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Leading edge technologies in a community college library setting: identifying disconnects of academic libraries and their users

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LEADING EDGE TECHNOLOGIES IN A COMMUNITY COLLEGE LIBRARY SETTING: IDENTIFYING DISCONNECTS OF ACADEMIC LIBRARIES AND THEIR USERS

A dissertation proposal submitted in partial satisfaction

of the requirements for the degree of

Doctor of Education in Educational Technology and Leadership

by

Theresa C. Stanley

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under the guidance of a Faculty Committee and approved by its members, has been submitted to and accepted by the Graduate Faculty in partial fulfillment of the requirements for the degree of

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DEDICATION

To Cal

My best friend, who has always encouraged me to dream and to pursue those dreams.

Thank you for so much.

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ABSTRACT

The intent of this research was to discover what, if any, disconnect exists between community college students' library perceptions and technology use. The researcher studied how students at a very-large southwestern community college are using the physical and virtual college library, and their overall technology and library technology use. The research addressed the following six research questions: (a) What are the technology profiles (defined as technology ownership, use, skill, and adoption status) of students at a very-large size southwestern community college? (b) What are the library profiles (defined as library use, skill, awareness, and emerging technology receptivity) of students at a mid-size southwestern community college? (c) How do the library and technology profiles of students of disparate demographic factors such as age, digital status, gender, and academic status differ? (d) How can student receptiveness to and awareness of emerging technology library services be characterized? (e) How do students of disparate library and technology profiles compare in their awareness of, assessment of, and receptivity to traditional emerging technology-based library services? (f) What is the relationship between student use and awareness of library services and self-perception of technological competency, and receptivity to emerging technologies?

The data collection instrument consisted of a survey containing a mixture of multiple choice, Likert scale questions and open-ended questions. The researcher used a combination of data analysis software and Heuristic Coding.

In general, students at this institution use the library on a regular basis, with second year students using it more than first year students. The majority of them own a computer, having high-speed Internet connection at home. Most identified with the

statement that they adopt new technologies about the same as others. They use technology daily, mostly in the form of text messaging and social networking applications. The primary technologies used in their courses are library related. The results of this study may provide libraries and institutions information as to where additional instruction is needed to better assist students in their research needs and what technologies need to be promoted to better equip students in their pursuit of higher education, and ultimately in the workforce.

Chapter 1

> Libraries are connected nodes of information and community exchange that we use to communicate, collaborate, share resources and preserve knowledge. (Madden, 2007, slide 5)

Background of the Problem

Academic libraries provide numerous services to our students, some in our physical spaces and many more in our virtual spaces. In our physical spaces, we take care to provide an inviting atmosphere with furniture layouts designed to accommodate student's research and study needs by doing numerous focus studies to ensure their needs are represented. Academic libraries need to do the same when introducing new technology.

The threat of the Millennials descending on our libraries, or worse – not descending on our libraries because we are not technologically savvy, is a catalyst to many academic libraries to jump into the "technolust" trap, which Stephens (2008) identifies as using technologies because it is assumed something is desired. Instead, libraries first need to understand how students are using the current technology we offer. It is too easy to decide that the newest technology is just what students need and desire, especially in this hyper-technological time, where a new application seems to be popping up every day! Librarians need to understand their students' interaction with technologies and their library environment to provide better support to their academic needs. "Virtual as well as physical library spaces should help users to customize their ideal learning and research experiences" (Booth, 2009, p. 17). Just as no one book will fit every student's needs, neither will just one technology. And while it is not feasible to think that a library

can provide technologies that will fit everyone's needs, it is possible, through careful assessment of a local population, to provide relevant technologies that will support most students' academic needs. It is in providing relevant technologies that libraries will take the library to the students "to fulfill unique user needs" (Griffis, Costello, Del Bosque, Lampert, & Stowers, 2007, p. 1).

Recent news reports, magazine articles and education journals are all telling educators that today's college students, the Millennials, are much different than earlier generations. However, a 2008 report, "Information Behaviour of the Researcher of the Future" suggested that researchers need to be careful and resist "neat generational labeling" when it comes to technology (CIBER, p. 21). A wide range of technology skills can be found throughout society no matter what the age. Vaidhyanathan's 2008 essay "Generational Myth: Not all Young People are Tech-Savvy*,"* supports this thought, drawing on his teaching experience that technology skills of students over the last ten years has not changed – there are some "with amazing skills and a large number who can't deal with computers at all" (¶ 7). He compares his students to his father when it comes to their searching skills "Of course, they use Google, but not very well — just like my 75-year-old father" (¶ 7).

One thing these articles and journals are saying is that educators must change the way they teach. A change in teaching methods, especially to adult learners is long overdue. When adult learners first began to be studied after World War I, researchers identified a laundry list of "best practices," that would accommodate these students. However, it appears that no one read the literature. Higher education in many ways looks just like K-12 education; teacher in front lecturing, student busy taking notes, tests are

memorization of facts regurgitated for the instructor – I could go on. Perhaps it is because the majority of higher education instructors and administrators began in the K-12 setting, or perhaps it is because no one has asked (or demanded) them to change. Perhaps it is because it is the easiest way of teaching, demanding little of the instructor – especially if they repeatedly teach a course. Perhaps it is because…again, I could go on. What the news media and researchers are saying educators must do to keep today's college students engaged is exactly what was proposed in 1928 for adult learners.

Today's college students are not typical, especially when looking at community college students, whose age and background is more diverse than students at a university or college. This implies that research focusing on students' library and technology use, at the local level, is even more urgent. In discovering the students' library and technology use, it will allow the library to develop applications that are truly relevant to their students' enrichment and supporting their academic needs.

Lakos and Phipps (2004) said it well – "Libraries operate in an environment of constant change" (p. 354). Libraries must always be responding to their users information needs to remain viable and valuable. This is especially true in today's time where budgets are tight and/or shrinking and where library users have multiple choices. Today's college students have choices in where they get their information: academic libraries, public libraries, bookstores, and of course by using search engines. Search engines seemingly provide the users with the control and access to information they desire and do it when and where it is needed – even at 3 am on a Sunday morning (Stoffle, Renaud, & Veldof, 1996).

Libraries and the librarian's role are changing. Libraries are no longer considered the only source of information, with librarians having lost their "gate-keeper of information" role. Also, librarians are not the only ones cataloging information. Applications that assist users in cataloging the web have become popular. Folksonomies or *social tagging* is a layperson's taxonomy of categorizing items, which is what librarians do when cataloging items using the Dewey Decimal System or the Library of Congress classifications. Folksonomy is when groups of people categorize items using common words. Weinberger (2007) states in his book, *Everything is Miscellaneous: The Power of the New Digital Disorder*, "because knowledge is as big as reality, no one person can comprehend it" (p. 101), there will need to be filters, people who will help sort out the good information from the bad information. These filters used to be librarians, but the information base is so large and is so available, that society as a whole has taken over the task. Social tagging can assist users in finding information that is relevant, using terms that are relevant to them. Lund and Washburn (2009) confirm that filtering can work in tandem with a library catalog, by providing "additional access points" (p. 270) in locating items. This is just one way that libraries can assist their users to make the library more relevant, but only if a local needs assessment indicates your users would find it useful. Local needs assessments should be the catalyst that drives the library to implement something new or change current practices.

Purpose of Study

The purpose of this research is to discover what, if any, disconnect exists between community college students' library perceptions, and technology used in their pursuit of

academic achievement. The study also seeks to identify their library use in general, whether it is online or physically on one of the campuses.

Research Questions

The intent of this research was to discover what, if any, disconnect exists between community college students' library perceptions and technology use. I replicated a recent study done by Booth (2009) at Ohio University. Her research was presented at the Association of College and Research Libraries (ACRL) conference in March 2009. ACRL also published the entire study, "Informing Innovation: Tracking Student Interest in Emerging Library Technologies at Ohio University" in May 2009.

The research questions represent six of the seven questions used in the original study, with changes only to reflect the community college student profile.

1. What are the technology profiles (defined as technology ownership, use, skill, and adoption status) of students at a very-large size southwestern community college?
2. What are the library profiles (defined as library use, skill, awareness, and emerging technology receptivity) of students at a mid-size southwestern community college?
3. How do the library and technology profiles of students of disparate demographic factors such as age, digital status, gender, and academic status differ?
4. How can student receptiveness to and awareness of emerging technology library services be characterized?
5. How do students of disparate library and technology profiles compare in their awareness of, assessment of, and receptivity to traditional emerging technology-based library services?

6. What is the relationship between student use and awareness of library services and self-perception of technological competency, and receptivity to emerging technologies?

Significance of Study

In examining the literature available, it suggests that users are changing in what they are expecting from academic library web sites, but that few libraries are providing web sites that meet their needs. Research is needed to see what users are using for their academic work, and what, if anything, from their personal time on the Internet is transferring to the academic side. As Madden (2007) states, the library of the future will not only be valued as a physical space, but will also be "web-enabled and participatory" (slide 67). For this to happen, academic libraries, which were once themselves early adopters, need to look at leading edge technologies to assists the user in not just locating information but in assisting their needs in converting the information into knowledge. Our goal as educators should be as Cope and Kalantzis (2000) of the New London Group states in *Multiliteracies: Literacy learning and the design of social futures*

> If it were possible to define generally the mission of education, it could be said that its fundamental purpose is to ensure that all students benefit from learning in ways that allow them to participate fully in public, community, and economic life (p. 9).

It is in doing this that academic libraries can best assist our students in becoming lifelong-learners, and "even leading the educational role of an institution" (Sellars, 2006, p. 349). Schools at all levels are under pressure "to implement pedagogical changes" (Sellars, p. 346) that will provide students with those skills, as the business world has

already responded to the changing global corporate environment, and expects schools to produce a workforce that will be able to continue to grow and evolve along with them.

Community colleges have been the subject of little research over time (Cohen & Brawer, 2003) and community college libraries even less. My literature review will reveal no recent studies on community college students regarding libraries and their technology use. The literature review does reveal national studies done that look at students technology use and/or library use (De Rosa, & OCLC 2006; Jones, Madden & Clark, 2002) however, as Booth (2009) notes, the necessity for a local needs assessment to look at a school's demographics and the specific needs of the students who will be using the technology in determining what the technology needs are for that population and not relying on general assumptions derived from other's research is what should drive change.

> Identical technologies give rise to distinct library services for the simple reason that local users and institutions are fundamentally unique. The reality of the matter is that unless the technology information and library facility need and interests of users are locally examined and understood, librarians working with 2.0 technologies risk arbitrarily introducing hard-wrought innovations both to uninterested patrons and prohibitively unaccommodating workplaces. Rather than assuming that every library needs a blog, a wiki, and a podcast series, librarians who develop social and/or dynamic services should preface their efforts with local research in order to create a clearer perception of *actual*, rather than *imagined*, library and information needs of their immediate campus microcosm. Every institution must investigate the factors that shape its own landscape (p.9).

Sutton and Bazirjian (2009) confirmed this when they replicated the "2005 OCLC College Students' Perception of Libraries and Information Resources" survey and discovered their students' responses were vastly different from those in the original OCLC report. They concluded "local data should be used for local decisions" (p. 189). Evaluating local needs allows the data retrieved to be "applied towards programmatic ends – evaluating, modifying, and developing services based on actual feedback" (Booth, p. 21). Knowing what our users' needs are and responding in a timely manner is essential to increasing users' satisfaction (Sellars, 2006).

Limitations

The research for this dissertation applies only to very-large southwestern community colleges. The results of this dissertation cannot be generalized beyond the community college at which the study is done. In fact, this research is exploratory in nature and its only major contribution may be in the identification of values to be studied, rather than any generalization of results obtained.

Summary

News stories and literature tell educators that today's students are different. They are different in their goals and motivations, in how they learn and expect to be taught. Today's students may or may not be different than those of past generations but they are causing educators to reevaluate the classroom experience. In the same way the academic library needs to reevaluate the learning experience they provide. Academic libraries provide a valuable service to their students, but to remain constructive to their students they need to discover what their particular needs are. This is especially true for community college libraries whose population is more diverse than those students at a 4-

year college or university. Community college students' age can span from high school to over 60 years old. Their motivation for attending classes could be for their high school diploma or GED, a vocational certificate for direct employment, to transfer to a 4-year institution or for personal enrichment. They could be attending school part-time, while working full-time and still be tending to a family, or be a more traditional student attending school full-time while living at home. A community college library must work to serve each of these unique individual needs.

The ability of an academic library to change to meet their students' needs is more important than ever. Students are driving change by how they look for and use information. Librarians can no longer look at themselves as "gate-keepers of information" but instead work with students on retrieving, evaluating and organizing information both from academic (library) websites, but also commercial sites that are freely available.

The purpose of this research was to discover what, if any, correlation exists between community college students' library perceptions, and technology used in their pursuit of academic achievement. The study also sought to identify their library use in general, whether it is online or physically on one of the campuses. The results of this study were to make recommendations on how a southwestern community college library can provide better support to their academic needs, based on their current library and technology uses.

Recent studies indicated that college students' first choice for information retrieval is not their college library web sites. Literature suggests reason for this choice was that many college library web sites are not meeting their students' needs. The

literature review also indicated that community colleges have been the subject of little research over the years, with even less research done on community college libraries. This study helped to fill that void in doing a local assessment of a southwestern community college students' library and technology use.

Organization of the Remainder of the Dissertation

Chapter two presents a literature review on the history of community colleges and where they are today; the history of libraries, the changing library including looking at academic libraries physical and virtual spaces, today's college students, academic website usability studies, and theoretical models.

Chapter three presents the methodology and includes a presentation of participants, instrumentation, and procedures. Chapter four presents the results of the research. Chapter five includes discussion, conclusion, and recommendations for future research.

Chapter 2

> It was the best of times, it was the worst of times, it was the age of choice, it was the age of dilemma, it was the epoch of digital media, it was the epoch of keeping up with it all... (Baker & Taylor, 2009)

Overview

Community colleges have played a vital role in the education of adults in the United States. Each year more adults, from students just out of high school to older adults returning to school, are discovering that community colleges can assist them in their goals, whether it is for vocational training, to obtain an associate's degree or transfer credits to a university or for personal growth. The community college has changed over the years to reflect their students' needs and wants, and will continue to do so in the future.

Academic libraries have also changed over time, also starting off as an elite institution for those philosophers and researchers invited to partake to a place where students of all educational levels can find materials in a variety of formats to meet their needs and skills. Libraries are not a static place, but continue to evolve, and "must develop innovative and creative responses" (Wilson, 1999, p. 23) to the challenges incoming students will bring.

Today's college student is more diverse than ever, with teenagers learning next to senior citizens. These college students have different backgrounds, different expectations of technology, different reasons and goals, and different processes to attaining those goals, but they are similar in that they are there to learn. They want to be respected in

what they bring to the "education table." They want flexibility to learn in a way that is meaningful and relevant to them. In other words they are adult learners.

College students are innovators and early adaptors of technology. Younger college students know nothing other than the "information society" (Wilson, 1999, p. 23) and they expect it to be present in all their environments, including their academic life (Elam, Stratton & Gibson, 2007; Howe & Strauss, 2000; McGlynn, 2005, 2008; Murray, 1997). Libraries need to evolve to reflect their users needs and wants to assist them in reaching their educational goals.

Community Colleges in the United States

The development of the community college was hailed by educational leaders as one of higher education's more important innovations during the twentieth century. In what was started as a way for colleges and universities to purify "their institutions through the removal of the intellectually less capable students" (Brint & Karabel, 1989, p. 24), community colleges are now staples in most communities across the United States. Today they educate 46% of all undergraduates in 1,195 community and junior colleges in the United States (American Association of Community Colleges, 2008).

The first proposal came from Henry Tappan, University of Michigan's president, who wanted a new institution, a junior college to be formed to instruct freshmen and sophomores. These sentiments were repeated in 1859 by University of Georgia trustee William Mitchell, in 1869 by the president of the University of Minnesota William Folwell and in the 1870's by Columbia's Nicholas Murray Butler, Stanford's David Starr Jordan and Robert Harper at the University of Chicago (Brint & Karabel, 1989; Cohen & Brawer, 2003). The first actual steps toward the community college came in 1892 when

William Harper created two divisions at the University of Chicago – one for the freshmen and sophomore years of college and one for the upper division's junior and seniors (Brint & Karabel).

Looking back further, the concept of a community college, a college that offers not only collegiate transfer opportunities, which is what Tappan envisioned, but also offering practical instruction for "vocational-technical education, continuing education, developmental education, and community service" (Cohen & Brawer, 2003, p. 11) and is open to all – a democratizing of higher education – could be seen in The Morrill Act of 1862. The Land-Grant College Act, sponsored by Justin Smith Morrill and signed by President Abraham Lincoln in 1862, was to have states establish higher education institutions that would

> support, and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes on the several pursuits and professions in life (U.S. Department of Agriculture, 2009, sec. 4).

These public higher education institutions, sometimes referred to as *people's college*, a term also used to identify community colleges, were put in place not only to instruct in the liberal arts and other subjects often excluded by private colleges and universities, but also to open the doors or higher education to those students who could

not afford to go to and/or to travel to attend a private college or university. There would now be a public higher education institution in every state.

Perhaps the biggest boost for community colleges was the Servicemen's Readjustment Act, known more commonly as the GI Bill. This was passed in 1944 as a way for the returning servicemen of World War II to be educated. This financial aid was the first time the U.S. government assisted students will their higher education pursuits, opening the doors for many of the over 16 million veterans (National Park Service, 2010) who otherwise would not be eligible because of "social or economic barriers" (Vaughan & American Association of Community Colleges, 2000, p. 18).

Shortly after the GI Bill was passed The President's Commission on Higher Education released its report "Higher Education for American Democracy," also known as the Truman Commission, in 1947. The Truman Commission stated that for America to be truly democratic, barriers to higher education must be removed. It identified the community college as an institute that could fulfill that goal, educating the largest number of students. Their proposal was for community colleges to

> have no tuition, would serve as cultural centers for the community, offer continuing education for adults, emphasize civic responsibilities, be comprehensive, offer technical and general education, be locally controlled and blend into statewide systems of higher education, while at the same time coordinating their efforts with the high schools (Vaughan & American Association of Community Colleges, 2000, p. 19).

The Commission went so far as to state that they felt 49% of the nation's youth would benefit from 2-years of higher education. The Truman Commission also popularized the

phrase *community college*, which until this time, was inter-changeable with the term junior college (Brint & Karabel, 1989; Cohen & Brawer, 2003; Vaughan & American Association of Community Colleges, 2000).

Between 1960 and 1970, community college enrollment more than tripled due to the GI Bill, the Truman Commission, the civil right movement in the 1960's and the Higher Education Act of 1965 (American Association of Community Colleges, 2008). This increase in enrollment was noted by the Nixon administration's education policy committee who provided funds through the Higher Education Act of 1972 that stated the monies states to develop vocational programs and to exclude programs that award bachelor or professional degrees (Brint & Karabel, 1989).

At about the same time as Nixon signed the Higher Education Act of 1972, there were several media pieces that brought to light for many Americans the value of community colleges. A CBS television special "Higher Education: Who Needs It?" highlighted several new college graduates and how they were unable to secure jobs with their degrees. The Wall Street Journal, Fortune, Newsweek and Time ran similar stories. CBS went so far as to note that enrollments in community colleges would surge as "students realized that bachelor's degrees no longer assured employment" (Brint & Karabel, 1989, p. 115). Enrollment did surge as occupational programs saw an increase over well over 50 percent in full-time students (Brint & Karabel, p. 116).

One of the more recent financial assistance programs to begin is the Post 9/11 GI Bill. The Post 9/11 GI Bill is available for any military member (current or discharged) "with at least 90 days of aggregate service on or after September 11, 2001, or individuals discharged with a service-connected disability after 30 days" (U.S. Department of

Veterans Affairs, 2009). This is different in that the monies are paid directly to the college or university, not to the military member. The United States Department of Veterans Affairs (2009) notes that while the funds can be used at a private institution the funds are limited to the highest undergraduate educational institution in their state of residency. The military member can use it for any program offered at a college or university, including non-degree programs. (A military member desiring a non-degree program not offered at an IHL, would need to select a different financial assistance program available to military members.) The amount paid is based on the state the military member resides in, not a set amount for everyone. Other differences include a housing allowance, and a book stipend of $1000.

Today the American Association of Community College's (AACC) 2008 report states there are 1195 community colleges in the United States, with a total enrollment of 11.6 million students. Although the average age of a student is 29 years old, community colleges serve a population from high school students to senior citizens. Students attend for a wide range of reasons: high school students getting ahead in their coursework, students working on courses that transfer to a 4-year college, students getting vocational education (certificates and degrees) or life-long learning students engaged in a hobby or interest (p. 3). Community college students represent 46% of all college freshmen in the United States, and 39% of first generation college students (p. 1). They educate 34% of all minorities attending college; with 55% of the Hispanic students attending college attend a community college (p. 1). Community colleges assist working adults in obtaining an education; part time students represent 2-thirds of their students (p. 2).

