

AN ABSTRACT OF THE DISSERTATION OF

Katy W Ho for the degree of Doctor of Philosophy in Education presented on June 21, 2012.

Title: The Experiences of Older Students' Use of Web-based Student Services

Abstract approved:

Darlene F. Russ-Eft

The purpose of this phenomenological case study was to understand the experiences of older students' use of web-based student services in a community college setting. For the purpose of this study the term "older student" was defined as people born between the years 1943 and 1960. This group of people, often described as the Baby Boomer generation, would not have had access to computer technologies had they gone to college during their adolescent years. Web-based student services was defined as the range of student services which are placed online, allowing students to access information and services without needing to see someone in-person. There were three major reasons for this study: (a) the increase in the development and use of online student services, (b) the increase of older students in higher education, and (c) further need to understand the unique experiences of older students in higher education.

The case study design used an interpretive social science philosophical approach. The study was conducted at a large multi-campus community college in a metropolitan area located in the Northwest. A combination of survey, interviews, institutional data, and student-journals were used to answer the following research questions: (a) What is the experience of older students with web-based technology in a community college setting, (b) How do the older students' overall experiences

and use of web-based services affect their community college experience, and (c) How might older students' background and experiences with web-based student services inform community college policy and practice?

Close examination of data revealed several major themes of older students' experiences with online student services. These themes are:

- Student Assumptions
- Self-Motivation
- Influence of Prior Work Experiences
- User Preferences
- How and What Online Services are Used
- User Suggestions

When these themes are taken into consideration with related literature on the digital divide, technology use in student affairs, older student experiences in the community college, and older students' use of technology, this study offers implications for community college leaders and practitioners in the student affairs and technology development. The implications of this study may impact online service development, assessment of computer literacy, program enhancement or development, and technical changes.

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The Experiences of Older Students' Use of Web-based Student Services

by

Katy W. Ho

A DISSERTATION

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APPROVED:

Major Professor, representing Education

Dean of the College of Education

Dean of the Graduate School

I understand that my dissertation will become part of the permanent collection of Oregon State University libraries. My signature below authorizes release of my dissertation to any reader upon request.

Katy W. Ho, Author

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DEDICATION

This dissertation is dedicated to Keawe Sheng Middleton, who was literally immersed in this journey with me from his beginning.

CHAPTER ONE: FOCUS AND SIGNIFICANCE

Not more than a few decades ago, a student going to college would have encountered the collegiate experience of waiting in line after line with a registration card in hand trying to put a class schedule together. After making it to the front of the line, a student would ask a staff member if there was an open seat in the class they wanted to take. The staff member would then look at paper records and help the student put together a schedule, while remembering to update the roster so that others in line could be told when a class was full. This is how college registration worked before online technology and widespread computer use were in place. The experience of registration for students today revolves around using a computer to login to your student record and instantaneous registration and confirmation of your course selection.

Not more than a few decades ago, computers in the workplace were few and far between and computers at institutions of higher education were relegated primarily for research purposes. Computers existed mainly as mainframe machines, or for input and output of data, computing was not yet synonymous with desktop publishing or daily work. Now, you would be hard pressed to find a workstation that does not have a computer or a college campus that does not have multiple computer lab facilities.

Computers and online technology have changed the way in which people do work, receive services, and get information. College students today are expected to have a degree of computer literacy, and often times institutions assume a level of computer literacy that students may not have. Students in this scenario may end up waiting in a line only to ask questions such as: Do I have to register online? Can I talk to someone instead? How do you access the Internet? Is there a paper schedule I can use? For some students these types of questions are the reality when they are told to use an online service or tool, especially students who may remember a time in their educational history when most of these tasks were

performed face-to-face. One such group is the Baby Boomer, or Boomer, generation, a term often referred to those born between the years of 1946 and 1964. Although specific dates ranges may vary, this generation of students shares distinctive characteristics and experiences. Boomers who went to college directly from high school would have been enrolled between the years of 1961 and 1982, well before the Internet and personal computing were norms (Strauss & Howe, 1991).

As technology permeates higher education in teaching, learning, and service delivery, institutions of higher education cannot assume all students will experience these advances the same way. Since the advent of personal computing and the Internet, a debate has arisen about whether students from marginalized groups, such as low-income, older adults, and students of color, have equal access to technology. This has often been referred to as the digital divide. Arguments exist on both sides of the debate with some researchers and groups believing access is unequal, and others saying technology access has permeated all groups at some level (Reid, 2001; Salter, 2001). While access issues are still important, a new type of digital divide – sometimes called second-level digital divide – has emerged. Hargittai (2002) digs deeper than access issues and offers five dimensions of why the digital divide continues to exist beyond computer ownership and access:

1. Technical Means (software, hardware, connectivity quality);
2. Autonomy of Use (location of access, freedom to use the medium for one's preferred activities);
3. Use Patterns (types of uses of the Internet);
4. Social Support Networks (availability of others one can turn to for assistance with use, size of networks to encourage use); and,
5. Skill (one's ability to use the medium effectively).

