computers are located in the Children’s area of the library. Adult patrons using these computers appear to encroach on the little space allocated for young patrons, limiting it even further. Additionally, as computers have no filters, children in the area could be subject to questionable content of computer users. The library has many tables where patrons can set up their own devices to utilize the library’s free Wi-Fi, but they will quickly learn there are no electrical outlets to plug-in at the majority of these locations. The library provides one large table, located in a high-traffic area between the DVDs and hold pick-up shelves, which has one power strip. The aging building of this library has very real and very negative consequences on the expansion of computer and technology services to all users.

*Support, Advertising, and Promotion*

During my visit to the library, I observed many seniors using the Internet computers. Some required the help of library staff, which seemed to take away the time of staff that were also busy staffing the information and circulation desks. Due to limited staffing, there is also limited support for patrons using technology. When I first completed my assessment on the El Cerrito Library in September, I noted the library offered computer tutoring once a month. This was a program geared towards adults and seniors, and provided tutoring on basic computer and Internet skills. Upon reviewing the library’s events calendar for October and November, it seems this program is no longer offered. This is a real loss for the community, especially for lower-income households, seniors, and persons with disabilities who are statistically less likely to own a computer, have Internet access, and may also require more technology assistance and instruction. Upon review of the library’s collection, there are very limited number of computer books and technology instructional materials available for patrons. Additionally, many of these items are only available electronically, which begs the question of how those in need of help with technology would even be able to access these materials.

There is little to no advertising and promotion of the computer services offered by the El Cerrito Library. Most of the information provided about computers is only available through the Contra Costa County Library website (<http://www.ccclib.org/>), which lumps together information regarding all of the libraries part of the system. During my visit to the library, I did see some flyers promoting some of the CCC Library’s technology based services such as Text-a-Librarian, and the use of QR codes to access parts of the library website. Unfortunately, the majority of this information is only available in English, which ignores the significant foreign language speaking populations of the city.

*Accessibility and Adaptive Technology*

Accessibility and adaptive technology isn’t an optional inclusion in public libraries for patrons with disabilities and special needs, it is the law (Schlitter & Ehrnschwender, 2002). With the passing of Section 504 of the Rehabilitation Act of 1973, and the American with Disabilities Act (ADA) in 1990, persons are protected from being discriminated due to their disabilities, and it is required that public libraries provide a variety of accommodations to make it possible for those with disabilities to use their materials and services (Goddard, 2004; Schlitter & Ehrnschwender, 2002). These accommodations not only include changes to the physical facility but also the inclusion of assistive or adaptive technology (AT). Adaptive technology “involves a device or computer based accommodation that helps an individual with special needs work around or compensate for a disability by supporting individual strengths” (Goddard, 2004, pg. 2). When it comes to technology and computers, AT can be in the form of hardware of software. Examples of hardware AT include, adding flexibility to public workstations through height-adjustable tables, large flat-screen monitors with adjustable arms, a touch screen monitor, screen readers, keyboards with large type, and trackball mice (Goddard, 2004). Software options are often easier to include to existing workstations and there are even built-in accessibility options in operating systems such as Microsoft Windows (Goddard, 2004; Schlitter & Ehrnschwender, 2002). Examples of this kind of AT include screen enlargement software, voice output software, and speech-recognition software (Goddard, 2004). AT can be very costly, requiring not just the purchasing costs but also the cost of maintenance and support, and can pose challenges for libraries with limited space.

The El Cerrito Library currently only offers a bare minimum of above outlined AT for persons with disabilities. These include CCTV, ZoomText (screen magnification software), a large print keyboard, trackball mouse, 20/20 pens, signature guide, 3x magnifier, and a screen reader (Contra Costa County Library, 2013). The kinds of AT that should be included at the library requires an extensive needs assessment of the local disability community in order to determine what AT will best meet the needs of most of these patrons (Goddard, 2004; Schlitter & Ehrnschwender, 2002). For example, there is an Orientation Center for the Blind, an immersion program that assists with transitioning blind or visually impaired adults back into society located less than 1 mile from the El Cerrito Library. Though Braille translation software, display, and embosser may be expensive, the library may find these AT to be the most beneficial to the local disabled community (Goddard, 2004). Given the number of people with disabilities in California, and the higher than average number of seniors in the El Cerrito community, it is especially important that the technology needs of these populations are being met with through the help of assistive and adaptive technologies .

**Summary**

Struggles with an aging and undersized facility, coupled with a lack of funding seem to permeate every aspect of technology and computer services offered at the El Cerrito Library. Not only does the small size of the building limit an expansion of public access computers, the electrical infrastructure dictates poor placement of existing Internet computers and where patrons can plug-in their own devices. The library also fails to provide computers specifically geared for children and teens, potentially making the digital divide that effects low-income individuals an unbridgeable chasm. Support in the form of computer instruction is also absent, as is support to foreign language speaking populations. The library does offer some AT for patrons with disabilities, but an assessment of the local disabled community is needed in order to determine how access can be expanded. This portrait of the El Cerrito Library may seem dismal, but I don’t believe all hope is lost. Models of other community public libraries can be adapted, such as a computer center outside of the library, or changing the current queuing strategy in order to make access to computers and technology more available to all. There are also many grants and funding opportunities available from outside sources that can help the library purchase more AT for individuals with disabilities. Creativity and resourcefulness is fundamental if the library hopes to expand and truly make its technology and computer services accessible and open to all.

R**ecommendations**

* Increase the number of public access Internet computers. Perhaps the addition of laptops or tablet computers would be a possibility, as they have smaller footprints don't require permanent workstations.
* Add computers that are available for use only by children and teens. Make sure that these computers offer enough time for students to complete homework assignments when needed.
* Add computers to meet the needs of young children, including preschoolers. For example the AWE Early Literacy Computer Station, which focus on educational content, and is specially designed for young learners.
* Produce technology and computer promotion and support materials in foreign languages, especially in Asian languages and in Spanish.
* Increase the number of computer and technology assistance materials available in the library’s collection.
* Increase the number of areas in the library where patrons who want to use their own devices can plug them in.
* Separate computers so that adult computers are only in the adult area of the library and children computers are only in the children’s area.
* Move current computers to locations that are in less high-traffic areas, and with more privacy.
* Re-instate the computer tutoring program, and increase the frequency of it from once a month to once a week. Recruit tech-savvy teens and local university students as volunteers for this program.
* Conduct an extensive needs assessment of the local disability community in order to determine what types of AT should be added to best serve them.
* Apply for grant funding from outside organizations to bulk up current funding levels in order to purchase an increased amount of AT as determined by the aforementioned needs assessment.
* Include forms of AT such as height adjustable computer tables that can be easily added to current public access computer workstations, but can benefit those with disabilities and special needs as needed.

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