In many cases, the community college is the first choice for students as it is more affordable than a 4-year college. AACC (2008) reports that the average tuition and fees for a year at a community college is $2,272, compared to an average of $5,836 for a 4-year college. It is expected that as more baby-boomers' children graduate from high school and look to college, and as the workforce seeks to attain more skills and vocational education, community colleges will see an increase in its population (p. 5). Currently community colleges educate 80% of the U.S. firefighters, law enforcement and emergency medical technicians (EMT), as well as 50% of new nurses. These numbers are expected to increase, along with workforce training (p. 5)

Due to this diversity of students, both in age, needs and interests, community colleges must work to accommodate all with the resources they provide. The library is just one of the multiple resources provided to students. Other resources may include counseling/advising, career services, financial aid, medical services, athletics, and disabled student support. Many of these services need to provide services both for the traditional student who attends classes on campus, as well as for distance education students. This is changing the way that services are being offered.

History of Libraries

Libraries are the source of academic reference resources in higher education institutions, being the keeper of the information since the Library of Alexandria (331 B.C.), which is considered to be the first library (Whitehouse, 2004), however there are numerous findings that indicate that items were collected and even cataloged thousands of years before then. In Philadelphia, a museum has clay tablets belonging to the Sumerians that indicate they cataloged their items. One clay tablet dating from 2000

B.C. includes 62 titles (Polastron & Graham, 2007). By the time the Library of Alexandria was built, cataloging had progressed to scrolls. Callimachus compiled a "120-volume catalog of more than 400,000 scrolls" (Weinberger, 2007, p. 50) categorizing the holding of the Library of Alexandria.

Libraries have had many changes from the first one, and they continue to be in a constant state of flux. Libraries' missions have changed and expanded to reflect the society they are serving; the Library of Alexandria's mission was only to "compile and contain the entire corpus of Greek Literature, as well as the most significant works of many foreign languages" (Battles, 2003, p. 30) whereas today's libraries, especially academic libraries are expected to provide information in both print and digital formats, to be functional – both in their physical and virtual spaces, and to make all this available in an environment that is easy to use, convenient and appealing to their users (Norlin & Winters, 2002; OCLC, 2006).

One thing that has not changed is the idea of a library as a "place" of being part of the community it is located in. Modern libraries have their origins in private settings, in homes. Buonaccorso da Montemango noted the significance of having a home library in his *Controversia de nobilitate* written in 1428. He believed that having a home library was a gauge of a person's commitment to learning (Mak, 2007). Arenson (2007) in his article "Libraries in Public before the Age of Public Libraries: Interpreting the Furnishings and Design of Athenaeums and Other 'Social Libraries,' 1800 – 1860" describes how parlors were set up as places to socialize and as reading rooms, places that would serve as alternatives to the drinking and gambling for the young men that were now working in industrialized cities. These parlors could be found in private homes, as

well as on steamboats, in hotels and multiple other places that young men would rent or congregate. Arenson studied art historian Katherine Grier's work on parlors and notes that her work "suggests a model for understanding the social library as a private library in public" (p. 49). These social libraries would have "novels and newspapers" (p. 51) available to lend to anyone who asked and also served as a "third place", a place to socialize. To establish and build a sense of place, there must first be a sense of belonging, as well as membership (Hersberger, Sua & Murray, 2007). These parlors generated both of these features.

Some of these parlors, or athenaeum, became so elite that to keep their standards, they supported the founding of a public library in their community, which would house materials they deemed as having a lower reading quality, such as novels. The Boston Athenaeum was one such organization. The Boston Athenaeum felt that the Boston Public Library, the first public library in the United States, could house the popular works allowing them to focus on collections of higher quality. Other organizations believe their mission was to provide those popular works found in bookstores to their patrons. This is where the idea of community is even more apparent. The patrons of the elite libraries typically had libraries in their own homes, thus their choice to come to the social libraries was for social reasons. The patrons of the non-elite athenaeums and of public libraries may not have had libraries in their own homes, but were now able to borrow reading material and to find a 'third place', a place to go where they could socialize with others like themselves. Andrew Carnegie is well known for his philanthropy to build 2509 libraries around the world in the late nineteenth and early twentieth century (Curry, 2007. p. 61). He believed that public libraries should be

available to all as a way for a person to "self-educate" his or her self, as it was through education that a person could advance in society (Carnegie Corporation of North America, 2009).

Many of these libraries also included areas that could be used as a social meeting place. When Vancouver's Public Library was trying to deal with too many patrons, some of who "dozed" off, their library board directed them to develop "its role as a social meeting place" (Curry, 2007, p. 63) by providing "chess and checkers" (Curry, p. 63) to those that might be lonely or unemployed. In some communities, the libraries served a "community within a community" (Hersberger, et al., 2007, p. 79). When the Greensboro Carnegie Negro Library opened in 1904, it was established to meet "the educational, informational and, most importantly, the social and cultural needs" (Hersberger, et al. p. 79) of the African American community of the Greensboro area. At this time, the African Americans were unable to construct places for social activities, as they were denied a voice and the economic means in their larger communities. Churches were often the only place they could congregate for social activities and taking on political roles, encouraging their members to be more vocal in their larger communities. The Greensboro Carnegie Negro Library is noted as a place that not only had educational materials, but also was a central meeting place, that created a sense of pride for its community (Curry, 2007).

Libraries are still serving multiple purposes today. Leckie and Bushman (2007) note "libraries, as culturally constructed places, have an important role to play in fostering and developing varying sense of community and providing services to different

communities. Libraries as a space/place and notions of community, therefore, go hand in hand" (p. 13).

The Changing Library

In recent years, the design of libraries has begun to change to reflect technology changes and the changing users' demands. This change is affecting the physical and the digital version of the libraries. Changes can be seen in the public, as well as in the academic and school libraries. Space has been made for public use computers, as well as computers dedicated for the online catalog. Circulation staff have been restructured and/or reduced due to the addition of self-check out kiosks. In the Seattle Public Library, returned books are automatically checked in and then scanned sending them to different areas for shelving based on their call numbers through the use of the radio frequency identification (RFID) each item is tagged with (Seattle Times, 2007). In the University of Nevada's Las Vegas Library, books shelved in the closed stacks are retrieved with a computer (UNLV, 2004). From the user's point of view, there are more community spaces for meetings and collaborative work, and many libraries have taken on the feel of a bookstore with a coffee/refreshment area and comfortable chairs (Woodward, 2005).

The digital side of libraries have changed but at a much slower pace. While essentially all libraries have an online catalog, few have implemented applications that would draw a user, such as rating systems, RSS feeds, tagging, blogs and online reference. This is especially true for academic libraries.

Just as the physical and digital libraries have changed, so have the librarian's role. As more resources become digital and other applications are implemented, the librarian's role will continue to migrate away from being the authority figure whose job

it was to collect and organize information. Users today are accustomed to *tagging* and rating information (Madden, 2007, slide 46). Tagging, or folksonomies, could be considered a layman's form of cataloging, where a user *tags*, or identifies, an item with a common word or phrase. This word or phrase is relevant to that user allowing the user to recall that item with a search of the *tag*. Trant (2006) found in her research on social tagging and museum pieces that there was surprising consistency in the 6679 tags assigned by her 39 participants viewing 30 works and while the majority of the tagging did not match what museum professionals (museum curators and librarians) assigned for the items through subject headings, she found that "more than three-quarters of the terms supplied by participants …were determined to be valid" (p. 13).

Academic Library Web Sites

Academic libraries were early adaptors of the World Wide Web, with library web pages first hitting the scene in the 1990's (McDonald & Thomas, 2006; Jones, et at. 2002). By the late 1990's academic libraries began including electronic periodicals (magazines, journals and newspapers), e-Books and other electronic databases that were previously only available in print format. When academic libraries first went online, the Internet was still in its infancy; there was little competition for information searching thus web sites were little more than digital replications of their physical counterparts, designed so that how one found information in a bricks and mortar library, similar search terms were used in the virtual arena. For the most college websites this is still the case today (Blummer, 2007; Detlor & Lewis, 2006).

These digital spaces were typically designed by librarians, or at the very least librarians serving as advisors during the design of the website. The users (students) were

expected to learn how to use the space by asking for assistance and/or attending some instruction on its use, just as they did to find physical items. Today there is a disconnect; library websites have not changed much since the early 1990's while technologies have drastically changed. McDonald and Thomas (2006) identify the three disconnects as "technology, policy and unexploited opportunities" (p, 4) stating that academic libraries must address these disconnects today to "retain and expand their usefulness for online users in the next decade" (p. 4). As Wilson (1999) notes, academic libraries are expected to assist students with information, however today's libraries response regarding its use of technology is too slow for the current undergraduate researcher. Many college students today see technology differently than previous generations. In the past, technology was used for individual activities such as retrieving email, shopping, etc. Today's generation see technology as "opportunities for dynamic social interaction" (McVay, 2008, ¶ 3).

Academic libraries have done little to convince users that they are responsive to their users' needs. Students today have demonstrated an inclination for tools that foster collaboration, creativity and sharing (McDonald & Thomas, 2006; Jones, et al., 2002). Students typically chose not to use library resources because the sites are unintuitive, hard to navigate, require the use of tools that are unfamiliar and do not support collaboration. Library web sites are typically designed by librarians who are more concerned about making numerous resources available and extensive cataloging descriptors, and not their users' ability to find those resources easily and efficiently (Wilson, 1999). The designers lack an understanding of usability from the students' point of view; they fail to understand that in making the site unintuitive and hard to

navigate, students do not find the site valuable or relevant to what they are researching. Instead, students will use a search engine that is intuitive, easy to navigate and use tools they are familiar with to complete their assignments.

A recent OCLC (De Rosa & OCLC, 2006) report notes that only one percent of college users start with their college library websites when doing research. Madden (2007), in a Pew Internet and American Life Project presentation at the Northeast Kansas Library System Tech Day 2007 noted "while more than 50% (of teens) described search engines as a perfect information source, just 17% described libraries this way" (slide 9). The 2006 OCLC report supports that reporting that 64% of students rated search engines as being the "perfect fit for their lifestyle" (De Rosa & OCLC, p. 3-29).

The OCLC (De Rosa & OCLC, 2006) report also notes that 72% of college students start their searches with a commercial search engine (such as Google or Yahoo); physical libraries were selected by 14% of students and online libraries only by 10% (p. 1-18). When asked to rate the various sources for worthwhile information (commercial search engines and library websites) 93% agreed that Google provided the most worthwhile information. Library websites also rated high with 78% agreeing that they provide worthwhile information (p. 1-27). However, college students rated the library web site "about the same" as search engines in general (p, 3-6). Search engines were selected over the library when it came to convenience, easy to use, fast, reliable, and cost-effective. This is confirmed by the Pew Internet & American Life Project (Jones, et al., 2002) that found that only 9% of college students use the library more than the Internet, meaning 91% choose the Internet over their college library (p. 3). Madden

(2007) states that "teenagers are increasingly becoming library immigrants in a land of library natives" (slide 9).

In determining if an electronic source is trustworthy, college students identified themselves (83%) as the judge, using reputation of the company and finding the information on more than one site to assist them in making their decision. While students do use the Internet as a starting point for research, 61% report familiarity with and use of electronic resources such as journals, databases and e-Books. However, their knowledge of these resources probably did not come from a librarian. Given multiple choices of how college students learn of electronic resources, 67% of college students identify a friend as first; librarians were identified in only 36% of the choices (De Rosa & OCLC, 2006).

In looking ahead to future college students, students 14-17 years old, it was discovered they are more likely to use newer types of electronic tools and applications, than today's college students. These future college students reported a high usage of Web 2.0 applications: instant messaging (IM), online chat, blogs, email information services, and online inquiry services. In "Teens and Social Media the Use of Social Media Gains a Greater Foothold in Teen Life as They Embrace the Conversational Nature of Interactive Online Media," a Pew Internet and American Life Project (Lenhart, 2007) report, 64% of online teens identify themselves as content creators (p. 2) with 27% maintaining their own personal webpage, 28% creating their own online journal or blog and 33% are creating and/or maintaining web pages or blogs for others, "including those for groups they belong to, friends or school assignments" (p. 3). In the 2005 OCLC

(De Rosa & OCLC, 2005) report, when asked to give a piece of advice to improve online library web sites, a teen suggested a rating system to help identify good books:

> …I was looking at a new author today who has many books, and I had to go to an internet computer, check on Amazon and see which books were most highly recommended, and go back to the catalog to see if there available (p. 1-29).

These are the kind of services that are being offered elsewhere today by library competitors and are expected to be available by future academic library users.

Rethinking College Physical Spaces

College libraries have begun a shift in thought in how their physical spaces are designed. In Bennett's (2006) reflection of the designing higher educational learning spaces, he notes the need for spaces that are not associated with the delivery of library services, such as group study space, learning commons and computer labs. (He does note that while the last two spaces could be used for library instruction, their primary intention is to "foster active, independent learning" (p. 14). He believes one of the first issues to look at when redesigning an existing space is the relationship between design and behavior, a relationship that many higher education officials are often skeptical of. But it is this relationship that will allow for more opportunities for students to learn. Bennett notes that while libraries are moving into a more digital realm to assist users who are distance learners or working off campus, there are many activities that can only be accomplished in a physical space. These would include immersion learning, some dimensions of social and collaborative learning with someone face to face and learning how negotiating and responding is different than what is experienced in the anonymity of the virtual world, as well as environments that need a physical presence such as labs

and studios. He believes that spaces that are designed to recognize social dimensions and learning behaviors, thus allowing the students to have a positive experience will result in students who put "more time on their educational pursuits" (p. 17). In return, the institution will see "a better return on the investment in physical learning spaces" (p. 17).

In Design Thinking, Bell (2008) notes that librarians seldom determine first if the change will benefit users. He believes that design thinking includes several pieces to ensure the users are included in the process: you must understand the user, observe them, visualize what will be, evaluate as you go along, refine your goals and then, implement. If the users' understanding of how the space will be used is thought of as the higher goal, than say the commodity of information, the users' experience will be greater.

The University of Rochester decided to do just that – to go to the user both before and during the design process, to create a student-centered academic library. This was a very ambitious project, that took over 2 years to accomplish, and encompassed not only the physical design of the library, but also the re-design of their web site, and re-evaluating their hours of service. They did this using a variety of methods: surveys, interviews, focus groups, and the use of disposable cameras to have students record 'a day in the life of a student' to obtain a kind of mapping diary of what a typical day includes. They felt if they answered the question "What do students *really* do when they write their research papers?" they would discover work habits and would assist them in designing spaces, both physical and virtual, to create a more effective information gathering process.

Foster, an anthropologist librarian, led the research. Their first step was to gather some background information. They wanted to see what faculty expected from the

students regarding research papers; what they determined made a good paper, what they expected students to do in their research, what they felt the librarians role should be and what they felt were obstacles for students in creating good research papers. These interviews found "no evidence of any significant consistency of faculty expectations" (Foster & Gibbons, 2007, p. 4). They also interviewed students, which was done in and outside the library, in an attempt to gather information from students who may not use the library. Some student responses confirmed what the faculty members said, while others contradicted faculty responses, especially when it came to their research process and what was expected of them. The biggest surprise was the students not viewing the librarians as subject experts.

Another surprise came when they did the physical re-design. After having talked with the students at length on what they wanted from the library in terms of zones (spaces) they felt they could correctly assume what students' choices would be. In fact they were very wrong. "Over and over again, our assumptions have been proven wrong; these design workshops provide just another example" (Foster & Gibbons, 2007, p. 29). They note that if they had followed through using their assumptions, the library would be "aesthetically pleasing", but "not nearly so useful to students as the one they have helped us design" (p. 29).

Their findings on the college library web site was that students essentially designed a portal, a personal space with all the information gathered into one space; they did not want information silos, which is what most library web sites contain. (An information silo is typically a system that is unable to work with other systems. Usually there is a gatekeeper for the information, in this case the librarian, who is either unaware

of the benefits of information not being housed this way, or are unaware of their users' needs have changed or are more concerned about security than their users' needs [Ojala. 2007]). These portals would have the ability to be "customized and personalized" (Foster & Gibbons, 2007, p. 38) by the students. Another finding was what students added to the library web page, resources for services such as food delivery, but also for the expected links to instant messaging, email, music and other entertainment resources. These would be resources that students find valuable and would access during their research and writing processes.

Rethinking College Web Sites

A reorganization of college library websites is needed to reflect today's students and the different ways they work. Libraries need to create a "digital scholarship" (McDonald & Thomas, 2006, p. 5) with sites that encourage collaboration, creativity, resource sharing and be presented in a format similar to what they are currently using with other search activities.

Well designed library web sites allow students to find resources that they consider relevant and valuable while at the same time allowing them to do it easily – employing a "don't make me think" philosophy (Krug, 2000, p. 11), which in turn makes efficient use of their time. In supplementing a well designed library web site with Web 2.0 tools, the students' learning experience is enhanced as ways of obtaining information are increased, as they use tools they are familiar with. Foster and Gibbons' (2007) University of Rochester's report confirms this. They report that students' model of service is "self-service" (p. 75). Students report that when searching for resources they use a "strategy of finding just enough, as quickly as possible, then stopping" (p. 75).

Some start with the instructors' recommended resources, then move to the library's resources, but if nothing relevant is found quick enough, they soon move on to the commercial search engines, like Google and Yahoo, and "consulting with Wikipedia" (p. 75) and other sites as needed. If college library web sites are not well designed, the students will abandon it for a site that they perceive will give them the resources they want – quickly. This is supported by CIBER (2008) report *Information Behaviour of the Researcher of the Future*.

The Association of College and Research Libraries (ACRL; 2005) guidelines *University Library Services to Undergraduate Students* identifies undergraduates with sharing many characteristics: they are just beginning to acquire the skills needed to do research; they need an environment that is user-friendly where questions are encouraged and assistance is freely available; they will need library instruction to academic resources; they will be enrolled in large classes, many of them mandatory in which they have little interest in; undergraduates are typically the largest student body, but have the least political clout. The guidelines recommend that instructional technology (IT) resources be allocated not only to meet today's needs, but also to anticipate the students' future needs, as undergraduate students "are most familiar with up-to-date technology and are among the earliest adopters of the latest tools and techniques" (¶ Access). If a library web site that included all the features noted in the OCLC report – those found in a commercial search engine (convenient, easy to use, fast, reliable, cost-effective) combined with those they found desirable in a library web site (trustworthy/credible, accurate), would be attractive to students as they would find it valuable and relevant, easy and efficient to navigate; combine those features with tools they are familiar with

and students are even more likely to use that site.

Today's College Students

College students are typically referred to as traditional and nontraditional. The National Center for Education Statistics (2002) report, "Special Analysis 2002: Nontraditional Undergraduates" defines the nontraditional student as someone who has any of these characteristics: they delayed going to college, attends part-time, works full-time, is financially independent, has a child (dependent), is a single parent, or does not have a high school diploma. Based on those characteristics, the traditional student would be someone who entered college right out of high school or soon after, lives on campus or at home, depends on parents or someone else for financial support, and attends college full-time. The report also notes that 73% of undergraduates in the 1999-2000 school year could be classified as nontraditional. Wilson (1999) also noted this trend stating the decline in traditional college age students is changing the demographics of the college campus.

Besides the traditional and nontraditional identities, recent articles identify today's college students by various generational labels. The younger generation, which Howe and Strauss (2000) identify as born in 1982 and later, have titles like Millennials, Generation Y, Nexters, Boomer Babies, Echo Boomers, while the older students fall into several generational names, such as Generation X, Baby Boomers (younger, older), Silent Generation and the GI Generation. The Millennials is the largest generation since the Boomers, and is still growing (Howe and Strauss).

This researcher has decided to refer to college students in this research as younger and older, if a label is needed, with the younger population being identified as

30 and younger, in line with the millennial generation identifier. While this will not allow a delineation based on type of student (traditional versus nontraditional, or full-time versus part-time), it will allow a discussion on traits, perceived and real, such as comfort levels and expectations of technology and learning styles in their academic life.

Literature has identified very unique learning styles that many of these younger students are bringing with them to college. Some characteristics are: they expect to be able to work collaboratively and enjoy group activities; technology is taken for granted as it has been part of their lives from the beginning; they are early adopters of new technologies and expect well-developed systems to be in place; they expect structured and practical activities; they have mastered multitasking; they enjoy their parents company, living at home longer and often sharing their parents philosophies; expect adults to be prepared and demonstrate authoritative expertise; want/need immediate gratification and praise for a job well done; expect to be part of the decision-making; expect to be respected in the same way they respect you; are self-directed wanting to learn on their own terms and in their own time, thus expect timetables and assignments to be somewhat flexible; the most diverse both racially and ethnically; expect things to be convenient, relevant and have real-life meaning; and are goal-oriented with high expectations of their ability to succeed (Elam, et al., 2007; Howe & Strauss, 2000; McGlynn, 2005, 2008; Murray, 1997).