Second-level digital divide also refers to how easily people use and understand web-based tools. The concept makes the case that many groups lack the needed experience to use these tools effectively, thus making their experiences with technology harder to use than dominant cultural groups.

Technology is a part of the educational experience from the time students are admitted to the time they graduate. Institutions use online applications for admissions, registration, business services, and financial aid. In the area of student services, technology has changed many aspects of how students interact with the college. Many colleges are moving to offering many traditional face-to-face services online to meet student demands and needs. Examples of this include online academic advising, virtual orientation, and live chat technologies in the areas of health and library services. This growing trend of online services is also moving into student life with some universities offering online pizza delivery ordering and laundry services which allow students to see which laundry machines are free and reserve them online (Villano, 2006). Understanding how different groups of students experience using educational technology helps educators better understand the experiences of these students.

One particular group of students is on the rise, especially at community colleges across the nation. In a recent *Chronicle of Higher Education* article (Sander, 2008), it was projected that by the year 2014, 41% of people aged 55 or older will still be in the workforce. The majority of these workers will also be in transition to a second or third career, which often translates to returning to school for additional training or learning a new skill set altogether. In the state of Oregon alone, adults aged 50 or higher will grow by 43% over the next 10 years in the Portland-Metro area (Portland Community College Office of Institutional Effectiveness, 2006). The impact of this trend on community colleges cannot be ignored. Older adults, those aged 50 or older, are one of the fastest growing populations for community colleges (American Council on Higher Education, 2007). As this group of students continues to increase at community colleges, it

becomes imperative for those working in education to gain a better understanding of these students' educational experiences, and as noted earlier, technology use is one key part of the overall picture.

Definition of Terms

Strauss and Howe (1991) define a generation as “a cohort-group whose length approximates the span of a phase of life and whose boundaries are fixed by peer personality” (p. 60). While the exact date ranges for generational groups may differ slightly, the idea that a cohort of individuals share common characteristics and have collective attitudes about society, family, and life, among other things, helps to bind a generation together. The Boomer generation is often defined as the group of people who were born between the years of 1943 to 1960. For the purposes of this study, I referred to the Boomer generation as those people belonging to this age range.

The population of older students at community colleges is also one that has slightly different age ranges. Sometimes older students and adult students are lumped together as those who are 25 and older. For the purposes of this study, the term “older student” referred to people born earlier in the Boomer generation who are now 55 and older. These terms gave a broad enough range to capture students who did not have web-based student services if they did attend college in their youth.

This study defined “web-based student services” as a range of student services placed online allowing students to access information and services without needing to see someone in-person. Krauth and Carbajal (1999) explain that many institutions are creating online services to meet student demand to provide services in an “anytime, anywhere” format. Examples of such services could include, but are not limited to, online registration, web-advising, and student web-portals that provide online communities for students.

Research Purpose and Questions

The purpose of this study was to examine and understand the experiences of older students' use of web-based student services during their time in community college. In depth interviews with older students were conducted along with participant journal keeping. Both of these methods combined with survey data aimed to uncover a deeper understanding and meaning of how older students' experiences with web-based services can help inform community college leaders.

Three research questions guided the focus of this study:

(a) What is the experience of older students with web-based technology in a community college setting? The rationale for this question was to provide a picture of how and why older students use web-based technology as part of their college experience.

(b) How do the older students' overall experiences and use of web-based student services affect their community college experience? The rationale for this question was to capture the essence of the older students' experience with web-based student services. Specifically it aimed to find out how using web-based services has influenced their experiences as a college student and give insight to how these experiences are shaping the student as a whole.

(c) How might older students' background and experiences with web-based student services inform community college policy and practice? The rationale for this question was to give context to how older students can be better served in higher education, specifically in regards to student services. In addition, the question helped me and readers of this study frame the experiences in lived experiential detail. Lastly, this question served as an overarching theme to help discover how community colleges might best serve older students in an environment in which the press of technology exists.

Significance

The purpose of this study was based on the following reasons: (a) trend in online student services, (b) increase of older students, (c) challenges for older students in higher education and (d) personal experience. Each of these reasons is described in detail below.