McGlynn (2005) states that one of the most important characteristics for these younger college students is that they must be actively engaged. They will become quickly bored in the traditional teacher-lecture classroom. They will thrive in a student-centered classroom. A student-centered, or learner-centered, classroom empowers the

student to make choices in his or her learning by engaging the student in the process of learning and rather than sitting passively listening to a lecture (McGlynn, 2008, Wilson, 1999). Active learning encourages self-directed learning which "emphasizing individual abilities and without artificial time schedules" (Wilson, 1999, p. 32) thus "shifting the responsibility from the instructor to the individual" (Wilson, p. 32) and embraces student diversity.

The older college student, or adult learner, preferred learning style is thought to be very different from the younger students. The study of adult learners as a professional field of study is relatively new, starting soon after World War I, with Edward L. Thorndike's 1928's *Adult Learning* concerned with adults learning abilities, while Eduard C. Lindeman's 1926's *Meaning of Adult Education* focused on how adults learn (Knowles, Holton & Swanson, 1998). These early researchers identified the adult learner as self-directed learners, motivated from within with specific goals; they expect to be respected in what they can bring to the learning environment from their life experiences and not to have their experiences disregarded; they do not prefer a lecture-based classroom, but instead want to be part of the learning process, expecting problem based activities, where they see the instructor being there for "orientation, support and guidance" (Merriam, 2001, p. 10); they expect what they learn to be relevant and have immediate application; and expect flexibility to reflect their learning motives as well as their life situations (Burns, 2002; Merriam; Murray, 1997; Wilson, 1999).

Adult learners want to learn in student-centered classrooms. They are independent people who are capable of making decisions, and they need to be treated in that way – as being self-directed and having their experiences validated by others

(Burns, 2002; Knowles et al., 1998; Merriam, 2001; Rogers, 1969). A student-centered classroom encourages discovery, which fosters learning as it challenges learners to ask questions, develop critical thinking skills, to be open to new ideas and withhold judgment until all data is evaluated and to apply learned concepts to new learning (Burns; Rogers). Also in working with adults the instructor must realize when to stop talking and start listening as the instructor is no longer the only source of information and that group activity is guided by the group, with the instructor encouraging participation through open-ended questions and engineered situations. The self-directed learner that has control of their learning, and knows why it is they need to learn something is more likely to come prepared and willing to participate (Burns; Knowles, et al.). And a learner that has not had the experience, or the successful experience, of being a self-directed learner will need that skill developed (Knowles, et al.).

College Student's Internet Use

College students today are different from the general population in how they view the Internet. The Pew Internet & American Life (Jones, et al., 2002) report, "The Internet Goes to College" identifies several attributes that make this group unique from previous generations of college students: 20% of these students had their first computer experience between the ages of five and eight (p. 2); 85% own their own computer and consider the Internet "an easy and convenient" (p. 2) way to communicate with their friends; two-thirds have at least two email addresses (p. 6), with 72% checking their email at least once per day (p. 2); they are more likely to have downloaded music (60%) than the general population (28%) and to have used instant messaging (26% versus 12%). "College Students' Perceptions of Libraries and Information Resources" (De Rosa

& OCLC, 2006) also identifies attributes about this group: over 80% have an email address; almost 70% have used instant messaging; over 20% have used blogs, submitted an inquiry through *Ask an Expert* and have viewed e-Books. A more recent report, "Generations Online in 2009" (Jones & Fox), note that users who use the Internet for entertainment and to communicate with their friends, and to IM their friends are not only teens but also users through age 32. Older users (those 33 years old and up) are more likely to use the Internet for shopping, emailing, looking up information, especially health information. The report also notes that some activities that were identified in previous reports as being used predominately by the teens through age 32 or by the older group are now leveling off, with the gap disappearing between age groups. These activities include downloading videos, read and create blogs, read news online, and make online travel arrangements.

"The Internet Goes to College" (Jones, et al., 2002) report shows that the Internet is part of college students academic life, with almost 79% agreeing "that the Internet has had a positive impact on their college academic experience" (p. 9); 48% state it is a requirement in at least some of their classes (p. 9) and 38% say they use it primarily for class work (p. 15); they have used it to communicate with their instructors and fellow classmates, to access the library and search engines to complete coursework, and to subscribe to listservs and discussion boards related to their school work. These statistics should not surprise those who work in academia. Colleges were early adaptors of the World Wide Web and several popular applications have been created by college students to respond to their needs: Yahoo! a popular search engine/email/chat site in 1994 (Yahoo, 2008), Napster was one of the first for peer-to-peer music sharing in 1999, and

Facebook in 2003 (Markoff, 2007), to name just a few. These applications all have one thing in common – they are social networking applications. As Erickson (1980) noted way back in 1959, the young adult personality enlists the need to be with others, to be social, and not in isolation.

Social Networking Applications

While many associate social networking with MySpace and Facebook, the concept encompasses much more than a single type of application. Social networking applications are tools that link one person to another, be it for instant messaging (IM), chat, blogging, using a wiki, sharing files or documents, gaming, or expanding our network of friends. All of those mentioned, and many others are considered to be Web 2.0 applications. These tools can be used for personal, work or academic purposes. Jenkins, a Massachusetts Institute of Technology (MIT) researcher believes social networking applications, or participatory media applications as he calls them, has taken hold because of the development in participatory culture (Jenkins & Clinton, 2006). Jenkins identifies a participatory culture as "a culture with relatively low barriers to artistic expression and civic engagement, strong support for creating and sharing one's creations, and some type of informal mentorship whereby what is known by the most experienced is passed along to novices" (p. 3) and where participants believe their contribution makes a difference, and believe there is a social connection to other participants. A participatory culture include "affiliations" (p. 3) which are applications like MySpace, Facebook and World of Warcraft; "expressions" (p. 3) which are taking something (web application or software) and altering it to be used as something different than originally intended, as in mash-ups; "collaborative problem solving" (p. 3) which allows for individuals to work together on

projects and develop new knowledge such as in Wikipedia; and "circulations" (p. 3) which identifies as podcasting and blogging, where the user can project their thoughts.

College students are early adaptors of emerging technologies, and this includes social networking. As students mature, first from teens in high school to young adults in college, they take the skills they have honed – these social networking skills, and apply them to their careers. When as teens in high school their chat and text language was very loose, with acronyms and abbreviations. As their audience changed to professors, they learn a more acceptable way of communicating, using a more professional language for their conversations. This ability to translate a social networking application from leisure to formal use is important for the workplace, as many employers consider such transmissions property of the company. These tools provide a technical experience that will transfer to the workplace.

College Web Site Usability Studies

Usability studies are shown to examine three criteria: content, functionality and structure. Content would include items a typical user would expect to find on a library's webpage: the library's physical address; contact information including an email link for contact; a staff directory; description of services and policies; links - to their own online catalog (OPAC), to reference resources, to subject resources, to subscription resources; and a date that identifies the last time the page was updated.

Functionality of a library website would look at the number of resources available, how students inquiries are handled in a virtual environment (e.g. email, instant messaging (IM), interactive request forms), and the search capabilities within the website. Structure and organization of the website, has to do with how many levels the

web pages go from the home page and what is presented on these pages (information, research, policy, tutorials).

One of the first usability studies was done in 1996 and it looked at 40 academic libraries in regard to content and design. Most libraries earned average marks mostly due to the newness of web design and hyperlinks – graphics too large and too many links (Stover & Zink, 1996). King's (1998) survey of 44 American Research Library (ARL) web sites in 1998 looked for trends in organization look at length of pages, background (color and design), headers/footers and domain name. His study concluded with recommendations for consistency in library web pages.

Cohen and Still's (1999) study of 100 academic institutions (50 research and 50 community college), looked at content, functionality and structure. Regarding content, they found several items missing from community college websites. Items such as a contact email link, the physical address of the library, links to their own online catalog and their subscription resources, a reference section, description of services and policies, and a date that indicates when the page was last updated (Cohen & Still). This last item is surprising to this researcher, as this is a one-criterion librarians instruct students to look for to determine if a site is current; one of many steps used to determine whether sites are authoritative. It appears academic library web sites need to survey their own web sites for the very features they ask their students to look for in trustworthy sites.

Functionality and structure are found to be related to the size of the college. Their study compared research libraries, which tend to be larger to support a research community. Community colleges did not have the depth of coursework as would be

found in research institutions, the number of resources, and search capabilities tended to be fewer and their hierarchy was less complex (Cohen & Still, 1999).

Detlor and Lewis's (2006) usability report on 107 ARL member web sites took a different approach, instead focusing on differences between academic library web sites and commercial search engines. They determined that academic libraries must make their sites more robust. In creating a more dynamic "virtual workspace" (p. 251) when and where students need it in their research process, it reduces the "cognitive load" (p. 251) and "facilitates a truly user-friendly experience" (p. 252). The value is not just in having resources that are comprehensive, trustworthy and credible, but in presenting it in an environment that is streamlined and transparent, it would allow users to interact by enhancing their learning process. Their study found that most libraries do not provide a gateway but rather a collection of discrete databases pulled together by a home page and some flat "connector pages" (p.254). In looking specifically for sites that provided a more dynamic experience (portal), they found only six.

Detlor and Lewis (2006) believe that academic libraries need to focus more on information use, versus information access. They recommend that if these issues are addressed academic libraries are more likely to be able to compete with and outperform commercial search engines, thus reclaim their users, the students and faculty they seek to assist.

Shi Liu's (2008) study addressed social networking tools in academic web sites. Her study, "Engaging Users: the Future of Academic Library Web Sites" examined 111 ARL member, English language, web sites that were directly affiliated with a university or college for content, design (structure) and innovative features. She found that the

information and resources found on college web sites require a user to do multiple searches due to the large amount of information presented. These pages tend to be a one-design-for-all with minimal ability to modify the pages giving the user minimal, if any, opportunities to create, publish, and exchange content.

In investigating design/structure patterns, she found that most web sites are heavy in text and links. She identifies innovative features in several categories: Web. 2.0 (RSS feeds, blogs, wikis, podcasts); user engagement (*rate this page*, *question of the week* videos created by students for students); homepage customization; aggregated resources (*The Teaching Library*, *InfoTree*, *Library Survival Guide*); recommending information (*Resource Spotlight*, *Top 10 Databases*, *Popular Links*); multimedia (virtual library tour, audio tour, tutorials); and use of familiar tools (library hours presented in a calendar format; p. 9). In addition to these, she found libraries that incorporated *Google Scholar* into their homepage (or provided a link to it) and *Live Chat* for reference questions from their users. She provides the readers with three conceptual models for a more user-centered design web page. Included in these models and in her recommendation for future academic library web sites is the need to incorporate user focus, personalization, user engagement, online communities and re-mixability.

In looking at previous research, Booth (2009) notes the necessity for a local needs assessment, to look at a school's population in determining the technology needs for that population and not relying on general assumptions derived from other's research.

> Identical technologies give rise to distinct library services for the simple reason that local users and institutions are fundamentally unique. The reality of the matter is that unless the technology information and library facility need and

> interests of users are locally examined and understood, librarians working with 2.0 technologies risk arbitrarily introducing hard-wrought innovations both to uninterested patrons and prohibitively unaccommodating workplaces. Rather than assuming that every library needs a blog, a wiki, and a podcast series, librarians who develop social and/or dynamic services should preface their efforts with local research in order to create a clearer perception of *actual*, rather than *imagined*, library and information needs of their immediate campus microcosm. Every institution must investigate the factors that shape its own landscape (p.9).

Sutton and Bazirjian (2009) discovered the need for local assessment when they replicated the "2005 OCLC College Students' Perception of Libraries and Information Resources" survey. Their research indicated the students' responses were vastly different from those found in the original report. They concluded "local data should be used for local decisions" (p. 189). Sellars (2006) also notes that libraries are under "pressure to offer value added service" (p. 347) and should do so by responding to their users' needs which will increase the users' satisfaction; knowing what the needs are and responding in a timely manner is essential. Using local needs allows the data retrieved to be "applied towards programmatic ends – evaluating, modifying, and developing services based on actual feedback" (Booth, 2009, p. 21).

Theoretical Models

As Lave and Wenger (2003) note, it is not about the tool at all but it is the students' engagement in the practice, the "circulation of knowledge among peers and near-peers"(p. 93) that is the condition for learning. As with learning any new skill, or becoming more competent in an existing skill, the more one participates, it allows the

students (learners) to make the "culture of practice" (p. 95) his or her own (Lave & Wenger). With social networking tools in academia, students can become active participants taking control of their learning, where their learning becomes social, and no matter what skill level they are, whether a novice, beginner or expert, each brings something to the group. The practice is not learning how to use the tool or application, but about the participation. They call this situated learning - "learning is an integral part of generative social practice in the lived-in world" (p. 35). The Internet is the vehicle that drives social networking and empowers college students to making learning personal, yet social. When learning becomes personal, or real-life, a student is using his or her experiences to shape the learning and assist them in problem solving (Knowles et al., 1998). Social networking allows participation when and where it is convenient for the user. It encourages students to study together or work in groups even when they are not physically at the same place. They share resources with social bookmarking tools like *del.icio.us* and *digg*. They can share files via *Google docs*, chats, and virtual servers. Sharing photographs is easy with *Flickr* and *Picasa* and *Photobucket*. They can even share their lives with *MySpace* and *Facebook*. Email, while not an official social networking tool, allows students to turn in assignments to professors and to communicate in ways they may not if they were face-to-face (Pew, 2002). They can do all these things wherever the Internet and a computer is available: at home, school, in a coffee shop, at six in the evening, four in the morning or two in the afternoon. No special software is required. Their ability to do what they need to do to get their work completed and turned in on time also assists in developing their time management skills.

Gee (2003) talks about thinking socially in *What Video Games have to Teach US about Learning and Literacy.* Social thinking refers to the learning or knowledge that is acquired from the group we belong to or wish to belong to. He calls these groups "affinity groups" (p.192) Social thinking empowers learners to communicate and work with others in these groups. He compares traditional school testing to social thinking, in that traditional testing is administered to see what an individual knows when isolated from others, whereas in social networks, you have a collective knowledge. It is in this knowledge, "distributed knowledge" (p. 176), that members of a social networking group or similar crowd, can build on their knowledge while sharing the knowledge they have. Each member or participant has a role that can change depending on the situation; in one situation they may be a leader, in another an active participant and in still another learning on the periphery. Burns (2002) notes that throughout our life we learn from our environment, being involved with our family, our classroom, our workplace. We learn the acceptable norms. We develop our self-concept. "We copy and interpret things about ourselves from the way we believe other people are responding to us" (p. 115). This learning is non-deliberate; it is developed through our social contacts.

Brown (2001) in his "Learning in the Digital Age" states that learning is "not as a response to teaching, but rather as a result of a social framework that fosters learning" (p. 65). In participating in social thinking, a person develops the skills needed to move from the periphery, to an active participant and possibly to a leader/expert, by engaging in dialog, inspecting the group's practice, reading their material and asking questions of the leaders/experts. For example, a community college student would need to develop their skills, building upon knowledge learned, in developing a "voice" that is more

academic, professional, and formal and would do so by communicating with their professors, experts in their discipline and peers in an academic setting, using a variety of tools and technologies. This knowledge would assist them as they continue their education at a university or enter the workplace. Gee (2003) states that in "many modern high-tech workplaces – it is equally or more important to know what people can think and do with others and with various tools and techniques" (p. 184). These are skills that transfer from one workplace to another. Incremental learning is learning from the bottom up whereas traditional learning in the classroom is a top down form of learning. In starting at the bottom, participants can gain the confidence to become active participants in their learning.

In looking again at the student-centered classroom, Rogers (1969) notes that self-directed learning is personal and emotionally meaningful. For self-directed learning to happen the instructor must create an environment that is open and trustful, working as a facilitator, with respect given to all participants and their development as a learner, and accepting their ability to make decisions regarding their learning. Rogers proposes that self-directed learners benefit from facilitators rather being taught directly, a self-directed learner will respond to things he or she finds relevant and significant to their learning goal, resists change to their way of learning when pushed to change versus encouraged to rethink things, resists change to their self-concept unless presented in a climate that is accepting and supportive, thus minimizing any perceived threats to their self-concept. The supportive and accepting learning environment reinforces a positive self-esteem and confidence that can assist a learner in replacing negative experiences in their educational past (Burns, 2002).

Social networking tools are tools that college students use more and differently than their professors. Professors tend to use email over other communication tools to communicate with students, mostly for class announcements (Jones, et al., 2002). However, when students initiate the conversation, they could be getting clarification about an assignment, inquiring about a grade, turning in work – using it for direct one-on-one communication. Nearly half of the college students surveyed in the *The Internet Goes to College* (Jones, et al.) reported "that email enables them to express ideas to a professor that would not have expressed in class" (p. 11). These students have found a safe place to communicate ideas and questions to professors in social networking tools. Yet, these applications, applications that students accept in both their personal and academic environments, are not being utilized in the library setting. It is almost as if librarians are saying to students, that yes they are part of student services and they are here to help you, but you must do it on their terms – what works best for librarians, not for you. If this is the message they are sending, students appear to be getting it. If it is not, college librarians need to rethink their "body language" in what they are projecting through their library web site. Madden (2007) notes "Conversations, research and learning don't have to end when a student walks out the door" (slide 43).

These online tools have allowed students to feel confident in their skills; a confidence that transfers to their research. The majority of students (76%) surveyed stated that they use the Internet more than the library when it came to information searching; only 9% stated they use the library more than the Internet (Jones, et al., 2002, p. 3). The Internet has vastly changed how information is found. Prior to the Internet, the

library was the place to go for information. Academic libraries must now respond to the change in how information is found.

As was noted earlier, students choose the Internet's commercial search engines over library resources because they can find relevant sources more quickly. The University of Rochester (Foster & Gibbons, 2007) found that students use an approach that will find resources needed in the quickest amount of time (p. 75). This approach is very similar to Zipf's Principle of Least Effort. Zipf based his principle on "evidence from various aspects of human behavior" (Case, 2002, p. 151). This principle "predicts that seekers will minimize the effort required to obtain information, even if it means accepting a lower quality or quantity of information" (Case, p. 154). Valentine (1993) found similar results, reporting that the students in her focus groups "looked for the easiest, least painful way to complete a research project in a timely and satisfactory fashion" (p. 302). This is what researchers De Rosa and OCLC (2006, 2009), Foster & Gibbons (2007), and Jones, et al., (2002) all found. This is what Krug's (2000) book *Don't Make Me Think*, is about. This is why college library web sites need to be re-evaluated.

Students, the users of information, now have choices in how they obtain their information. Previously, libraries judged how information was being found by doing usability studies; they never considered the possibilities that students would not choose them over the Internet. As noted in the reports mentioned earlier, this has been proven to be the case. The International Standards Organization states that usability studies are done to determine the "effectiveness, efficiency and satisfaction with which a specified set of users can achieve a specified set of tasks in a particular environment" (Norlin &

Winters, 2002, p. 2). The usability studies typically had to do with how many clicks to this database or what was located on the homepage – the studies did not address what tools would assist the users in making their information searching more valuable, efficient, easier and relevant to them. It is only when those issues are addressed that students will take advantage of what the library website has to offer. One implication that "The Internet Goes to College: How Students are Living in the Future with Today's Technology (Jones, et al., 2002) report makes is that for college students convenience is, and will continue to be their driving force on the adoption of new technologies, whether for work, home, or leisure.

The study of adult learning, andragogy, is credited to Alexander Kapp in 1833 in Germany with its introduction in the United States in the late 1960's (Burns, 2002, Knowles et al., 1998). It was after World War I ended that researchers became interested in adult learning. Two fields of research came about: the first was could adults learn (did they have a learning ability) which then led researchers to how do adults learn (Knowles et al.) Beside the fact that andragogy studies how adults learn and pedagogy studies how children learn, the terms are different in that "andragogy is a *process model* of teaching whereas pedagogy is a *content model*" (Burns, p. 230; my emphasis).

Researchers have also acknowledged that adult learners are different and may be in different stages in their learning process. Whereas children may be at nearly the same level, adults come to the learning table at different ages, at different times in their life, with different life experiences and for different reasons (Burns, 2002). Burns notes that focusing on the word, andragogy versus pedagogy or the age of the learner "might obscure real areas of similarity in adult learning with that of younger persons" (p. 235)

rather it is better to look at the process of learning that andragogy indentifies as "good practice for all learners" (p. 235). Burns believes it would benefit learners of all ages to be in a learning environment where they are respected, their views are accepted, and allowing some decision making in the process of their learning, thus taking into account their reasons and stages of learning – thus "pedagogy and andragogy are not mutually opposed" (p 235).

Knowles et al. (1998) identifies six core principles of andragogy:

1. "Learners need to know." (p. 66) The adult learner needs to know why they need to learn something, what it is they need to learn and how they are expected to learn it.
2. "Self-Concept of the Learner." (p. 66) The adult learner's personal concept of how they can learn something: "autonomous or self-directing" (p. 182).
3. "Prior Experience of the Learner." (p. 66) The adult learner takes inventory of their resources and past educational experience.
4. "Readiness to Learn." (p. 67) The adult learner identifies a goal or weakness that is driving him or her to learn something and what skills they will need to complete the goal.
5. "Orientation to Learning." (p. 67) The adult learner reflects on the type of learning best suited for the situation: "problem centered or contextual" (p. 182).
6. "Motivation to Learn." (p. 68) The adult learner reflects on the goal: does it have "intrinsic value" or does it have a "personal payoff" (p. 68).

Along the way, each of these six core principles is influenced by other factors such as "situational differences, individual learner differences and subject matter

differences" (Knowles, 1998, p. 181). The adult learner will factor in these differences as they proceed, resulting in taking control of their learning. Depending on their past and current experiences, they may take various directions in their education. As they precede other factors, such as "societal growth, individual growth and instructional growth" (p. 181) will occur, allowing the adult learner to progress in the learning process.

Summary

Research has shown that today's college students, while different in age, goals and motivation have similar needs when it comes to their learning. They expect and enjoy group work; they expect to know why they need to learn something and that it be relevant to them; they expect to be part of the decision-making both in how to reach their goal as well as during the learning process; they expect adults to be prepared and demonstrate authoritative expertise; they expect feedback in a timely matter and expect acknowledgement for a good job; they expect to be respected and to have past experience acknowledged; and expect timetables and assignments to be somewhat flexible to reflect their busy lifestyles (Elam, et al., 2007; Howe & Strauss, 2000; McGlynn, 2005, 2008; Murray, 1997). While younger college students have more experience with technology and are more like to be early adaptors of emerging technology, older users are closing the gap in the type and amount of use with technology (Jones & Fox, 2009; Jones, et al., 2002).

Community colleges conduct little research. The literature has shown that college students and libraries, regarding technology use have had little research. It is non-existent when it comes to community colleges. Cohen & Brawer (2003) note "community colleges conduct little research, and even less attention is paid to them by extramural

research agencies" (p. 349). Based on this literature review, this author is confident that no other community college libraries have done a study or survey similar to my study.

The purpose of this research is to discover what, if any, correlation exists between community college students' library perceptions, and technology used in their pursuit of academic achievement.

Chapter 3: Methodology

Why do research…"to explore the intersection of student technology and library cultures during a time of rapid sociotechnical change" (Booth, 2009, p. 17).

Chapter three will present the research design used. It will identify the role of the researcher, the research site, the research subjects, the methodology and the data collection.

Purpose of the Study

The purpose of this research was to discover what, if any, disconnects exists between a community college student's library perceptions, and technology used in their pursuit of academic achievement. The study also sought to identify their library use in general, whether it was online or physically on one of the campuses.

As an academic librarian, this researcher has a professional and personal interest in this study. This researcher works first hand with students every day on assisting them in their information needs. Their information needs reflect their busy lives, meaning assistance can be for their academics, but many times I am also assisting in a more personal nature with health resources, childcare, career or job information, financial and/or food assistance, or recreation needs. This study asked them to reflect on their use of the academic library and technology use. It is in understanding their academic needs, and uses of technology to meet those needs, in regard to the library resources, that the library can present a product that will be more valuable to them.

When this study first came to mind, in the spring of 2008, it was to be more encompassing. This researcher, in working to narrow the focus of the study, and in doing

the literature review discovered a March 2009 Association of College and Research Libraries (ACRL) presentation "If You Build It, Will They Care? Tracking Student Receptivity to Library Technologies" which was published as a full report as "Informing Innovation: Tracking Student Interest in Emerging Library Technologies at Ohio University" in May 2009. This study was done at the Ohio University campus in Miami, Ohio to better "understand how students actually interacted with libraries and technology" (Booth, p. 1) which was the purpose of my original design. As the literature review reveals, very little research has been done focusing on what students want from their library web site. Most studies look at usability from the viewpoint of tasks; how many clicks to get from here to there and/or can this particular article be found by a student. Cooper and Reimann (2003) found the same problem when companies develop software when "companies *do* focus on the users, they pay too much attention to the *tasks* that users engage in and not enough attention to their *goals* in performing those tasks" (p. 12). In looking at general research on community colleges, there has been little (Cohen & Brawer, 2003) and on community college libraries even less. This is why this research is significant at this time.

Research Questions

The intent of this research was to discover what, if any, correlation exists between community college students' library perceptions and technology use. I replicated a recent study done at Ohio University by Booth (2009). Her research was presented at the 2009 ACRL conference in March 2009. ACRL also published the entire study, "Informing Innovation: Tracking Student Interest in Emerging Library Technologies at Ohio

University" in May 2009. Permission was obtained from the original researcher to "use and alter" components of her study.

Six of the seven original research questions were used, with changes only to reflect the community college student profile. One question was removed, as it was looking at the different technologies available at the different library facilities on the Ohio University campus. While the study institution does have different campuses, the technology available at them are consistent; no library is identified as the technology library or having more technology than another.

1. What are the technology profiles (defined as technology ownership, use, skill, and adoption status) of students at a very-large-size southwestern community college?
2. What are the library profiles (defined as library use, skill, awareness, and emerging technology receptivity) of students at a very-large sized southwestern community college?
3. How do the library and technology profiles of students of disparate demographic factors such as age, digital status, gender, and academic status differ?
4. How can student receptiveness to and awareness of emerging technology library services be characterized?
5. How do students of disparate library and technology profiles compare in their awareness of, assessment of, and receptivity to traditional emerging technology-based library services?
6. What is the relationship between student use and awareness of library services and self-perception of technological competency, and receptivity to emerging technologies?

Researcher's Role

The researcher is an academic librarian at a southwestern community college. The researcher has been an academic librarian for three years and prior to that worked in the public library setting as a Young Adult (teen) librarian. The researcher has the responsibility of information literacy instruction on her campus, working with students individually and in their classes, as well as providing reference services, digital and other technological assistance. Assistance is provided in a variety of formats; face-to-face, on the phone, or via email.

Population/Sample

The population for this study was students at a southwestern community college. As community colleges serve a wide range of students based on age, ethnicity, educational goals (transfer, Associate's Degree, certificate, increasing work skills, or life-long learning) and status (full or part-time), their college library web sites must accommodate all. This community college has a Carnegie Classification of a very-large, exclusively undergraduate, multi-campus, 2-year college in a predominately urban area (Carnegie Classification). The school serves a wide range of ethnicities, with students attending for reasons such as for high school credit, transfer to a 4-year institution, retraining or additional training for the workforce, as well as for personal learning pursuits. The institution has been designated as a Hispanic Serving Institution by the Department of Education.

The sample for this study was made up of the students who self-selected to participate in the study. Students were invited to participate in the survey via flyers

located in the student life center, campus libraries and around campuses. Instructors were also notified of the survey and invited to have their students participate.

Design

This was a survey study of southwestern community college students and their perceptions of libraries and technology use in their academic life. It was determined that the best tool would be an online survey, as the students attend classes face-to-face, online or a mix of the two (hybrid).

In *Conducting Online Surveys*, Sue and Ritter (2007) identify eight considerations for using online surveys.

1. "What is the desired sample size, and how is the sample distributed geographically?" (p. 5). At this southwestern community college, there are approximately 40,000 students, on six campuses spread out over a metro area, which is approximately 600 square miles. Due to the large number of potential participants in the survey, and their various locations, an online survey was determined to be the most appropriate tool.
2. "What are the time constraints?" (p. 5) The survey link will be available for two weeks. Students will be invited to participate in the survey via flyers located in the student life centers, campus libraries and around campuses. Instructors were notified of the survey and invited to have their students participate. In having the survey available to all students, at their convenience and not during class time, there was no class interruption.
3. "Does the questionnaire deal with sensitive information?" (p. 5) There will be a couple of questions that could be deemed sensitive in nature. The participants

were asked their age, how many completed credits and how comfortable they were with technology. It is this researcher's belief that anonymity increased participants providing more accurate responses to questions a participant may feel is sensitive in nature; for this reason, the online survey was determined the most appropriate tool.

4. "Who is your target?" (p. 5) The sample for this survey was any student who attends classes at any of the campuses. For this survey, minimal skills were needed to complete the survey. Students were invited to participate in the survey via flyers located in the student life centers, at campus libraries and around campuses. Instructors were also notified of the survey and invited to have their students participate. The majority of the questions were answered by clicking on the radial button in front of the appropriate answer. Three of the questions were open-ended, thus answered in text format, very similar to using a word processing program. Due to the participants having access to a computer (all campuses have a computer commons for students to use) and needing only minimal computer and/or Internet skills, it was determined that the online survey was the most appropriate tool.

5. "Is there a sampling frame?" (p. 5) As noted earlier, and explained in greater depth in the next section, the participants were students attending classes at any one of the study institution campuses. They were attending virtually, face-to-face, or in a hybrid type class that meets online as well as face-to-face. Due to these considerations, the online survey tool was determined to be the most appropriate.

6. "Is a convenience sample sufficient, or is a probability sample necessary?" (p. 6) This researcher used saturation sampling, meaning that every student was invited to participate to complete the survey. Students were invited to participate in the survey via flyers located in the student life centers, at campus libraries and around campuses. Instructors were also notified of the survey and invited to have their students participate. Thus, the online survey was considered an appropriate tool for this research.

7. "Would multimedia or interactive features enhance the questionnaire?" (p. 6) For this research, the addition of multimedia features would not have enhanced the questionnaire. The interactive features of the survey allowed the participants to note how far along they were in the survey and complete the survey by clicking on radial buttons for all but three questions.

8. "Does the researcher have the technical ability to create an online survey, or are there funds available to hire someone?" (p. 6) The researcher used an online survey from a commercial vendor. There were several available for free or little costs that allowed the researcher to create a tool that met the needs of the research. As such a tool that met the needs of the research was available for free or little costs, an online survey was determined to be the most appropriate.

Data Collection Instrument

The data collection instrument consisted of a survey containing a mixture of multiple choice (single answer as well as 'all that apply' choices), Likert scale questions and three open ended questions. The original survey consisted of 35 questions. To narrow the focus of the study, the researcher decided to concentrate on discovering what, if any,

disconnects between community college library perceptions and technology used in their academic achievements, removing the research component. In an attempt to shorten the survey, the researcher consolidated some of the questions that were identified as being very similar to other questions, as well as the questions regarding research, which were no longer needed. This resulted in a survey consisting of 25 questions, including the three open-ended questions.

The survey consisted of five sections. In the first section of the survey instrument the participants identify they had read the disclaimer and were over 18 when they clicked to continue with the survey. Section two was aimed at collecting demographic information regarding their age, gender, the reason they were attending classes at this institution, the number of credits completed at this institution at the time of the survey, and the campus they primarily attended. Section three consisted of six questions and was aimed at evaluating the respondents' library use. The questions were in multiple choice and Likert scale format. Section four aimed to evaluate general technology and library technology use. This section had ten questions. The fifth section had three open-ended questions. The open-ended questions allowed the respondents to provide some personal insight by giving them a chance to describe their own individual library experience. See Appendix C for copy of the survey questions.

Table 1
Methodology and Research Question Mapping

	Research Questions	Survey Instrument
1.	What are the technology profiles (defined as technology ownership, use, skill, and adoption status) of students at a very-large size southwestern community college?	13, 14, 16, 19
2.	What are the library profiles (defined as library use, skill, awareness, and emerging technology receptivity) of students at a very-large size southwestern community college?	7, 8, 10, 12
3.	How do the library and technology profiles of students of disparate demographic factors such as age, gender, and academic status differ?	1, 2, 3, 4, 5, 6
4.	How can student receptiveness to and awareness of emerging technology library services be characterized?	17, 18, 21, 22
5.	How do students of disparate library and technology profiles compare in their awareness of, assessment of, and receptivity to traditional and emerging technology-based library services?	9, 11, 20
6.	What is the relationship between student use and awareness of library services and self-perception of technological competency, and receptivity to emerging technologies?	15, 23, 24, 25

Data Collection Strategies

The data collection strategies included the creation of an online survey. The survey consisted of: a) a screen on which they gave their consent to participate in the survey, b) basic demographic data collection, c) multiple-choice questions, d) open-ended questions. Each screen provided a navigation guide to assist the participant in understanding how far along they were in the survey. Sue and Ritter (2007) state that due to varying degrees of "competency and comfort" (p. 79) with computers, assisting the participant with navigational prompts can "assist the respondent in completing the survey without getting discouraged or lost" (p. 79).

Protection of Human Subjects

The subjects in the study were attending at least one class at the identified southwestern community college. All surveys were completed before the end of the semester.

The school's Planning and Institutional Review department (PIR) was been initially contacted and the formal application was submitted after chapters 1-3 were successfully defended. The institution's PIR review was completed at the end of March 2010 and approval was conveyed to begin the study. At that time, all steps necessary to complete the institutions requirements were completed. At the time of the formal application, Pepperdine University's IRB was contacted and all requirements were completed for their approval. Based on this researcher's review of Pepperdine University's IRB guidelines and confirmed by the IRB, this study qualified for "exempt" status as it met the second criteria of Pepperdine University: Appendix B- Research Activities Exempted From Federal Regulation (CFR) (Pepperdine University, 2009)

> 2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless:
>
> A) Information obtained is recorded in such a manner that human subjects cannot be identified, directly or through identifiers linked to the subjects; and
>
> B) Any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil

> liability or be damaging to the subjects' financial standing, employability, or reputation (¶ 2).

This research met the "exempt" status as it involved a survey, neither the subjects nor the institution were to be identified, and the responses did not put the subjects in any harm or damage their financial standing, employability or reputation.

All participants gave their consent prior to starting their survey. No student was required to fill out the survey and they could stop completing it at any time.

Security and Anonymity of Data

All copies will be kept for 5 years, in a locked file cabinet in my office, where after 5 years they will be destroyed. Participation was confidential and anonymous; participants will not be identified, and the institution identified only as a southwestern community college.

Validation of the Survey Instrument

I have chosen to replicate a previous study, completed at Ohio University, which serves undergraduate, as well as graduate students. In doing so, I have used a study that has been validated at a previous institution. However, I have chosen to also validate the instrument, giving the survey questions to a panel of experts in higher education libraries, each with an earned doctorate, to validate for content and relevance to the study. Each panel member was also emailed chapter three which included the research questions. The panel members were asked to respond to the survey questions ability to answer the research questions if the "measure of a concept really measures that concept" (Bryman & Bell, 2003, p. 77). The researcher believed validation is a responsibility of each researcher, and asking for the face validity assisted the researcher prior to the survey

being administered. The panel made several recommendations: to add additional columns for responses regarding those not having used a computer in the library or owning a mobile phone and to consolidate two questions into one regarding broadband and high-speed wired Internet access. The survey instrument was revised and the panel had no additional changes. The survey in Appendix C reflects the changes.

Usability Study

After making the changes recommended by the expert panel, the survey instrument was administered to student aides employed at one of the campus libraries. Each student aide was able to successfully complete the survey with no additional prompts. When each student aide completed the survey, they were individually asked to comment on the survey. All but one responded that they understood the questions and what was being asked of them. One stated that, although they answered all the questions, they felt the question regarding visiting the library website (question eight) was confusing as they were unsure if it meant visiting the library website on campus or off. After further discussion with the other student aides, the researcher determined that additional verbiage was needed. The survey in Appendix C reflects the change.

Eliminating Researcher Bias

Every attempt was made to remove researcher bias from this study. With the exception of the demographic questions, the survey questions have been used in a previous study at Ohio University. That being said, this researcher has gone over each question to ensure the language used in the survey was reflective of the objective of the study and to discourage inaccurate responses.

Data Analysis

Once the surveys had been returned to the researcher, the data was entered into Microsoft's Excel software and analyzed. The researcher then determined if there were any relationships of the data, and if so, if it has meaning.

The researcher used Heuristic Coding for the open-ended questions, which has three parts: you notice things, you collect things and you think about things. These three parts are part of a process that has three characteristics: (a) it is iterative and progressive in that the cycle repeats itself; as you are thinking about the data you notice something new, which you then go back and collect begin the cycle over again, (b) it is recursive in that while you are collecting you may notice something new, that may lead you to collect new things, (c) it is holographic in that the entire process is found in each; you simultaneously noticing and collecting and thinking about the data (Seidel, 1998).

Summary

The purpose of this research was to discover what, if any, disconnect exists between community college students' library perceptions, and technology used in their pursuit of academic achievement. The study also sought to identify their library use in general, whether it is online or physically on one of the campuses. All students at the study institution were invited to complete the survey. Based on these results, the researcher made recommendations on how the library can provide better support to their academic needs, based on students' current library and technology uses.

The reason for this study was because recent studies have indicated that college students are not choosing their college library websites as a first choice for their information retrieval. Literature suggests that the majority of college library web sites are

not meeting their students' needs, thus students are going elsewhere. Most studies focus on 4-year institutions, not the community college, where students are more diverse in age, technical skills, and reason for attending college. Many of the students transfer to a 4-year institution, but for many more, the community college is providing them with skills they will take directly into the workplace. The community college plays a large role in a community, meeting its needs in workforce training, as well as assisting in updating employee skills. A community college's library web site should do the same for is students', developing and updating their information retrieval skills that will serve them as they progress to the next phase of their life.

Chapter 4: Data Collection

Introduction

This chapter is an analysis of the survey presented to the students at a very-large southwestern community college. The data collection instrument, found in Appendix C, consisted of a 25-question survey containing a mixture of multiple choice (single answer as well as 'all that apply' choices), Likert scale questions and three open ended questions. This chapter is divided into data analysis, analysis of the research questions, and the emergent themes that have come from the analysis.

Data Analysis

Population/Sample. The population for this study was made up of students at a southwestern community college. As community colleges serve a wide range of students based on age, ethnicity, educational goals (transfer, Associate's Degree, certificate, increasing work skills, or life-long learning) and status (full or part-time), college libraries, both the physical and their accompanying web sites must accommodate all. This community college has a Carnegie Classification of a very-large, exclusively undergraduate, multi-campus, 2-year college in a predominately urban area (Carnegie Classification, 2008). The students attend for reasons such as for high school credit, transfer to a 4-year institution, retraining or additional training for the workforce, as well as for personal learning pursuits. The school serves a wide range of ethnicities; the United States Department of Education has identified the institution as a Hispanic Serving Institution.

The sample for this study consisted of students who self-selected to participate in the study. Announcements of the survey, as well as take-away handouts, were distributed

to all student life centers, libraries, on bulletin boards and in cafeterias on all campuses. Students around the campuses were also personally asked to participate by librarians. Instructors invited students to participate either with flyers passed out in class or were provided a link in their course management system. Librarians also passed out flyers during bibliographic instruction.

Demographics. The survey was available for two weeks, and when closed showed 257 students entered the survey. The survey was only open to those students 18 year of age and older. Not every student who entered the survey completed the survey; the participants were not required to answer every question nor were they required to complete the survey. Of the 257 participants, 248 of them, or 96.5%, answered at least one survey question.

Female students represented the largest number of participants (64%). The majority of the survey participants, 46%, were in the 18-22 age bracket, followed by the 23-30 year olds (28%), 31-40 year olds (12%), 41-50 year olds (6%), 51-60 years old (6%), and those over 60 years old (2%). See Figure 1. As the age indicates the majority of the students who participated in the survey were traditional college age students, it follows that the majority of the participants indicated they are attending this institution intend to transfer to a 4-year institution. See Figure 2. The researcher finds this data to be expected, as the percentage of 18-22 year olds matches the percent reported by AACE (2002) of college freshmen that attend community colleges nationwide.

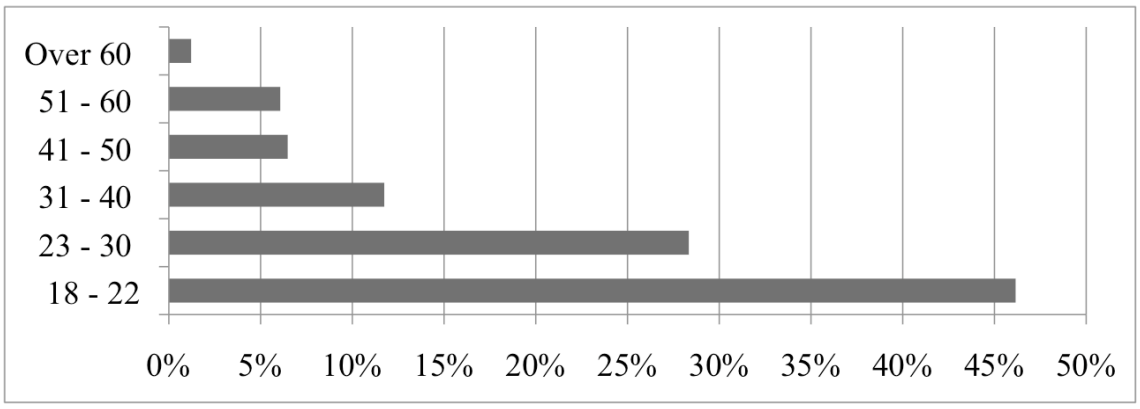

Figure 1. Participants by age.