Trend in online student services. There is a trend in higher education to move toward offering more online student services, such as online advising, virtual orientations, and online registration. Moneta (2005) pointed out that online student services are growing and will continue to grow. Moneta wrote,

Students expect around-the-clock access to information and support, and they are increasingly facile with and dependent on a host of technological devices, Thus, student affairs practitioners are further pressed to deploy technological tools to meet student demands. (p.13)

Shea (2005) asserted that college and universities no longer have a choice about whether or not to create online student services. The demand for convenient and efficient services is forcing many colleges to streamline business and service procedures by offering web-based tools. In addition, Shea wrote that online services should be student-centered and customizable and allow students to feel a sense of community.

Milliron and de los Santos' 2004 survey of top trends that make community colleges a key player in the national arena found that community colleges must continue their growth and use of technology. They wrote, "Community colleges of the future will need to be adept at blending high-tech and high-touch as they create strong connections with their learners" (p. 115). The combined growth of older students and rise of web-based technology reliance in areas such as student services are an important intersection in the changing landscape of higher education.

Increase of older students. A recent report by the American Council on Higher Education (ACE) (2007) found that the older student population is increasing at a rapid rate (the current population of older adults is 19% and

expected to grow), especially in the community college setting where lifelong learning and career retraining opportunities are more available. ACE reported that 71% of the aging population aim to work past their retirement age. The report also pointed out several barriers for older students returning to college. One of these barriers was the lack of support services, especially around computer use and training. Older students cited their discomfort and anxiety at being in a traditional classroom setting with younger students who they viewed as more technologically savvy. The current national percentage of older students (those aged 40 and above) in community colleges is 16% (American Association of Community Colleges, 2008). In *Plus 50 Students: Tapping Into a Growing Market*, a report by the American Association of Community Colleges (AACC, 2009) it is stated that half of all adults over the age of 50 who are continuing their education are choosing community colleges. Thus, community colleges have an obligation to provide the support and access to teaching and learning for older students.

Challenges for older students in higher education. Older students face multiple challenges in the higher education system and, specifically, in community colleges. Older students face barriers that impact their ability to feel connected to the institution. A 2007 survey report on the experiences of older students at Portland Community College (Abushakrah, 2007) highlighted several barriers to success which older students face as they try to obtain their educational goals. In addition to work and family commitments, respondents to the survey also reported feelings of culture shock returning to an educational environment, either because they had not been to college in a long time or have never been before. Services for students were also seen as being more focused toward younger students, and faculty and staff were also seen as not honoring the variety of life experience older students bring with them to college. Each of these barriers can have a direct impact on persistence. In addition, many times lack of proficient computer skills leads to a greater feeling of disconnect from the rest of the college community (Sorey & Duggan, 2008).

Knowing that older students face barriers that can impact their educational experience makes the case for community colleges to insure that educational and development supports are evident for these students. Looking at how technology influences older students' educational experiences is just one more way of understanding how they are creating meaning in their educational journey.

Personal experience. Throughout my career at a community college I have had experiences working with older students as they learn to use a web-based tool. While these experiences can be seen as anecdotal, the impact these experiences have influenced my selection and dedication to this research.

During my time working at a community college, I was given the chance to create and develop several online tools for students. One of these tools was a web-based student portal that provides a plethora of student and academic services. In addition to these services, the portal is also the place where students register for class and is the official way the college communicates important information.

At the time of implementation, I visited several classes each term to train students on how to login and access the web portal and its services. Many of the classes I went to had older students enrolled. Working with this group of students opened my eyes to how technology can be a roadblock. Many older students had trouble using the computer, turning it on, locating the mouse, and then when they were able to get to the Internet, they had trouble logging on to the portal and understanding how to use the online resources. This lack of technical and user comprehension left many students frustrated. For me, these personal experiences reinforced the need to better understand how older students are experiencing the use of web-based services.

These hands-on observations in the classroom left me wondering how these situations really impact the educational experiences of older students. It also left me wondering how community college leaders can make meaning of these students' experiences and provide better support for them.

Summary

The intersection between a higher demand for the creation and delivery of online student services and the rise in older students at the community college level is one of importance as described by the four reasons above: (a) trend in online student services, (b) increase of older students, (c) challenges for older students in high education and (d) personal experience. These reasons lend themselves to an interpretive social science study with the purpose of gaining an understanding of older students' experiences with web-based student services technology in the community college.

I implemented this study at a community college by conducting in-depth interviews, reviewing participant journals, and administering a survey to a specific population of older students. The creation of the methods drew from the specific type of student service web-based tools older students use, how they use the tools, and what that means in terms of their experiences in community colleges. The study was guided by three research questions: (a) What is the experience of older students with web-based technology in a community college setting?, (b) How do the older students' overall experiences and use of web-based student services affect their community college experience, and (c) How might older students' background and experiences with web-based student services inform community college policy and practice?