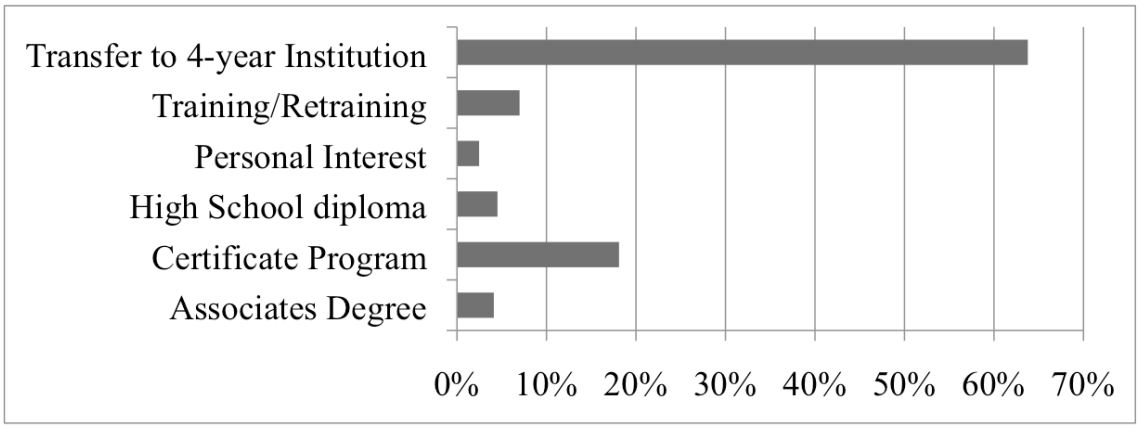

Figure 2. Participants reason for attending institution.

When the participants were asked the number of credits they have completed, 35% indicated they have completed 28 credits or more. Twelve percent indicated they have completed zero credits, which would indicate they either have just started taking classes this semester or they are taking classes for personal interest. (A student taking a course for personal interest can choose to take the course for credit or for non-credit, which would also include auditing a class. The student pays the same amount as a student taking the class for credit.) Two percent of the participants indicated they are attending for personal interest. See Figure 3.

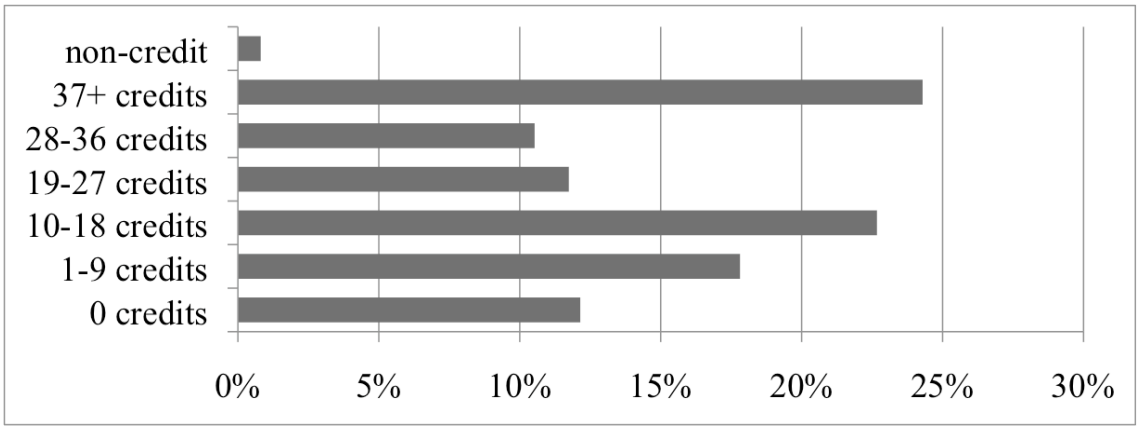

Figure 3. Credits completed by participants.

Multiple venues were used to distribute invitations to participate via flyers (hard copies and digital versions) to different groups at all campuses. Flyers were distributed to all five of the campus libraries and librarians, tutor centers, computer commons, student life centers, as well as to as many instructors as possible at all six campuses. The sixth campus was originally designed for classes in the community, via television, and for the correspondence courses. It has developed into the main campus for online distance education students, although instructors from the other five campuses can, and do, teach online courses as part of their workload. When participants were asked to identify what campus they took the majority of their courses at, all campuses were represented. See Figure 4. The participants were also asked how they found out about the survey and the majority participants identified their instructors as the source. See Figure 5.

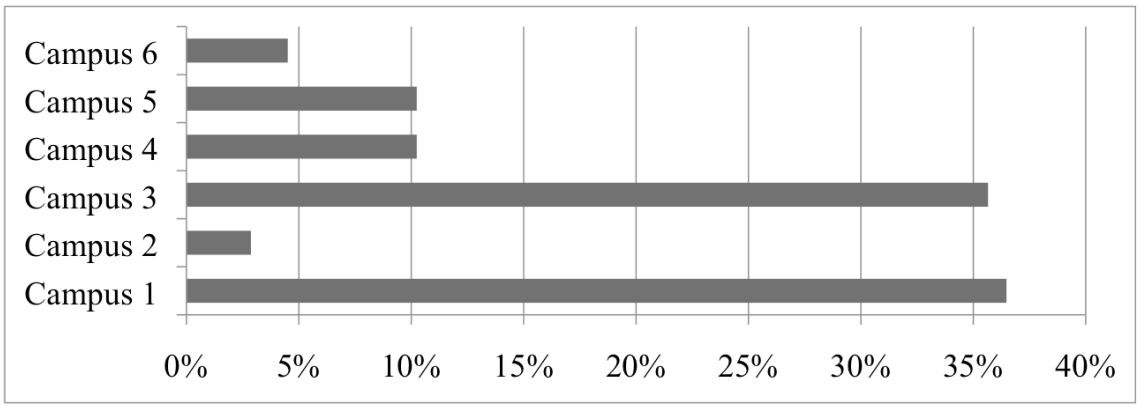

Figure 4. Participants' primary campus.

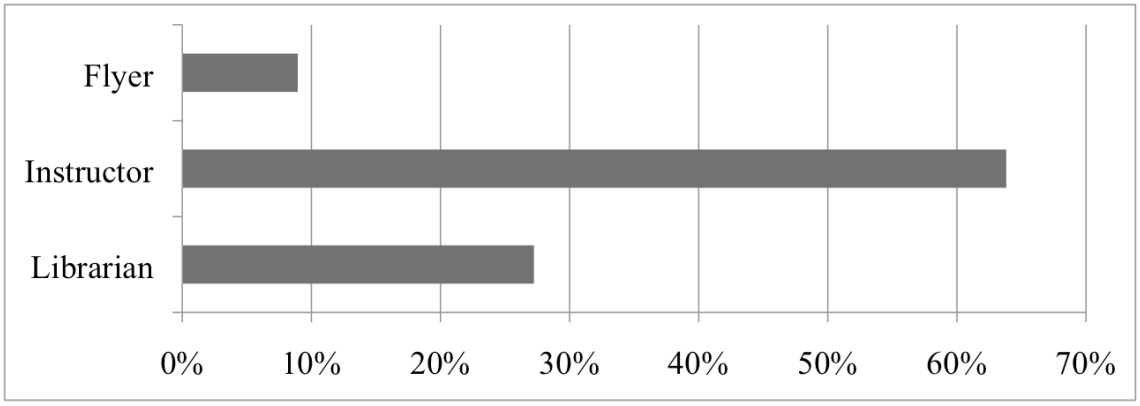

Figure 5. How participants learned of survey.

Library Use. The next section of the survey inquired about the student's library use. In asking how often they physically visit the library, 23% reported they visit it weekly. Monthly visits followed closely at 20%. The responses *Never* and *Several times per Week* tied for third place at 18%. See Figure 6. When asked about visiting the library website, the top response was *Monthly* (29%), followed closely by *Weekly* (24%), and *Once a Semester* (18%). See Figure 7.

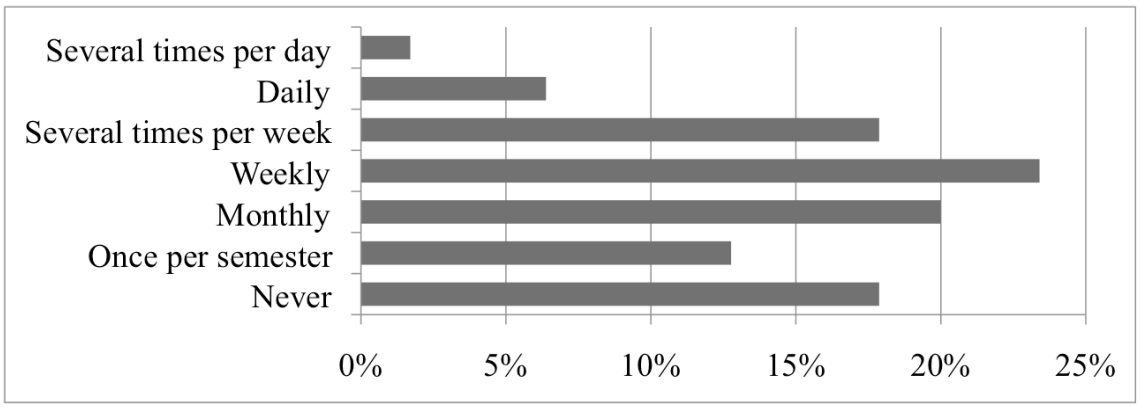

Figure 6. Participants' use of physical library.

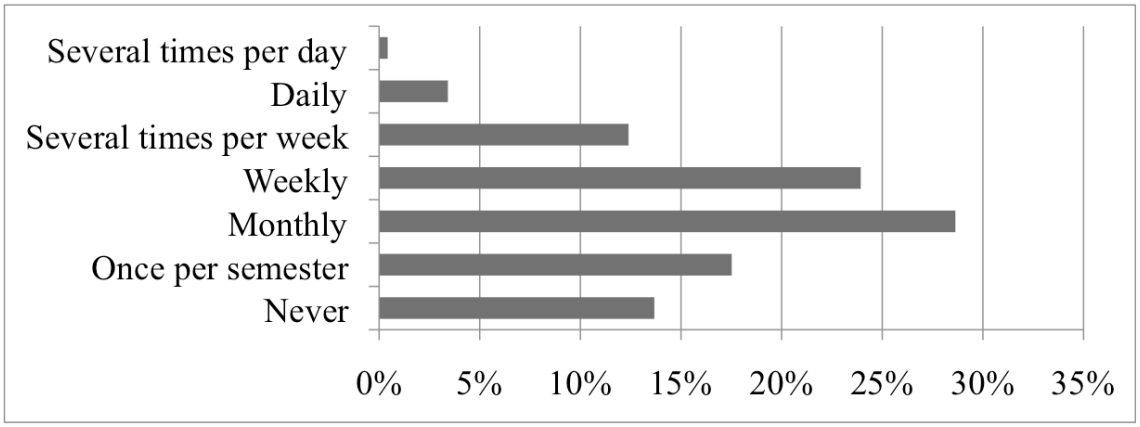

Figure 7. Participants' use of library website.

The next question asked the participants to identify what service/features the library currently offers and which ones they believed the library should offer, as a way to gauge students awareness of library services. The majority of the students were able to identify the services the library currently offers. See Figure 8. Of the 16 items in the survey, all but one are currently offered. (Virtual reference is under consideration and was included to provide additional data to continue the conversation.) Of the two items as identified as *Should be Offered*, laptops and virtual reference, laptops are currently offered, but not at all campuses. In looking further at the data, every campus except campus three and four, identified it was a desired service.

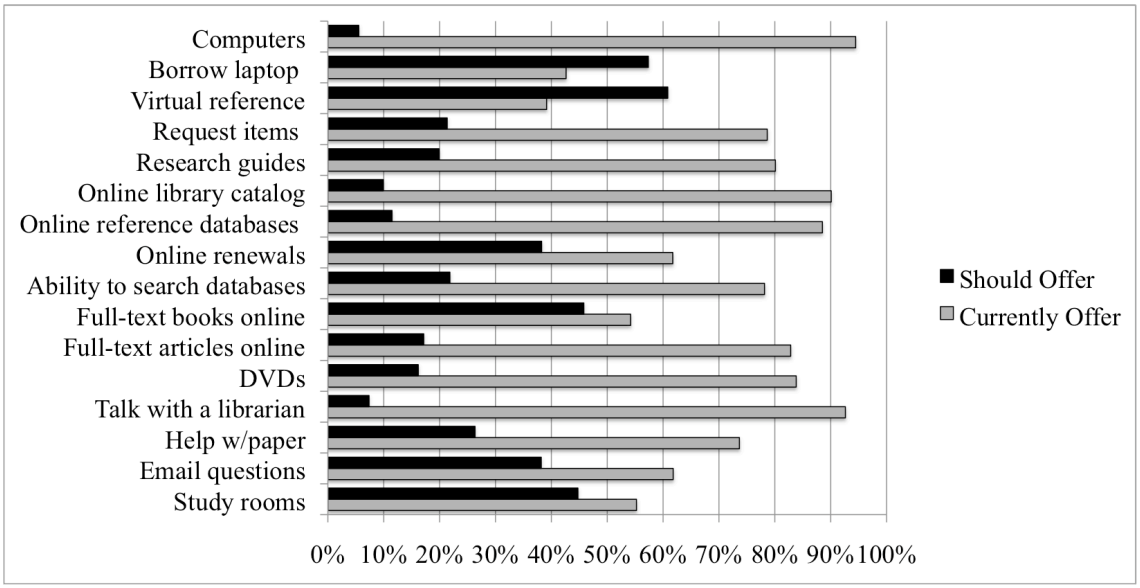

Figure 8. Participants' identifying current and desired library services/features.

The next two questions of this section had to do with the library website. The first question asked the participants to identify how often they use certain services/features offered on the library website. The participants identified searching for articles in the online databases and using the research guides more often than other services, with the research guides used 73.1% and online databases 81.3% at least once in a semester. See Figure 9.

The next question asked was if the library should provide space for collaboration and/or information sharing. The overwhelming response was yes, with 85% of the participants indicating the library should offer collaboration in some way.

The final question in this section asked the participants about their computer use in the library. These could be computers provided by the college (computer commons, borrowed laptop) or their personal laptop. The responses indicate they when using a computer in the library, they are more likely using it to access their student portal, to

check email, to create papers or presentations for class and/or to use the library website in some way. Approximately 25% indicated they did not use a computer in the library. See Figure 10.

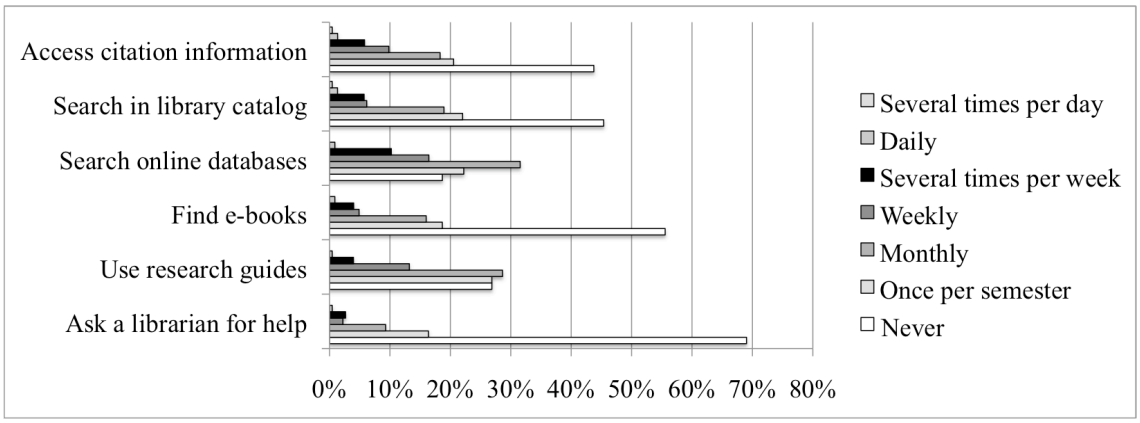

Figure 9. Participants use of library website.

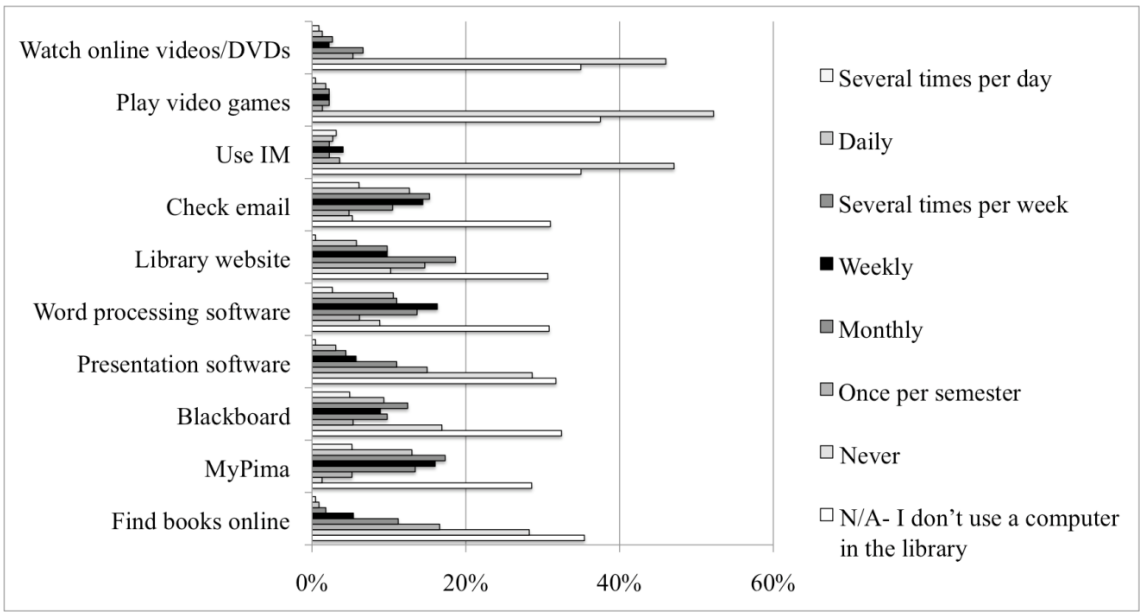

Figure 10. Participants computer use in library.

Technology use. The fourth section asks the participants about their technology use for both academic and personal uses. In looking at the participants time online, the majority (31.6%) report being on 11 – 20 hours per week. Only 17.3% reported being

online greater than 30 hours, while 11.1% reported being on less than 5 hours per week. See Figure 11.

In the next question, the vast majority of participants (96.9%) indicated they have some form of Internet connection at home. Wireless access was reported by 60.6% of the participants, with 31% indicating a high-speed wired connection. Dial-up was reported by 1.3%, while 4 % were unsure of their Internet connection. Only 3.1% reported having no Internet connection at home.

The third question in this section asked the participants to self-identify their technology adoption. Almost half, 47.3% of the participants indicated they adopt new technologies at about the same time other people do. 7.1% indicated they tend to be the leader in new technology use, while only 4.4% reported avoiding using new technologies. See Figure 12.

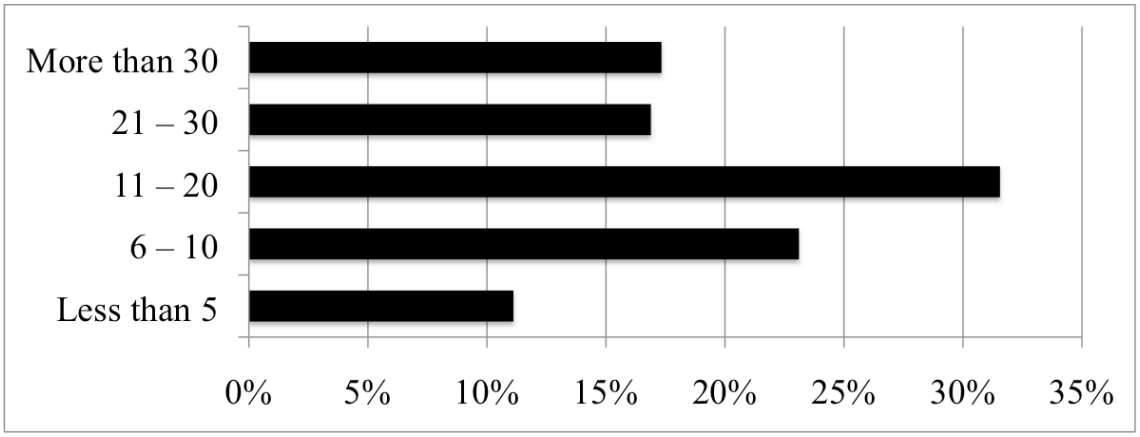

Figure 11. Participants weekly hours online.

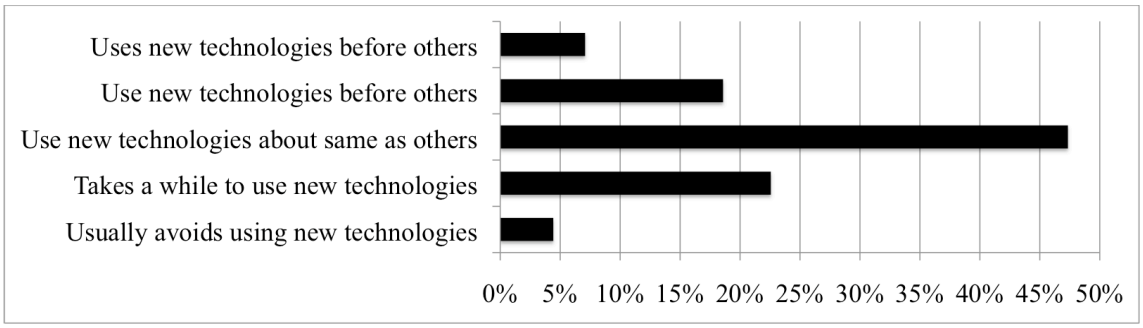

Figure 12. Participants new technology adoption.

The following two questions asked the participants to identify how often they did certain activities in a semester. The majority of the participants identified using text messaging (89.2%) with 65.5% reported using it several times per day. Instant messaging (IM) was only used by 56.5% of participants at least once in the last semester, with only 23.8% reported using it at least daily. While over 50% of the participants reported they had never played games on a console (PS3, XBOX, 360, Wii, etc) in the last semester, 52.7% reported playing online games at least once a semester. YouTube was popular with the participants with 81.8% reporting they watched YouTube videos at least weekly; only 13.4% reported never having watched a YouTube video in a semester. Social networking sites (Facebook, MySpace, etc) were accessed daily by 34.2% by respondents, however, 18.9% indicated they have never used a social networking site in a semester. Reading Wikipedia articles was more popular than editing one, with the majority of the participants reported reading Wikipedia articles at least once in a semester (74.4%), while 83.3% reported never having edited a Wikipedia article. Blogs were read by 52.2% of the participants at least once in a semester, but most had not made comments on a blog or posted to a personal blog (62.7% and 66.5%, respectively). Less than 24%

indicated that they receive search alerts or use an RSS feed in the last semester. See Figures 13 and 14.

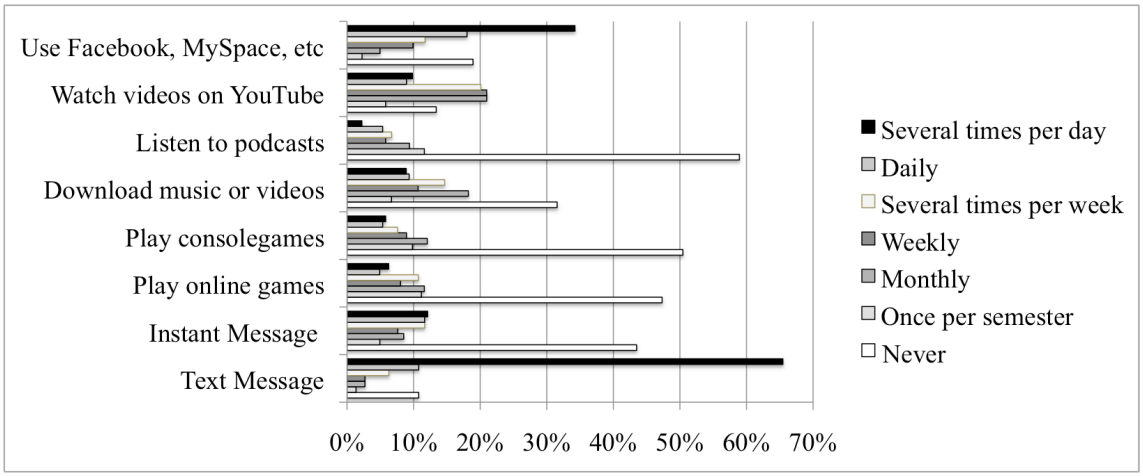

Figure 13. Participants' application use (part 1).

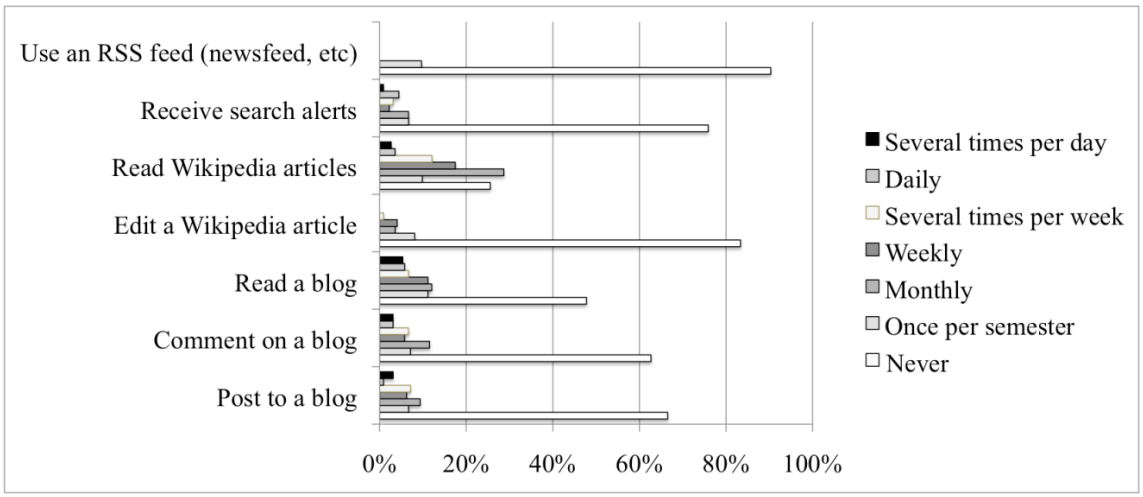

Figure 14. Participants' application use (part 2).

The next question asked about mobile phone use. Text messaging was by far the most used with 86.1% of the respondents indicating they text at least once per semester, and 68.2% of the participants indicating they text several times per day. The only other services that was used by at least 30% of the participants at least once a semester on their cell phones was using a search engine (48.9%), using social networking applications

(Facebook, MySpace, etc) and playing games (37.7%). Overall, participants indicated they did not use their mobile phone to access library related applications as no library service had more than 17 responses combined. See Figures 15 and 16.

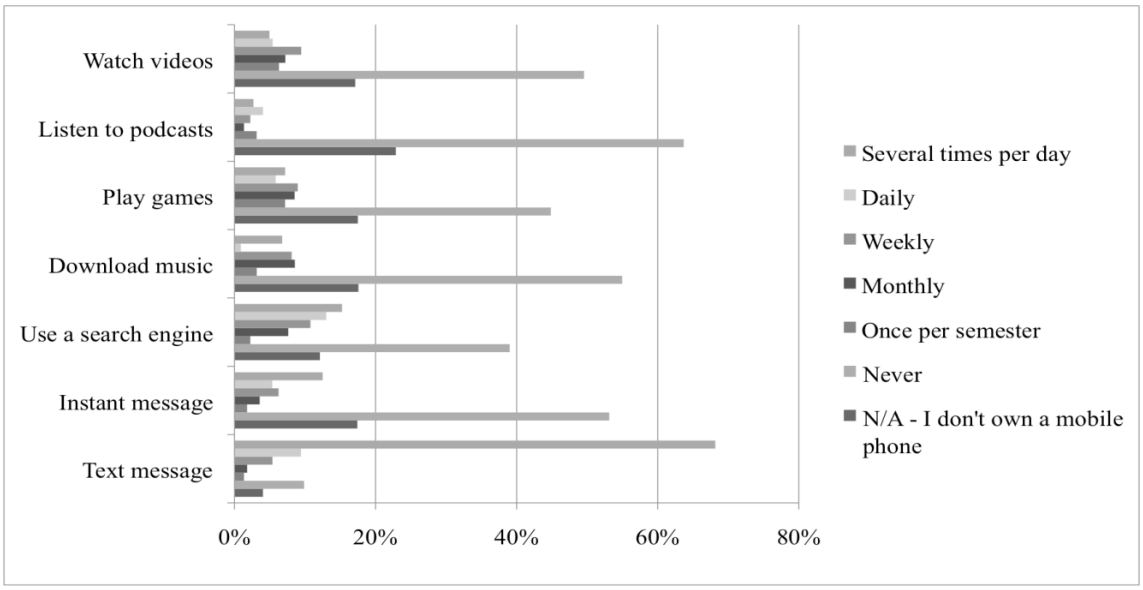

Figure 15. Participants' mobile phone uses (part 1).

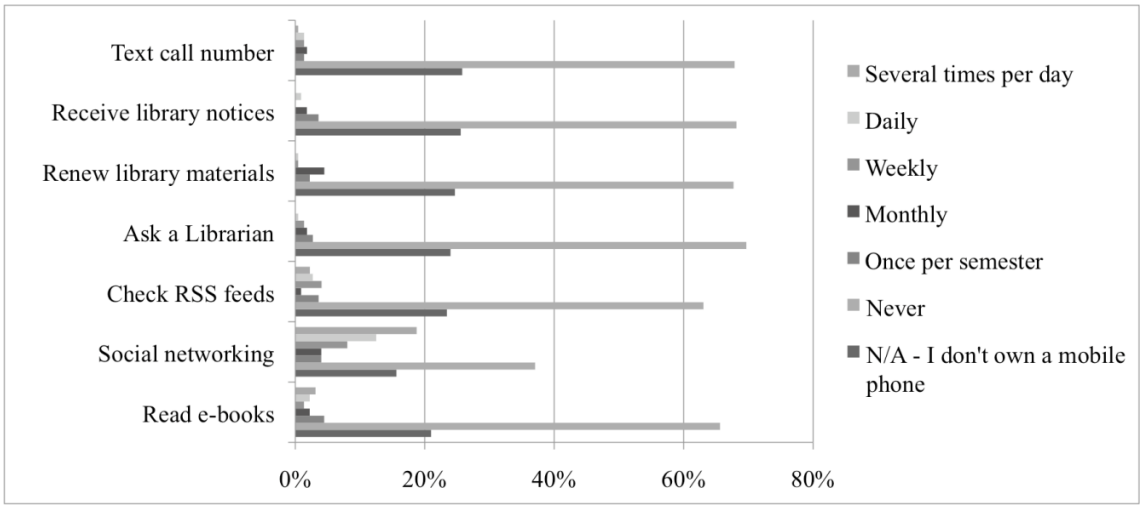

Figure 16. Participants' mobile phone uses (part 2).

Question six looked more closely at the participants' use of social sites and web tools, asking them to identify if they had heard of a the application and if so, what their current use was of a particular site, compared to recent past. Facebook, MySpace, Google

Maps and Twitter were the most recognized. The least recognized were Bebo, Delicious and Zotero, all having more than 60% of the participants indicating they had never heard of it. Facebook and Google Maps were the only two applications that participants noted as using all the time (45.3% and 25.6%, respectively). The application with the largest drop in use was MySpace, with 43.5% of participants noting they either are using it less or used to use it. While Twitter was one of the most recognized, it was one of the least used with 70.4% of the participants indicating they had never used it. See Figures 17 and 18.

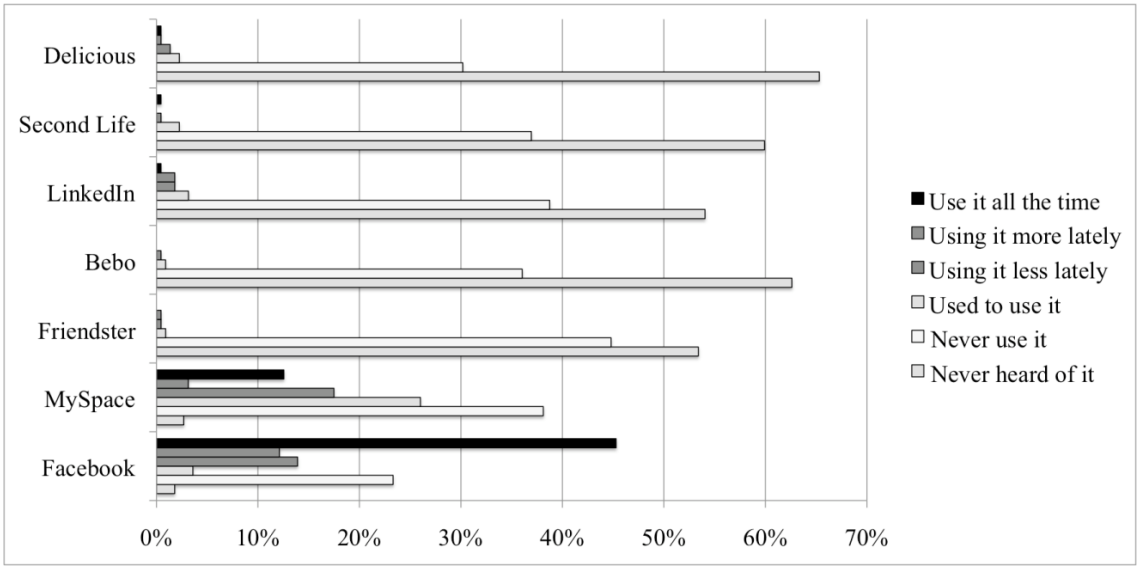

Figure 17. Participants' social sites use (part 1).

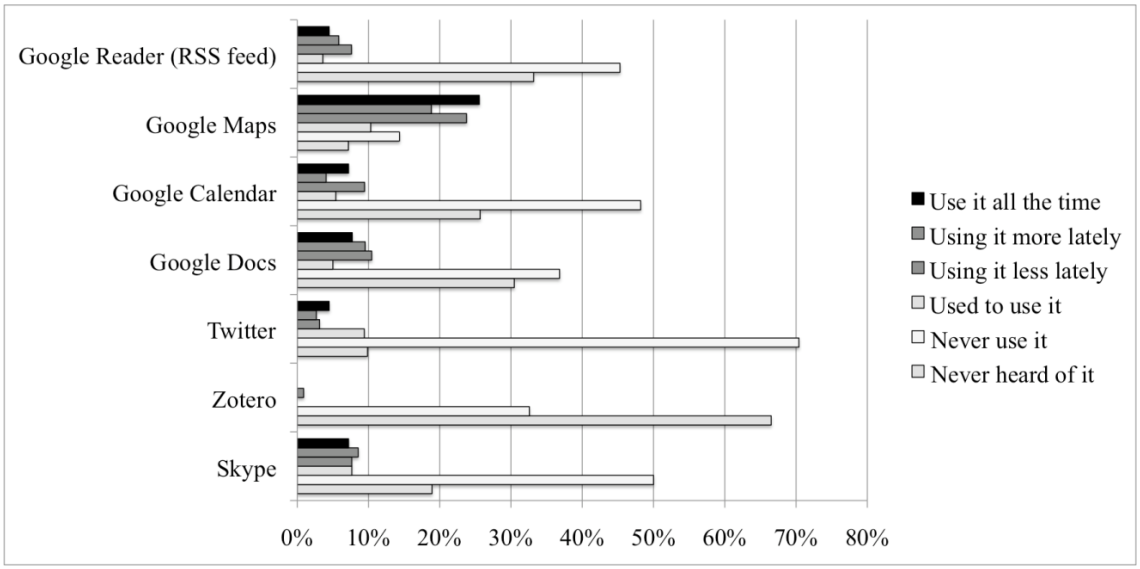

Figure 18. Participants' social sites use (part 2).

The next question asked the participants to indicate which technology devices they own. The majority of the respondents own laptops, with 82.1% indicating they owned one. Desktops were owned by 58.9% of the participants. Cell phones are owned by 67% with 34.8% of those owning a Smartphone (iPhone, Blackberry, Sidekick, etc). Digital camera and iPod/MP3 players were also popular with 72.3% and 63.8%, respectively, noted as being owned by participants. Digital video cameras were the only device noted as having less than 30% ownership (28.1%). Four participants wrote in the iPad, which was released just before the survey began, as an *Other* response. See Figure 19.

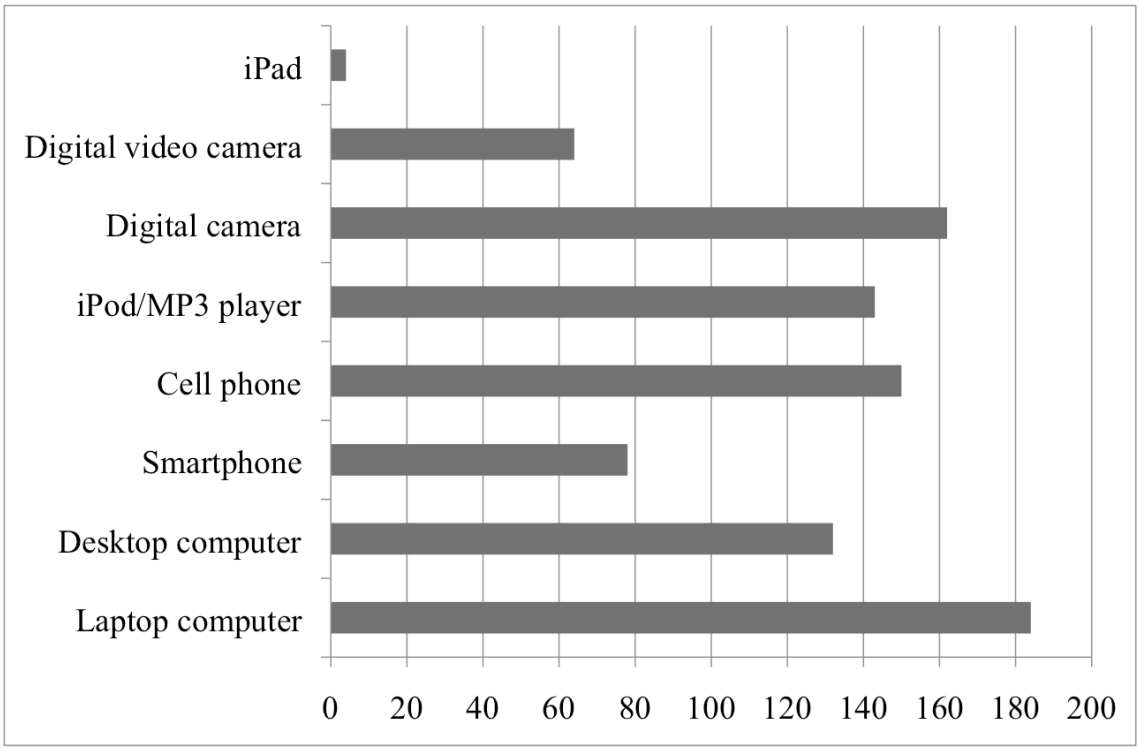

Figure 19. Participants' technology ownership.

The next three questions asked about their technology use in their classes. Question eight asked what library service applications they were likely to use in their classes. Only 34% responded they were likely to using reference chat, by indicating they were *Fairly Likely*, *Likely* or *Extremely Likely* to use it. An article search box fared better with 57.9% indicating the respondents were at least *Fairly Likely* to use it. Participants indicated the library service application they were most likely to use was Library/research tutorials (63.3%) with 26.5% stating they were *Likely* to use it in their classes. See Figure 20.

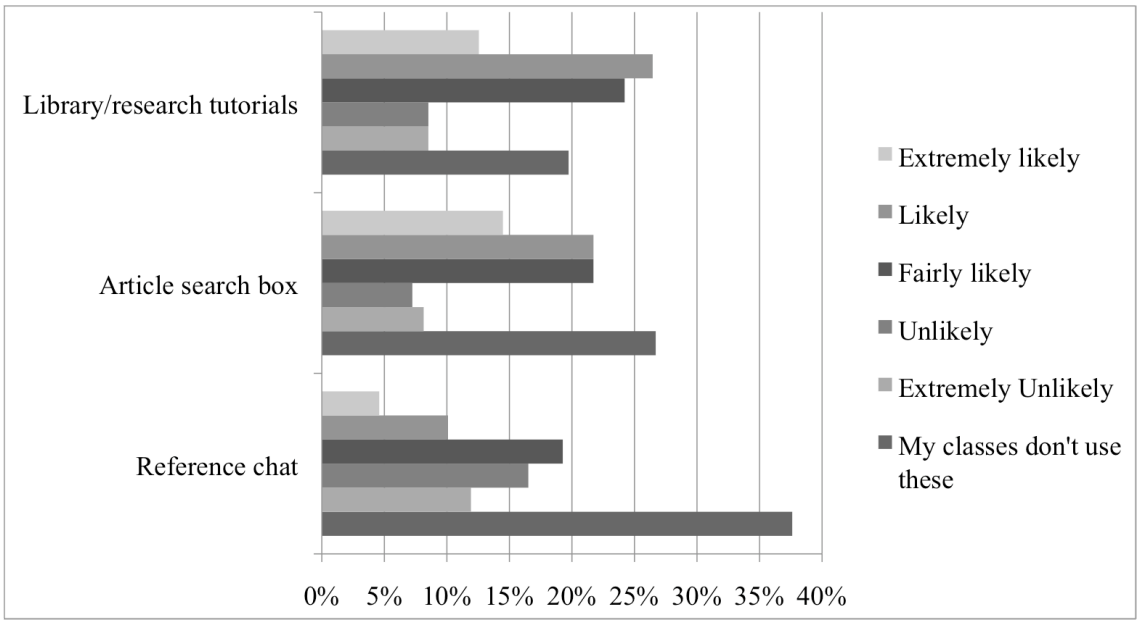

Figure 20. Participants' library services use in their classes.