CHAPTER TWO: LITERATURE REVIEW

The purpose of this literature review was to gather current and relevant research related to older students and their use of web-based technology. The following questions helped to guide this review of literature: What current research exists to document the experiences of older students at the community college? What research exists in regards to web-based technology in student services? How has technology in education impacted other groups of students? What has been researched and written about in regards to older students and technology use? These guiding questions laid the groundwork for the direction and design of the study.

Search and Selection Process

The Oregon State University and Portland Community College's online library and databases were used in researching literature for this study. Primary data sources were found using the following online databases: ERIC, Academic Search Premier, Dissertation Abstracts, the OSU Summit Catalog and the search engine Google Scholar. In order to find books, research articles, and dissertations related to the research topic, the following key search words and terms were used in combination or singularly: older students, adult students, community college, technology, computers, student services, student affairs, computer literacy, digital divide, second-level digital divide, and retention. For relevancy, materials from the past 10 to 12 years were given priority. Materials found using these search techniques were then screened and used if they met the following criteria: (a) applicability to research questions and literature review themes, (b) focus on students in higher education (preferably in community colleges), (c) use of web-based technology (preferably in students affairs), and (d) focus on older students. These criteria were used due to their applicability to the research topic and help to ensure that literature and material could support the purpose and significance of this study.

A range of diverse materials, such as dissertations, qualitative and quantitative research articles, books, reports, journal articles, and news items were used for the literature review. Specific literature on older students' use of web-based student services technology was hard to find. However, there were related topics around older students and web-based instructional technology. Relevant literature on this topic was included to help support rationale for the research questions.

Organization of Literature Review

The organization for this literature review is divided into four parts: (a) Digital Divide, (b) Technology in Student Affairs, (c) Older Students in the Community College, and (d) Older Students and Technology Use. These headings relate back to the themes used to address the significance of this study: the importance of studying older students in community college and the impact of technology on education and student services.

The section on Digital Divide focused on an overview of what the digital divide is and addressed issues in web design that impact computer literacy. The next section, Technology in Student Affairs, provides information on the impact technology has had in the area of student affairs. Older Students in the Community College paints a picture of older students entering the community college and what experiences they typically have. This helped give background focus to the population in the study. Finally the section on Older Students and Technology Use focused on barriers and differences in computer usage for older students. This helped guide the understanding of how technology can influence the experiences of older students.

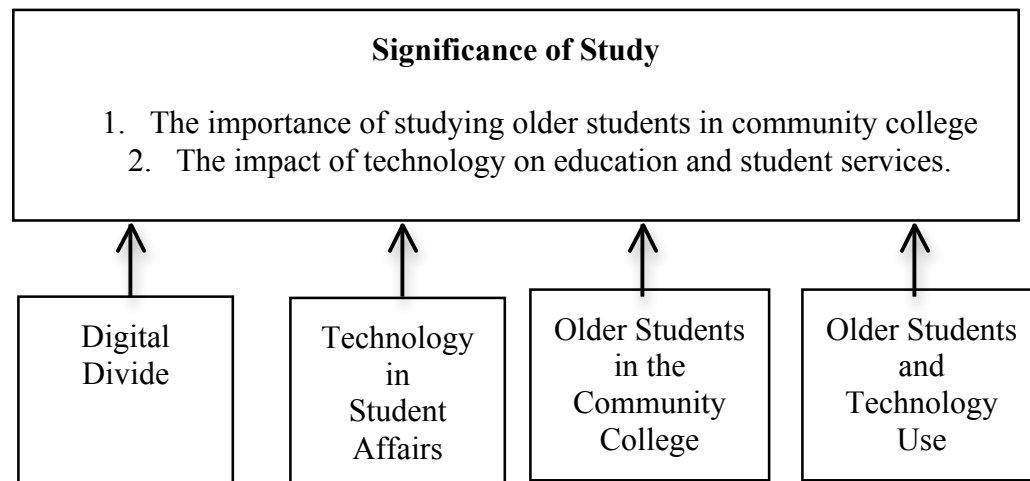


Figure 1. A visual diagram for literature review organization.

Digital Divide

This section of the literature review provides background information on the digital divide. The term “digital divide” is often used as a way to reference the gap between people with access to technology and those without. In addition, the term refers to the gap between people who have the ability to understand the use of such technologies and people who do not have such understanding (Hargittai, 2003). This section of the literature review focuses on the digital divide as it relates to education. Usability of technology will also be considered, as it relates to the digital divide and the ability for people to use the technology around them.