The next question asked the participant to identify what technology or service they have used in their classes. In this question, the four most used services were library related. *Online reference databases (encyclopedias, almanacs, etc)* was indicated by more participants as being used (65%), followed by the *Online Library Catalog* (56.9%), *Research Guides* (44.7%), and *Requesting Items from other Campus Libraries* (29.9%). Wikis and blogs were close behind at 28.9% and 20.3%, respectively. Virtual worlds (Second Life, etc) had the fewer responses (3.6%). See Figure 21.

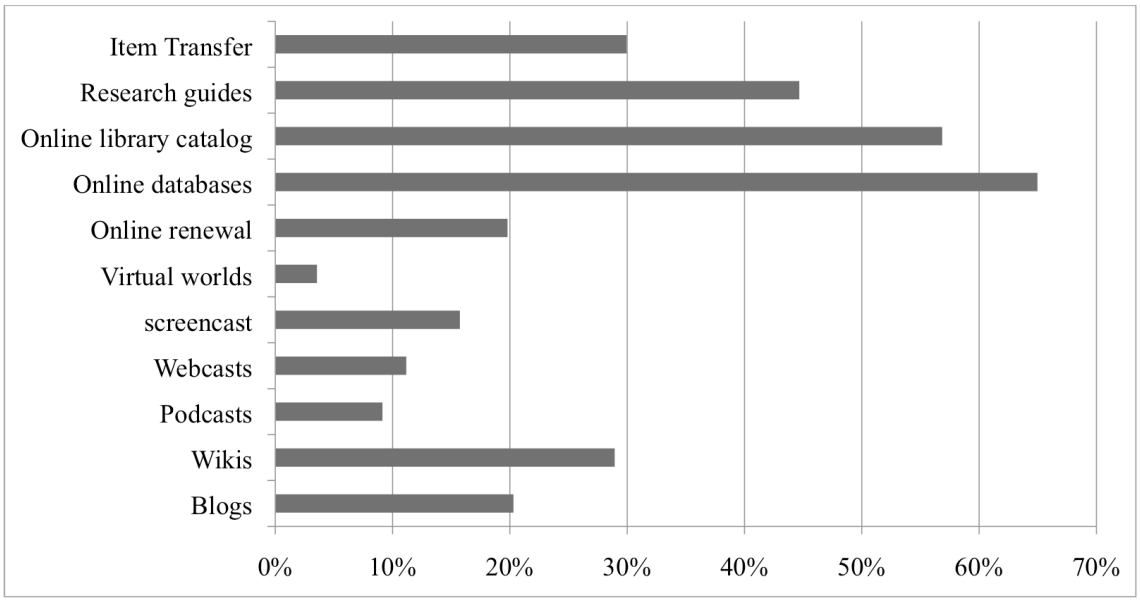

Figure 21. Participants use of technology in their classes.

The last question in this section asked if they had ever taken an online course at this institution. A large percentage, 70.6% noted they had taken some form of online class; 41.1% of the respondents stated they had taken an online class, with another 29.5% stating *Yes, but it met face-to-face also (hybrid)*.

Open responses. The last three questions were open-ended questions. The participants were to respond to "What do you MOST appreciate about (this institution's) libraries and/or library website?" "What do you LEAST appreciate about (this institution's) libraries and/or library website?" and "Do you have any other comments or suggestions about (this institution's) libraries and/or library website?"

In coding the comments made by the participants, the researcher used Heuristic Coding approach, which has three parts: you notice things, you collect things and you think about things. These three parts are part of a process that has three characteristics: (a) it is iterative and progressive in that the cycle repeats itself; as you are thinking about the data you notice something new, which you then go back and collect begin the cycle

over again, (b) it is recursive in that while you are collecting you may notice something new, that may lead you to collect new things, (c) it is holographic in that the entire process is found in each; you simultaneously noticing and collecting and thinking about the data (Seidel, 1998).

The coding began once the survey was closed allowing the researcher time to go through the responses multiple times. When the coding was finished, the responses to the first question on what they most appreciated about the libraries and/or library website was found to have themes the responses could be broken into. The themes were identified as: the collection, the databases, the physical library, the staff, technology, and the website. The collection theme included comments on how much students appreciated having eBooks available, the large selection of DVDs, having the ability to check out course reserve materials, the ability to request item transfers between libraries so they do not have to travel to the different campuses to check out items, and that the items are available at no cost. (The researcher finds this question often in the English as a Second Language's bibliographic instructions, as libraries are not free in all countries.)

The database group included comments on the helpfulness of finding citation information or that the database creates the citation for them, and the various database resources such as online journals, magazines and reference items. The physical space comments were about liking the library being open in the evening and on weekends, having group study rooms to work together in, and noting how quiet the library is. The staff theme consolidated the librarians and library staff comments with participants noting they appreciated assistance in finding physical, as well as digital items (library website, institution's website, databases, the Internet) and how friendly everyone was.

Comments about how they like having plenty of computers, laptops to check out, copiers available, printers to print their papers, calculator check out, power for laptops and having a wireless service for their laptops were grouped in the Technology theme. The website comments included participants liking the catalog being online so they can use it anywhere, how easy it is to navigate the site to find the catalog, and to access different features such as research subject guides and citation information. There was also grouping of comments made that were classified as general and included how easy it is to find things in the library.

The second question on what the participants least appreciated about the libraries and/or library website had the same reoccurring themes as was found in the previous question. They were: the collection, the databases, the physical library, the staff, technology, and the website. The collection comments included not appreciating that the course reserve materials could not leave the library, the collection was too small or not enough books, items are dated, not all items are available online, and that Interlibrary Loans (ILL) were not available between this institution and a 4-year institution located in the same city. The least appreciated database comments noted the databases were hard to navigate, they were too limited, and that the email feature does not work. Comments on not having enough study rooms, the space being noisy, construction making the space crowded, wanting more hours and the space being too small were grouped in the physical theme. The responses concerning the staff included not enough assistance, the staff not being friendly, and that there were no workshops on using the library. Technology responses indicated a need for more computers, Microsoft products are not on the library computers (only on the computer commons computers), having to pay for copies and

printing, and not enough power available for laptops. Website dislike comments were having to login to get to the databases, the site is hard to navigate (find things), no online reference, the search results were irrelevant, and there are no interactive/collaborative features such as posting review of items in the catalog. The website comments correspond to Wilson's (1999) comments that students tend not to chose library resources because they are unintuitive, hard to navigate, and do not support collaboration.

Question three was for them to add any other comments. In most cases, it was the students reaffirming the good job the library staff (librarians and library staff) did. The second most often response was to identify dislikes, restating what was noted in question two. (The library's physical space was disliked due to lack of study rooms and noisiness. Technology was also noted often with negative comments due to needing more computers and not having a print only computer.) Comments were also made that had nothing to do with the library such as a participant asking how to sign up for a course, the tutor center needing more tutors, and suggesting weekly study sessions on campuses.

While the themes were the same for each of the questions, the number of responses for each was very different. For example, in question one participant noted appreciating the library databases 66 times, but in question two databases were noted as least appreciated only 6 times. The researcher noted that it appears that if the theme was noted many times as an appreciative response, it was noted very few times as a least appreciative, and vice versa, which would make sense they would complement each other that way. In looking at the themes, the researcher was interested in comments under physical space, as one of the libraries was under construction during the survey period, and were being housed in a small quarters with the computer commons. Responses on

physical spaces identified some as crowded, too small, noisy, not enough study room and construction. These were all features that could identify temporary library space. However, in analyzing the data, it appears that those responses were from participants on all of the campuses. In analyzing specific words used, the library under construction had most, but not all of the responses using the word *construction*. When looking at the terms *too crowded* or *too small* the temporary library was noted half of the time. Looking at the term *noisy*, all libraries were noted with campus three actually receiving the most responses. (The campus with the temporary library is identified as campus one.)

Chapter 5

Introduction

After a summary of the intent of this research and methods used, this chapter will discuss the findings of the research questions and draw conclusions. Finally, the chapter will make recommendations on how community college libraries, specifically a southwestern community college library, can provide better support to their students' academic needs, based on their current library and technology uses and present items needing additional study.

Summary

The intent of this research was to discover what, if any, disconnect exists between community college students' library perceptions and technology use. I replicated a recent study done by Booth (2009) at Ohio University. Her research was presented at the 2009 Association of College and Research Libraries (ACRL) conference in March 2009. ACRL also published the entire study, "Informing Innovation: Tracking Student Interest in Emerging Library Technologies at Ohio University*"* in May 2009.

The research questions represent six of the seven questions used in the original study, with changes only to reflect the community college student profile.

1. What are the technology profiles (defined as technology ownership, use, skill, and adoption status) of students at a very-large size southwestern community college?
2. What are the library profiles (defined as library use, skill, awareness, and emerging technology receptivity) of students at a mid-size southwestern community college?

3. How do the library and technology profiles of students of disparate demographic factors such as age, digital status, gender, and academic status differ?
4. How can student receptiveness to and awareness of emerging technology library services be characterized?
5. How do students of disparate library and technology profiles compare in their awareness of, assessment of, and receptivity to traditional emerging technology-based library services?
6. What is the relationship between student use and awareness of library services and self-perception of technological competency, and receptivity to emerging technologies?

The data collection instrument consisted of a survey containing a mixture of multiple choice (single answer as well as 'all that apply' choices), Likert scale questions and three open ended questions. The original survey consisted of 35 questions. To narrow the focus of the study, the researcher decided to concentrate on discovering what, if any, disconnects between community college library perceptions and technology used in their academic achievements, removing the research component. In an attempt to shorten the survey, the researcher consolidated some of the questions that were identified as being very similar to other questions, as well as the questions regarding research, which were no longer needed. This resulted in a survey consisting of 25 questions, including the three open-ended questions.

The survey was presented in five sections. In the first section of the survey instrument the participants read the disclaimer and identified themselves as over 18 and

agreeing to the conditions of the survey when they clicked to continue with the survey. Section two was aimed at collecting demographic information regarding their age, gender, the reason they are attending classes at this institution, the number of credits completed at this institution at the time of the survey, how they found out about the survey, and the campus they primarily attend. Section three consisted of 6 questions and was aimed at evaluating the respondents' library use. Section four aimed to evaluate technology and library technology use. This section had 10 questions. The questions in section three and four were in multiple choice and Likert scale format. The fifth section had three open-ended questions. The open-ended questions allowed the respondents to provide some personal insight by giving them a chance to describe their own individual library experience. See Appendix C for copy of the survey questions.

The researcher invited students from a very-large southwestern community college to participate in the survey via announcements and handouts distributed to all student life centers, libraries, on bulletin boards and in cafeterias on all campuses. Students working in computer commons or through bibliographic instruction were also personally asked to participate by librarians. Instructors invited students to participate either with flyers passed out in class or were provided a link in their course management system. It was determined that the best tool should be an online survey, as the students attend classes face-to-face, online or a mix of the two (hybrid). It also met the eight considerations noted in Sue and Ritter's *Conducting Online Surveys* (2007). The survey was open for two weeks and 257 students entered the survey and 248 answered at least one question.

Findings

Research question 1. What are the technology profiles (defined as technology ownership, use, skill, and adoption status) of students at a very-large southwestern community college? Students at this institution appear to have incorporated some of the more popular technologies in their lives. Their technology ownership appears to be in line with what is reported in national studies. The majority of students own a computer (laptop, desktop or both), spending more than 10 hours online each week. At home, they are likely to have high-speed wireless Internet connection. The majority of them also own a mobile phone of some kind, which is used for text messaging, social networking, and accessing the Internet. This data dispels the notion that many instructors at this institution have about their students, believing they have little access to technology outside the school. However, the students while capable of using text messaging, social networking and access the Internet do not always have the technical skills to complete an assignment. This is probably due to the fact that skills needed for digital entertainment applications do not always transfer to skills required for education driven applications.

The most popular activity on their mobile phones is also their most popular activity on a computer. It would not be atypical for a student to use text messaging and using social networking applications such as Facebook and MySpace several times during a day. Watching videos on YouTube, and reading Wikipedia articles are done on a regular basis. Focusing on social applications, Facebook and MySpace are the most used, however it appears MySpace popularity is decreasing. Google Maps is also a popular social application.

Students were aware of many more applications than they were using, as was the case with Twitter and Skype. One social application which about one third of the students never heard of was Google Docs, which this researcher found interesting as the institution has recently rolled out Google Docs to be accessed through the student portal, promoting it with announcements and training. This appears to be a disconnect between an unexploited opportunity with this technology and student use. Even though the college rolled out Google docs last spring with heavy advertising through the student portal and introductory sessions with faculty, it was a one-time effort (starting just before it rolled it out with the Google email system lasting until a couple of weeks after). This leads the researcher to suggest additional marketing and training sessions with both students and faculty, not only to make them more aware and show its relevancy, but also comfortable in using it.

Most self-identified with the statement that they adopted new technologies about the same time as others, with very, very few identifying with the statement that they avoid new technologies. The top technologies used are Facebook, text messaging, YouTube videos which most used daily. Online applications that could have a relationship to their studies were used by very few, and were not known by very many. However, the students indicated that instructors were not incorporating much technology in their classes. The instructors do not appear to be posting content they created for their classes, nor asking students to create online content either. In fact, most students are not creating content for their classes or for entertainment purposes. The instructors are taking advantage of the library resources, with those applications identified as the most used technology in classes. The instructors' lack of content creation may be a disconnect that

the college could remedy with additional support in both training, but perhaps more importantly, providing a learning content platform that could easily integrate content creation, helping to alleviate the disconnect between technology use and instructors. Currently instructors interested in content creation must go out onto the web, find various tools, evaluate them, and then set them up for their classes. It could be a case of the instructors 'don't know what they don't know' as they have not been encouraged by the institution to learn and incorporate emerging technologies into their classes. The institution does not mandate or push the use of those technologies, nor provide support for them. Providing the platform would help to alleviate some of that work, and assist those instructors who may have a lower comfort level with new technology.

Research question 2. What are the library profiles (defined as library use, skill, awareness, and emerging technology receptivity) of students at a mid-size southwestern community college? The libraries on the campuses, or the online library, are used often by students, with students using either one at least once per month. More students access the virtual library in a semester than the physical libraries, however the physical libraries are used more frequently in a semester. This could be explained as students using the virtual library to access some of their resources, but they are still making multiple visits to the physical library either for hard copies of research items or for assistance from the librarians.

Although the majority of students own a computer and have Internet access at home, they also use a computer in the library. They indicated they use these computers to work on their academics, as they are accessing their student portal, using the word processor and checking email. This supports one of the more frequent comments from the

open-ended questions: when asked what they liked most about the library, students responded with computers. (Not having enough computers was also noted in the least appreciative thing about the library.) Activities that are considered less academic, such as instant messaging, watching online videos/DVDs, and playing games are not used very often. This leads the researcher to believe that students are choosing to work on coursework while on campus, perhaps working in the library because the resources are readily available and where they can obtain (librarian) assistance while working. Further research is warranted to understand the research process of students at this institution to better meet their research and study needs.

The students revealed that while they are aware of the wide variety of resources the library offers but they choose to focus more on the research driven services, rather than the service driven ones. They do not use services such as push notifications, or renewing items online. Students are using research driven services such as accessing citation information, using the online databases, and using the research guides to assist them in their studies. These are things that are also focused on by librarians during bibliographic instruction for a class. To eliminate this disconnect between the student and the service driven (or convenience-oriented) technology the library as to offer, additional education and marketing should be done by the libraries. In focusing on features that push information and resources, the libraries can assist them in being more efficient students and help to eliminate two of the disconnects McDonald and Thomas (2006) noted (unexploited opportunities and technology) must be addressed in order for libraries to "retain and expand their usefulness for online users in the next decade" (p. 4).

Research question 3. How do the library and technology profiles of students of disparate demographic factors such as age, gender, digital status, and academic status differ? When it comes to age, this researcher found that it is not a factor in determining library use. The under-30 age group and the over-30 age group indicated very similar frequency regarding their physical and virtual library use (library profile) throughout the semester. However, age is a factor when it comes to technology use (technology profiles). While both groups use social networking applications and text messaging the most, more in the under-30 age group use them, and use them more frequently. This could be because they are more comfortable with technology or perhaps, if we use the thought presented earlier, that more in the older-30 age group have families, it could be the under-30 age group has more time to use those technologies. Additional information would be needed to be conclusive.

Gender plays a role in library use only when determining daily use: males are more likely to use the physical library on a daily basis, whereas females are more likely to use the virtual library. In looking at those who indicated they never used the library, both males and females were represented nearly equally. As in the age comparison, the two most popular technologies of males and females are social networking applications and text messaging. This researcher found the biggest discrepancy between the genders to be the differences in daily use of Wikipedia and YouTube with males being the primary daily users of those two technologies.

Digital status was determined by computer ownership, and those that indicated they owned a computer used the library (physical or virtual) more often. In fact, all but one of the virtual daily users owns a computer, which makes sense as they have the

ability to access the library website more off campus. Those who do not own a computer used the physical library twice as often as those who owned a computer. Interestingly, those who indicated they never used either the physical or virtual library were those that own a computer, indicating they found their research resources elsewhere. Technology profiles using the students' digital status indicated the majority of daily users for all four applications (social networking, text messaging, Wikipedia and YouTube) were by those who owned computers. Again, this is not surprising to this researcher, as they are the ones with easier access to computers. However, when looking at total number of users, it was the non-computer owners who used those four applications more than computer owners. The researcher also found it interesting that the majority of those indicating they never used any of the applications were also from the computer ownership group. This researcher is recommending additional research to determine how best to reduce the disconnect between the students who own a computer, but do not use the library.

Academic status appears to be a good indicator of library use. First year students do not use the library regularly as, in all but one category, the majority of daily and weekly, physical and virtual, library users were second year students. First year students indicated they were infrequent users of the library and more than twice as many first year students than second year students indicated they never use the physical library. This could be attributed to the type of research papers and projects being assigned to first year students. Additional research on the type of assignments and source of resources first year students used would help to determine how the library needs to address these issues to first year students.

Academic status is also is an indicator of students' technology use regarding social networking and text messaging. First year students use social networking applications and text messaging more frequently, while second year students indicated more often they never used social networking applications or text messaging. Weekly users of Wikipedia and YouTube tend to be second year students, while daily users of YouTube tend to be first year students. Overall, more second year students are using Wikipedia. Second year students' greater use of Wikipedia could be explained that, even though most instructors will not allow it as a primary source, students are accessing it for papers and projects perhaps for background information or to be used in some other way. Further research to understand the research process of students at this institution may reveal their determination in how and what resources are used.

Research question 4. How can student receptiveness to and awareness of emerging technology library services be characterized? The vast majority of students indicated they would be interested in the library offering a virtual chat reference service and in offering a space for online collaboration. These two technologies fall in line with what was found regarding their technology profiles; that students are more interested in research driven services. It also corroborates with the open-ended comments under what the students least appreciated about the libraries or library website: there are no interactive or collaborative features. This disconnect could be remedied with technology added to the library website of a collaborative tool.

Accessing library services were the least popular applications students' do on their mobile phones. The students' top two uses on their mobile phones are text messaging and using social networking applications. Following along those lines,

students' awareness of social sites and web tools had some very familiar responses. The students have indicated openness to some emerging technologies, such as Facebook, MySpace and Google Maps, and while they know about others (Skype and Twitter), the majority has chosen not to use them at this time. It could be that they have tried them but not found them relevant to their life at this time or that they are not confident enough with the technologies to try them. The libraries at this institution have been the catalyst for new technologies in the classroom. This is supported by the students' response to the question inquiring about what technology is used in the classroom: web-based library applications were the primary ones. This also indicates the majority of instructors' lack of confidence in using emerging technologies in the classroom. The library needs to be aware of this attitude when introducing new technologies, in order to include training and marketing that will not only show relevancy but also instill confidence to the user, whether they be a student or faculty member. Further study is recommended to better understand the students' and instructors' reluctance to use emerging technologies to reduce this disconnect.

Technology in the classroom appeared to be primarily library resources, with library online databases, the online catalog, research guides and the library's campus transfer service used most often in the respondents' courses. Wikis, blogs and online renewal of items (another library service) were in the second tier of used most often. Most students have taken an online course, either as a hybrid or completely online.

Research question 5. How do students of disparate library and technology profiles compare in their awareness of, assessment of, and receptivity to traditional and emerging technology-based library services? Library use does not appear to be an indicator of

awareness of traditional library services currently offered. Students using the physical library were able to identify all but two library services currently being offered (online renewals and full-text books online). The virtual use students fared slightly better, indentifying all but one (online renewals.) Students' technology profiles provided similar results, with most students identifying current library services. This is very good news, as the libraries have always tried to play an active role in students' learning. This has been done through campus library contacts with instructors for the library to come into the classroom for information literacy and research instruction. On several of the campuses, the computer commons are near or in the library so students find it easy to access. The library also has a presence on the student portal. Recently, one campus library piloted an embedded librarian service to allow the library to have more class time with online courses. This program will be expanded to other campuses in the fall 2010 semester. Based on these results, the library should continue promoting their services, going to where the students are in the classroom and putting a little more emphasis on directing students to their online services.

Both the library profiles and the technology profiles indicate that students' would be receptive to emerging library technologies (virtual chat reference and collaboration), with the vast majority indicating the library should offer those services.

Research question 6. What is the relationship between student use and awareness of library services and self-perception of emerging technological competency, and receptivity to emerging technologies? There does not appear to be a relationship between self-perception of adoption of technology and the awareness of library services. It was just as likely that someone who identifies with the statement I usually use technologies

before anyone else is not aware of a current library offerings, as someone who indicated they avoided using new technologies. Virtual reference is the only service not currently offered and it was correctly identified as such more often by those identifying with the statement I tend to use new technologies somewhat before others do.

Major Findings and Conclusions

Based on the information found, these conclusions were drawn:

1. Community college students at this very-large southwestern school appear to be in line with other college students when it comes to technology, including ownership and use of different technologies. Over 82% of this institution's students reported ownership of a computer (laptop or desktop), which is in line with the 85% (p. 2) reported by The Jones, et al. (2002) report "The Internet Goes to College". De Rosa and OCLC's (2006) "College Students' Perceptions of Libraries and Information Resources" reported that 20% college students in their survey were reading blogs and accessing e-books. Comparing those to the students in this study, we find 52% using reading blogs and 44% accessing e-books.

   The students are also in line with national students regarding downloading music. Jones, et al. (2002) reports 60% of students download music while 68% of the students in this survey reported downloading music or videos. Some technologies did indicate a gap, such as instant messaging. Only 57% of the students reported using this technology, which the De Rosa and OCLC's (2006) nationwide report indicated a 70% use by students. (The 57% is greater than the Jones, et al. 2002 report that reported only a 26% use.)

There seems to be a discrepancy between this local group and the national group when it comes to creating content. In "Teens and Social Media the Use of Social Media Gains a Greater Foothold in Teen Life as They Embrace the Conversational Nature of Interactive Online Media" (Jones, et al., 2007), 64% of online teens identify themselves as content creators (p. 2) but the majority of the students at this institution indicated they did not, with only 17% editing a Wikipedia entry and less than 40% reporting they posted to a blog or even commented on a blog. This is in line with other emerging technology responses of the survey, not only with their self-identification of adoption of new technology but indicates a pattern that students are not comfortable using emerging technologies. This researcher is recommending further research to better understand this indifference, which could be due to several factors, such as students do not find it relevant in their lives, lack of knowledge or understanding of the new technology, or an apprehension in trying new technology. The answer could be revealed in the research and steps taken to resolve this disconnect.

2. Students at this very-large southwestern community college indicate they use the library, either the physical library or the library website, more often than students in national studies reported. Only 18% of the students at this institution indicated they did not use the physical library and 14% did not use the library website in a semester, whereas 91% of students in a national study indicated they choose the Internet over their library. In looking at the responses of those who indicated they never used the physical library or the

library's website, it was those who owned a computer who selected that answer more often. The researcher speculates that because this institution's library promotes, and provides instruction on using their services and resources, that students are using those resources more. Speculating further on those who do not use the library, it could be that those who own a computer are more adept (or feel they are) and chose to use the Internet, thus by-passing the library.

This study found that second year students used the library, physical and virtual, more than first year students, which at this institution is when more students are exposed to more complex research projects in which instructors require academic, cited sources, translating into peer-reviewed articles, Peer-reviewed articles typically are not found on the web but in subscription based databases which the library at this institution subscribes to and promotes to their instructors. This is probably true at other institutions, where the work becomes more rigorous at each level as it proceeds to the graduate level. Students at this level are more likely to come to the library for assistance in locating items, and are more likely to be required to use library resources for their papers and projects.

The use of library computers does not appear to be an indication of computer ownership, as 81% of the respondents indicated they own a computer, but only 26 indicate they don't use a computer in the library to access their student portal account. This would also be true at other higher education institutions, as the computers on campus offer many advantages that

cannot be replicated at home, such as readily available assistance (via librarians, tutors or instructors).

3. Collaboration would be a welcome tool on the library website. This application would allow students to have more opportunities to create and exchange content. Detlor and Lewis (2006) indicated academic libraries needed to provide collaborative space to allow students the ability to interact with others to enhance their learning experience, thus changing a library's focus from accessing information to using information. Collaborating with others would allow students to build on collective knowledge, which Gee (2003) defines as building on ones knowledge while sharing their knowledge with others. In several courses at this institution, online collaboration is being introduced. Providing collaborative space on the library website would allow students to share thoughts and discern new concepts with students across other campuses. This distributive learning would allow the students to reinforce and expand their knowledge.
4. Students are more likely to use applications that are required for a class or demonstrated in class. Librarians focus on library resources that students can use for their papers and projects, such as formatting citations, online databases and using research guides, which students indicated were used most often. Library services that focus on user convenience such as push notifications and renewing items on line are not discussed much and are used very little during library sessions with a class. The libraries should promote these convenience-oriented applications more, indicating to students that these features can not

only save them time, but make them more efficient students as the information will come to them, versus them hunting for it.

In the same way, students indicated that most instructors did not use much content-creation technology in their classes, and the students also indicated they were not content creators. As a way to introduce these technologies, the libraries could incorporate user-generated content in their regular services to faculty. For instance, a blog could be used for the library newsletter. Or a wiki could be used for collaboration on a research guide. Or a faculty member invited to be a guest speaker for a podcast. Each of these would require the library to take the first step and to assist, or walk the faculty member through the process to help them become more comfortable with the technology. It is expected that over time and with encouragement, the faculty members would become comfortable enough to use it on their own. Additional direction may be needed to demonstrate how it could be used in their classroom. The institution's instructional designers could help in this endeavor.

5. Students' receptiveness could be characterized in two ways: they have identified certain activities that they do on certain devices, and they are open to some emerging technologies. For example, they use their mobile phones for activities that allow them to stay connected to others (text messaging and Facebook/MySpace). However, they do not use their mobile phones for the class assignments, such as to access library services. The fact that more emerging technologies are not used in the classroom could be more of a

reflection on not only the student's but also the instructors' relationship, or comfortableness, with technology.

Limitations

This study had two limitations. First, as the researcher could not advertise the survey on the student portal or to the students directly via email; other avenues were taken, such as to contact instructors, student life coordinators, tutor centers, libraries and to advertise on bulletin boards, in an attempt to reach as many students as possible. The researcher had no way of acknowledging that the survey information was passed on unless the instructor indicated they had posted it to their class. This researcher believes that the inability to personally encourage the students to participate and to send a follow up invitation resulted in a small percentage of students at this institution participating in the survey. Second, while the survey could have been printed up on request, the primary way students found out about the survey was through an email or a handout with a link posted. This may have led those students who are not technology savvy to disregard participating.

Recommendations for Future Study

This institution could expand this research by focusing on the students' use of technology in their research. This would better indicate where and how the library fits in. The more local data that is collected, the better the library can respond in both their physical space, the library website, but also in their bibliographic instruction to better meet the needs of their students. The additional data would also help in resolving the disconnects between what students' are not using regarding certain library technologies. Some of the questions regarding the research component could be: to inquire into the

steps students take in planning their research; where they start their research and why; and the process of their research.

Additional research is recommended for this institution to focus on the instructors' comfort level with technology, the technology currently used during a semester, research project requirements, and any interest in incorporating more/different technology into the course. Additional research is recommended by this institution to more fully understand the technology needs of the community and the technology expectations for those who will be transferring to a 4-year institution, to learn what the local needs are. This research may assist the institution in creating mandates or incentives to instructors to incorporate emerging technologies in their courses, thus removing the disconnect between instructors and classroom technology. In doing so, the institution could be more active in persuading instructors to incorporate those skills that would transfer into the workplace or their higher education goals. As this institution serves not only those that are transferring to a 4-year institution, but also entering the workplace or increasing workplace skills, it is important to look at not only traditional technology skills but also emerging technology skills, as emerging technology could one day be the norm in the workplace. Marketing by the libraries should continue being sure to direct students to their online services, which assist the students in being more efficient as a student.

This institution's library could expand this research by focusing on the instructors' perception of online resources. The instructors make the decision on the technology that is used in the classroom and in the course. They also make the requirement as to where the student obtains information for a research project. It is not unusual for an instructor to dictate to the students that only library resources, or peer-

review resources can be used in a paper or assignment. Unfortunately there are some instructors who require print only resources, or allow one or two "online resources." These instructors do not differentiate between resources found on the web and those provided by the library. The library has put much effort into educating these instructors but to no avail. Many times this is a disservice to the student as many resources are available to the student only through the library's online subscriptions. This is the case for scholarly journals, where the vast majority is purchased through subscriptions with database vendors such as EBSCO and ProQuest. Focusing on the instructor's perception of different resources regarding their validity and value in their classes would reveal a direction the library could take to educate instructors that may not have been tried. Other institution's libraries may benefit from this kind of research if they have a similar situation.

A recommendation for organizations wishing to do similar research would be to find a way to attract more responses. This researcher was not permitted to use the student portal to post a link to this survey, as this was not an official college study. The researcher contacted instructors, student life coordinators, and libraries, to not only advertise the survey but also to promote it. Many instructors posted it to their course portal. While each institution has their own policies regarding research, every effort should be made to use the college resources in an attempt to place the survey tool in the students' realm. Researchers may also want to have survey available longer than two weeks, as with advertising and contacting instructors, a large portion of the first week was taken.

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APPENDIX A:

Permission from Char Booth, original researcher

From: Char Booth
Subject: **Re: permission to use research questions**
Date: January 25, 2010 01:37:29 PM MST
To: Theresa Stanley

Theresa, hi. Please feel free to use and alter whatever you would like from my study - that's what it's there for! I always am curious to know how to research is used, so I'd be happy to hear back from you again someday about your project. Best of luck, and let me know if you have any questions.

Best,

Char

Theresa Stanley wrote:
Ms. Booth,
I am a doctoral student at Pepperdine University and while I was working on my lit review last year I came upon your ACRL presentation and subsequent publication. It appeared to be exactly what I was working on and assisted me in tightening my focus.

I would like to replicate your study in a community college setting. I am asking permission to use your research questions (actually 5 of the 6), with some modifications to reflect a different subject group. I am also asking permission to use some of your survey questions - only a few will be exact, as I will need to revise for the different subject group, available technology, etc. I also plan on removing several questions, that are not part of my focus. (I am focusing on the disconnect of libraries and technology, specifically in a community college setting.)

If you have any questions for me, please - just ask. I will be glad to answer any question right away, as I am very close to submitting my paperwork for Institutional Review Board approval.

Thank you for your assistance.
Theresa

Theresa Stanley
Doctoral Student
Pepperdine University
GSEP - Educational Technology
--
Char Booth
E-Learning Librarian
UC Berkeley

APPENDIX B:

Flyer Announcing the Survey

Your input is needed for a survey on libraries and technology as they relate to your classes.

Go to [survey's URL http://surveymonkey.com/*] to complete a 25-question survey. (Estimated time to complete: 15- 20 minutes.

If you have questions, please contact Theresa Stanley*: [my email address]

Thanks for your help!

*Theresa Stanley, a doctoral candidate at Pepperdine University and the Library Director at the Downtown Campus, is doing this research to complete her dissertation.

This is not an official [this institution's] survey. You are not required to participate.

APPENDIX C:

Data Collection Instrument: Survey

Section 1. Information about the survey...

1. Theresa C. Stanley, Library Director at Downtown Campus, is requesting your participation in a survey. This survey will assist in her personal education, allowing her to meet a requirement towards her doctoral degree. This is survey is not an official college survey.

2. This survey is open to all students, age 18 and over, who attend (this southwestern) Community College. The purpose of the survey is to collect data to determine what, if any, disconnect exists between a community college library and its users. The survey will identify students' library perceptions and technology used in their academic pursuits, as well as library use in general, whether online or physically on a campus.

3. Your participation in the survey will involve answering 25 questions, 22 multiple choice and three open ended questions for you to add your own comments. The anticipated time to complete the survey is 15-20 minutes. You may withdraw from the survey at any time by closing out the window.

4. There are no foreseeable risks or discomforts anticipated in completing this survey.

5. I understand that although there may be no direct benefits to me, the possible benefits of my participation in the research are to identify any disconnects between (this southwestern) Community College Library and its users. The data collection will be used to resolve identified issues. The data will also be used to a portion of the doctoral requirements (dissertation research) of the researcher.

6. I understand that the results of the research study may be published but that my name or identity will not be revealed. In order to maintain confidentiality of my records, Theresa C. Stanley, the researcher, will not collect any names or identifying information; your participation will be anonymous. The institution will only be identified as a "large southwestern community college." Once the survey date has expired, the data will be collected and results will be presented only in an aggregated form. Once the survey data is collected and research complete, the data will be kept in a locked file cabinet in my home office for five years.

7. I have been informed that I will not be compensated for my participation.

8. I have been informed that any questions I have concerning the research study, or my participation in it, before or after my consent, will be answered by Theresa C. Stanley, [this institution's address and phone number].

9. If I have questions about my rights as a subject/participant in this research, or if I feel I have been placed at risk, I can contact the Executive Director for Planning and Institutional Research at [this institution's phone number].

10. I have read the above informed consent. The nature, demands, benefits and any risk

of the project have been explained to me. I knowingly assume any risks involved. I understand that I may withdraw my consent and discontinue participation at any time without penalty or loss of benefit to myself. In clicking the "Continue" button, I am not waiving any legal claims, rights or remedies. (I can obtain further information from Theresa C. Stanley, a Doctoral Candidate at this institution's phone number.) A copy of this consent form will be emailed to me upon request. I can also choose to print a copy of this consent form for my records.

Click here if you would like to continue with the survey and are over 18 years old.
Click "Exist this survey" in the upper right corner of this web page if you do NOT wish to continue with this survey or are under 18 years old.

Section 2) Tell me a little bit about yourself…
1. How old are you?

	18 – 22 years old
	23 – 30 years old
	31 – 40 years old
	41 – 50 years old
	51 – 60 years old
	Over 60 years old

2. What is your gender?

	Female
	Male

3. How did you find out about this survey?

	Flyer
	Instructor
	Librarian/Library
	Friend
	Other (please specify)

4. What best represents your reason for taking classes?

	High school diploma
	Transfer to another school (e.g.. 4-year institution)
	Certificate program
	Training/retraining
	Other (please specify)

5. What best describes you?

	I am taking my first class(es) this semester (no earned credits)
	I have completed 1 – 9 credits
	I have completed 10 – 18 credits
	I have completed 19 – 27 credits
	I have completed 28 – 36 credits
	I have completed 37 or more credits
	I am taking non-credit courses or auditing a class

6. What campus do you take the majority of your classes at this semester?

	Campus 1 (all of my classes are online)
	Campus 2
	Campus 3
	Campus 4
	Campus 5
	Campus 6

You have just completed the second section. There are another three sections in this survey.

Section 3: Tell me about your Library use…
7. On average, how often do you physically visit the library during the regular semester?

	Never
	Once per semester
	Monthly
	Weekly
	Several times per week
	Daily
	Several times per day

8. On average, how often do you visit the library website, either while in library or remotely, during the regular semester?

	Never
	Once per semester
	Monthly
	Weekly
	Several times per week
	Daily
	Several times per day

9. Which of the following services/features do you think the library *currently offers* and which ones do you think the library *should* offer? (Check all that apply)

Currently Offers	Should Offer	Services/Features
		Group study rooms
		Email questions to a librarian
		Help with citations/writing a paper
		Talk with a librarian in person
		DVDs available for checkout
		Full-text articles online
		Full-text books online
		Ability to search all or selected databases at one time
		Online renewals of library items
		Online reference databases (encyclopedias, almanacs, etc)
		Online library catalog
		Research guides for different subject areas
		Request items from other campus libraries
		Real time virtual reference (e.g. chat with a librarian)
		Borrow laptop from library
		Computers (computer commons)

10. How often do you use the library website to do the following?

	Never	Once per semester	Monthly	Weekly	Daily	Several times per day
Ask a librarian for help or advice						
Use research guides						
Find e-books						
Search for articles in the online databases						
Search for books, DVDs, videos, etc in library catalog						
Access citation information						

11. Do you think the library should provide space that would allow collaboration and/or information sharing on its website?

	Yes
	No

12. When you use a COMPUTER in the library (library laptop, in computer commons, personal laptop) how often do you do the following?

	N/A- I don't use a computer in the library	Never	Once per semester	Monthly	Weekly	Daily	Several times per day
Find books online							
Use [student portal]							
Use [LMS]							
Use presentation software (PowerPoint)							
Use word processing software (Word)							
Use the library website							
Check email							
Use IM							
Play video games							
Watch online videos/DVDs							

You have just completed the third section. There are another two sections in this survey.

Section 4. Tell me about technology you use…

13. How many hours per week do you spend online?

	Less than 5
	6 – 10
	11 – 20
	21 – 30
	More than 30

14. What kind of Internet connection do you have at home?

	Dial-Up
	Broadband/High-Speed Wired
	High-Speed Wireless
	None
	Not sure

15. Which of the following best describes you?

	I usually avoid using new technologies
	I generally take a while to use new technologies
	I use new technologies at the same time other people do
	I tend to use new technologies somewhat before others do
	I usually use new technologies before anyone else

16. How frequently do you do the following?

	Never	Once per semester	Monthly	Weekly	Daily	Several times per day
Text Message						
Instant Message						
Play online games						
Play games on a console (PS3, XBOX, 360, Wii, PC, etc)						
Download music or videos						
Listen to podcasts						
Watch videos on YouTube						
Use Facebook, MySpace, Twitter, etc						
Post to a blog						
Comment on a blog						
Read a blog						
Edit a Wikipedia article						
Read Wikipedia articles						
Receive search alerts						
Use an RSS feed (newsfeed, etc)						

17. IF you own a mobile phone, how frequently do you use it to do the following?

	N/A- I don't own a mobile phone	Never	Once per semester	Monthly	Weekly	Daily	Several times per day
Text message							
Instant message							
Use a search engine							
Download music							
Play games							
Listen to podcasts							
Watch videos							
Read e-books							
Check Facebook, MySpace, etc							
Check RSS feeds							
Ask a librarian a question							
Renew library materials							
Sign up to receive renewal or overdue notices							
Text a catalog call number							

18. For each of these web tools and social sites, select the phrase that best describes you.

	Never heard of it	Never use it	Used to use it	Using it less lately	Using it more lately	Use it all the time
Facebook						
MySpace						
Friendster						
Bebo						
LinkedIn						
Second Life						
Delicious						
Skype						
Zotero						
Twitter						
Google Docs						
Google Calendar						
Google Maps						
Google Reader (RSS)						

19. Which of the following do you own? (Check all that apply)

	Laptop computer
	Desktop computer
	Smartphone (iPhone, Blackberry, Sidekick, etc)
	Cell phone
	iPod/MP3 player (portable media player)
	Digital camera
	Digital video camera
	Other:

20. How likely would you be to use the following library services in the student portal or Blackboard?

	My classes don't use these	Extremely Unlikely	Unlikely	Fairly likely	Likely	Extremely likely
Reference Chat						
Article search box						
Library/research tutorials						

21. Which of the following have you used in your classes or coursework? (Check all that apply)

	Blogs
	Wikis
	Podcasts
	Webcasts
	Online screencast tutorials
	Virtual worlds (Second Life, etc)
	Online renewal of library items
	Online reference databases (encyclopedias, almanacs, etc)
	Online library catalog
	Research guides for different subject areas
	Request items from other campus libraries

22. Have you ever taken an online course or courses at this institution? (Check all that apply)

	Yes
	Yes, but it met face-to-face as well (hybrid)
	Never

You have just completed the fourth section. There is only one more section left in this survey.

23. What do you MOST appreciate about [this institution's] library and/or library website? (please do not leave blank; type N/A if you choose to skip question) [open-ended question, with space for reflection]

24. What do you LEAST appreciate about [this institution's] library and/or library website? (please do not leave blank; type N/A if you choose to skip question) [open-ended question, with space for reflection]

25. Do you have any other comments or suggestions? (please do not leave blank; type N/A if you choose to skip question) [open-ended question, with space for reflection]