According to Hawkins and Oblinger (2006) the digital divide remains prevalent in today’s society and in education. Even though ownership of personal computers has increased with college students, issues around equity still exist. Of concern is the growing gap of online skills or computer literacy. Students are arriving on college campuses with varying degrees of computer literacy and online skills. According to a study on undergraduate students and information technology (Salaway, Katz, & Caruso, 2006) the population of students who are less technologically savvy cannot be ignored. The study revealed that, while 98% of the participants owned a PC, subpopulations within this statistic had older computers and/or did not possess advanced technological skills. According to the

study, community college students were one such population where these characteristics were most common. The authors of the study wrote:

University administrators and faculty must come to grips with the two faces of the undergraduate student body and reconcile the differences in student segments with one-size-fits-all technology strategies for teaching and learning at the institution. Administrators must decide how much they can invest at the leading edge to keep the early adopters engaged and motivated, and how much they can invest in raising the comfort and skills of those late adopters on campus. (p. 15)

This creates a problem for educational institutions, as reliance on technology for student services and instructional activities has only increased.

Prensky (2001) coined the term “digital native” to describe people from the most recent generation who have grown up with technology and computers as a pervasive part of their everyday lives. Prensky then described everyone else, or those from previous generation, as “digital immigrants”.

What Prensky described by using such terminology is a sense of a dominant culture of computer and technology use, where those who did not grow up in this culture are experiencing things similar to immigrants who arrive in a new country. Prensky mentioned:

As Digital Immigrant learn – like all immigrant, some better than others – to adapt to their environment, they always retain, to some degree, their “accent”, that is, their foot in the past. The “digital immigrant accent” can be seen in such things as turning to the Internet for information second rather than first, or in reading the manual for a program rather than assuming that the program itself will teach us to use it. Today’s older folk were “socialized” differently from their kids, and are now in the process of learning a new language. (p. 2)

This description approaches the idea of a digital divide in a different way, by looking at the cultural norms and aspects of people’s experiences with technology rather than just technical abilities.

In their study on the correlation between the digital divide and impact on college student learning, Tien and Fu (2008) described the second-level digital divide as more than just the lack of access to technology and information. The

focus on their explanation rested in the ability of people to use computers in an effective manner. Tien and Fu believed the lack of technical skills outweighs the ability to access a computer in terms of describing the digital divide.

Surveying full-time college students at universities in Asia, Tien and Fu (2008) gathered information on student demographics and computer usage and correlated these data with academic ability. What the authors found was that the more time students spent on computers doing academic related work the better grades they received. However, for some groups, such as lower-income students, lack of knowledge regarding how to use some of the academic tools online hindered their ability to spend more time in the online environment. For this group, access was not an issue, but technical skills were.

While Tien and Fu's (2008) study allowed for a more in depth look at how the digital divide impacts learning, it did not find that age was a factor in lack of knowledge about computers or lack of technical skills, because age was not a demographic element which was considered.

Summary. Examining the digital divide provided background and insight to this study by showing how access is not the only barrier to digital or computer literacy. How students understand and use technology and the Internet was just as much a barrier to bridging the gap to digital equality as access. The digital divide was becoming increasingly complex as factors such as usage and technical skills are considered. Understanding why the digital divide still exists and how it exists for different groups is important. The review of this particular topic did not yield a great amount of information or research on digital divide in specific relation to older students. As the literature shows, the digital divide is relevant, and because of this, more information is needed as to how computer and technology usage shape student experiences.

Technology in Student Affairs

Creating online student services is more than a trend, it is becoming a necessity. This section of the literature review focuses on the use and growth of technology in student affairs programs and services. According to Krauth and Carbajal (1999) several motivating factors contribute to the growth of offering online services. These include: (a) declining budgets, (b) growing online enrollments, (c) increased accountability, (d) student expectations, (e) competition among institutions, and (f) creation of new technologies. Perhaps the most pressing of these factors are student expectations. Krauth and Carbajal asserted that students want more self-service options in a convenient way. In addition, students want to customize and personalize the information and services they receive and do this without needing to come onto campus. In today's world, meeting student needs and demands in student services requires providing online options.

In an updated paper on the use of technology in student affairs, Moneta (2005) addressed how students' use of technology has influenced the delivery of various student services. Moneta claimed that, because more and more students use computers in their everyday lives, they have an expectation that services will be available to them around the clock. In addition to student pressure to enhance technology, evolving technologies in the business aspect of student affairs are also driving the need for change. According to Moneta, many colleges around the nation have examined business practices to see how new technology can streamline services to students. This can include online registration, online orientation, and online appointments for advising.

It is clear from Moneta's (2005) paper that student affairs has been and will continue to be influenced by change in technology. What is not clear is how these changes will impact the experiences of students. Also, claims by the author about the student body are sweeping in nature, ignoring viewpoints and experiences of non-dominant student populations. Thus, more research is needed to see exactly how technology in student affairs impacts specific student populations and how these findings should influence student affairs practice.

Miller and Pope's (2003) study on integrating technology into community college orientations shed light on a growing trend to expose students to technology early on in their college careers in order to prepare them for the technological demands in education and the workforce. The authors stated that technology advances have and will continue to influence the world of academic and student affairs. As this change continues to happen, the population of community colleges also continues to increase and diversify. Miller and Pope raised a critical question: Does the changing community college population have the technological skills to keep up with the advance in technology and expectations community colleges are continually placing on students?

To address this issue, Miller and Pope (2003) looked at how technology was introduced in new student orientation programs at community colleges. Orientations, they argued, are a cornerstone for setting the stage for new students on college expectations and making them a part of the college community. Integrating technology into orientations allows students to begin to understand what will be expected of them at their new institution. However, not all students at the community college may have the background to be successful in using these technologies. Miller and Pope used a pre-existing instrument to survey community college student affairs managers about how and why they use technology in orientations. They found that many schools provided students with the opportunity to learn about all the technology the school had to offer during orientations in order to emphasize the importance of these tools and to be sure students were familiar with them. These online tools included things like student email, virtual tours, resources, and registration. The survey also found that many schools asked high-ranking college officials to talk to students about the importance of technology use in and out of the classroom.

From the data, the authors found that community colleges should look strategically at how technology impacts the student experience, especially due to the fact that the community college population often enrolls high number of non-

traditional students who may not be as technologically savvy. Miller and Pope's (2003) research indicated that technology use in student affairs is just part of a larger message that colleges send to their students about what expectations they should have around computer literacy. Because of this, it is of utmost importance that the impact of computer usage on students' experiences be examined. In addition to their findings, having more of a voice behind the research may help student affairs practitioners better understand how to construct messages that stress the importance of technology so that all students feel welcome and comfortable.

Washington's (2007) dissertation on the perceptions of community college student services staff about online student services revealed that colleges are offering online services as a result of student demand. The survey administered for this study was electronically distributed to student services personnel at community colleges, and several questions were left open-ended. Each of the respondents cited that online student services offered at their institutions were based upon two things: (a) what the institution was able to technically do, and (b) the demand of students wanting information and services in a timely manner at any given point during a day.

The study (Washington, 2007) also revealed what weaknesses student services personnel thought existed with technology planning and leadership. Because of the perceived pressure to increase services online, student services personnel felt they needed to be more aware of technological trends and establish better relationships with their technology related departments. The staff also felt that more and more of their time was being devoted to determining what tasks could be performed or streamlined online, thus increasing productivity.

Another aspect of the findings in Washington's (2007) study is the notion that many student services personnel need additional training or professional knowledge in terms of how to best offer online services that meet department and student needs. In other words, ensuring that processes and procedures are not just being put online for efficiency, but that students who use the service can do so

with ease is something student services personnel should keep in mind. Washington suggested that future studies in this area examine the needs of community college students in relation to online services. Specifically, Washington pointed out the need to address what implications for designing online services might be if the services are not relevant for students. While Washington's study allowed for a glimpse into the perceptions of student services personnel, it did not address the impact of online services to the students who are using them. Because the community college population is so complex, it is important to understand the student side of the issue as well.

Hornak, Akweks, and Jeffs (2010) specifically addressed the challenges and processes involved in creating online student services at community colleges in a journal article for *New Directions for Community Colleges*. According to the authors, "Community colleges must provide online access to student services in order to remain competitive" (p. 79). The authors stated that online services provide a way for students to access services that they may not have used in the past, thus improving outreach, service, and sense of community. Challenges to providing these services were described mainly as service delivery challenges – how to protect sensitive conversations between a counselor and a student, or how to better integrate academic advising information with student database information.

With specific regard to challenges of student users of online technology, Hornak et al. (2010) described a generational barrier between the students and faculty and staff at community colleges. The authors focused on the Millennial generation's ease of using technology as compared to the older generations of faculty and staff's perceptions of computer use and service delivery. No mention was made regarding older students in community colleges.

The article also addressed key factors to consider when designing and implementing online student services. Hornak et al. (2010) emphasized the fact that access to computers on a college campus is essential. In addition, they asserted

that because the majority of college students have multiple technological tools such as cell phones and other handheld devices, multiple delivery methods of services should be designed. Ease of access to single sign-on for multiple services and portals should also factor into making service options more attractive to students.

Summary. Technology in student services is not just a trend but becoming a necessity for colleges to keep up with student needs and demands. It also allows for improved business efficiency. As this aspect of student services has growing importance, the need to study and understand how these services influence the experiences of different student groups will be essential for providing quality and convenience.

Older Students in the Community College

This section of the literature review paints a picture of what it means to be an older student in the community college. According to the Bureau of Labor Statistics (BLS) (2008), most of the projected growth in the United State labor force will be workers aged 55 and higher. These workers are members of the Boomer generation, a generation often described as the most educated generation in American history (Strauss & Howe, 1991). In a 2007 keynote speech on generational difference, Neil Howe (personal communication, February 8, 2007) described Boomers as the group that transformed education in the 1960s by rejecting the traditional educational system. This was mainly due to the historical events (such as the civil rights movement and the Vietnam war) taking place during the time this generation would have been in college. Coomes and DeBard (2004) attributed this generation with the growth of returning adult learners in higher education. In addition to an aging workforce, the BLS (2004) also reported that many workers would face a skills mismatch, forcing many in the workforce to seek new skills by returning to college. Because the older population is growing, much research has been conducted around this group, and the findings and implications of this body of research can help give a deeper understanding of this population and its needs.

According to the 2000 Census about 10% of the population aged 65 and older was foreign born. In addition, about 13% of this same population spoke a language other than English at home. Nearly two-thirds of this older population had obtained at least a high school diploma. On the older end of the spectrum, those aged 85 and older, people were more likely to be living at or below the national poverty level (US Census, 2004). Between the 2000 Census and the 2010 Census, the population of those aged 62 or older jumped from 14.7% to 16.2% (US Census, 2010). These statistics allow a glimpse into the population that is poised to show up at community college doors in the near future. A recent article in *The Chronicle of Higher Education* (Sander, 2008) highlighted the growing trend of Boomers going back to the community college stating:

The wave of baby boomers returning to school is expected to crest in coming years, and administrators say it will do more than just alter the typical notion of retirement. Those boomer students will further challenge the outdated notion of what constitutes a “traditional” student. (p. 19a)

The American Council on Higher Education’s (ACE) report (2007) on older students in higher education focused on adult students aged 55-79. The majority of these students were enrolled at higher education institutions for work-related courses. The second highest reason why older students choose higher education was for personal interest courses.

While the generation that make up this age range, primarily Baby Boomers, have been described as a highly educated generation, the ACE report (2007) showed that only about 30% of this population holds a bachelor’s degree or higher. The report also stated that, because many in this age range have had some type of higher education experience, this group is more likely to work past the traditional retirement age and engage in life-long learning activities such as returning to school or changing careers. In addition to the diversity in educational attainment, the racial and ethnic range of older students will increase as the years go by. This sub-group of racially and ethnically diverse older people is less likely to hold college degrees and will be the fastest growing of this age-range.

The ACE report (2007) identified several barriers keeping older students out of higher education. Within the population of older students, there also existed sub-populations who face additional barriers. These included older adults who have immigrated to America, racial and ethnic minorities, and adults living in rural areas. External and internal attitudinal barriers also existed for this group. In general, many older students did not feel connected to an institution, citing that the programs and services offered are mainly for traditional students. Older adults also had to overcome their own internal struggles of not fitting in or not being smart enough to keep up with the demands of college. Finally, structural barriers existed for older students, as many of them may be unable to physically get to campus, either due to health or economic reasons.

The lack of support services was highlighted throughout the ACE report (2007). In particular, support for computer training for older students as they enter college, as these skills were seen as important for accessing educational opportunities and for skill-building in the workforce. The ACE report gave an overall view of the older student population and pointed to several issues of which college and universities should be aware as the older population grows. What the ACE report did not address was the specific experiences older students have while attending higher education institutions. The report relied heavily on demographic and trend data from various agencies and reports that focused less on capturing the voice of older students but focused more on programmatic aspects. The report did speak to the fact that understanding this population is critical for future research on older students.

Palazesi and Bower's (2006) study on older students in the community college revealed several key factors on how these students value their interactions with community colleges. Through a series of interviews over an academic year, Palazesi and Bower followed a cohort of 22 students ranging from age 41 to 54. The authors found that the majority of the students viewed their return to the community college as a way to reinvent themselves. This self-reinvention was

career related or focused on learning a new life skill. The profile of this group of students indicated they might be more likely to return to institutions of higher education again and again. In addition, the authors stated that this group of students prefers community colleges, finding the range of courses and opportunities attractive.

The interviews with this cohort of older students also revealed that many felt forced to adapt to a culture that values younger learners. They worried they may not fit in. One quote from a student in Palzesi and Bower's (2006) study captured this notion: "I pretended I was like the young students around me looking like I knew what was going on. I sat in the back of every one of my classes... I was afraid I would get called on or something" (¶ 50). Another trend the authors found was that older students place more affective value in the ability of ease of access to college rather than the importance of quickly finishing their educational goal. The notion of ease being highly valued over quickly finishing an academic or personal goal could shape the way older students view technology usage, especially in student services where many times putting services online is thought to help speed up processes and procedures.

Understanding the role in which older students view the community college is important as it gives insight into how this population makes meaning of their intent to enroll and attend college. Palzesi and Bower's (2006) study looked at the general experiences of older students with college, but it did not give specific insight to how older students use of technology shapes their experiences. However, by capturing the voice of the students themselves, their study allowed readers to gain an insight to the older students' world view and perhaps help others understand what older students hold valuable in terms of educational attainment.

In a brief for the Community College Research Center (CCRC), Prince and Jenkins (2005) asserted that community colleges have a vital role to play in the education of adult students, especially those who are considered low-skilled. The brief defined low-skilled as being below college level courses. Because the

community college enrolls many low-skilled students, the authors note the importance for policy makers and leaders to better understand how to support the needs of these students.

By tracking and analyzing data from the Washington State Board of Community and Technical Colleges (2005), Prince and Jenkins (2005) found that many adult students enrolled in basic skills courses had a harder time completing a degree or certificate program. Additionally, higher enrollment trends for this group were in the area of English as a Second Language. For students who stayed at least a year in their basic skills or English courses, better job opportunities arose which ultimately led to higher paying jobs. The trend of more lower-skilled older students entering the community college is important to this study as it helps to show the background of this population. Prince and Jenkins recommended future studies of this population be focused on student experiences as it is significant in understanding the barriers they face in college.

The study conducted for the CCRC brief was based directly on reporting data gathered by the Washington State Board of Community and Technical Colleges (2005). Because of this, the voices of older students in this study were not present. While the data addressed more demographic aspects of the older student population, it did not address how older students are making meaning of their educational experiences.

In their 2008 report about predictors of persistence in older community college students, Sorey and Duggan addressed several issues around the growing trend of older students in the community college system. The authors pointed out that in general, community college students have lower persistence rates than their four-year counter parts. For an older student persistence may be even more problematic as family, job, and health demands detract heavily from educational goals. Sorey and Duggan claimed that many community colleges do not meet the needs of older students, because they are basing their programs and services on the more traditional-aged students. In addition, they pointed out that many of the

theories that inform practice related to persistence were developed based on the experiences of younger students.

Using a survey administered twice over an academic year, Sorey and Duggan (2008) followed a group of traditional-aged students and a group of older students that they defined as 55 and older. What Sorey and Duggan found was the older student group felt less socially integrated into the college environment than their traditional age counterparts. According to the study, older adult students felt less encouraged and supported by those around them. Lack of computer skills also contributed to older students not feeling a part of the mainstream academic community. Sorey and Duggan suggested that colleges do more to ensure older students feel a part of the community. This included doing more research about older students. The authors made clear that older students face a different set of needs when it comes to establishing a connection to the institution. While Sorey and Duggan were able to capture older student's voices regarding why they may have felt less connected to the institution and felt less supported, they did not make a direct connection between feeling less connected and technology use. Having a better understanding of older students' experiences can help shed light on this matter.

In her 2005 study on adult student identity development in the community college setting, Kasworm interviewed and surveyed adults older than 24 enrolled in a multi-district community college system. The interview questions focused on how adults constructed their identities as students, and the survey questions were limited to demographic data. The overall findings of the study suggested that adult students do not have a monolithic student identity but rather construct it based on the people and environment around them.

Through student interviews, Kasworm (2005) captured several themes regarding experiences adult students had while at the community college. The first theme was a general anxiety about entering college as an adult. Students worried that their age would not allow them to fit into the societal age-related expectations

of college as a youthful place. Students in the study also shared feelings of inadequacy in their ability to learn and keep up with material, citing aging as the reason. Despite these somewhat negative feelings, adult students in Kasworm's study did feel as if they were ideal college students because of their commitment to learning and the perception of lack of commitment on the part of younger students. Adult students also felt that their previous life experiences and roles made them different learners, and perhaps this difference was better suited for an academic environment.

Kasworm's (2005) study captured how some of the experiences of adult students have helped to shape their identity. The study showed that adult students have a different set of experiences than younger students and that these experiences have a significant impact, both positive and negative, on identity and perceived ability in the college setting. A limitation to this study was the narrow focus on the classroom experience, which is just one part of being a college student. No mention was made about student services or related technology.

Summary. As the older population grows it holds strong implications for community colleges. Older students returning to the community college seek new skills for personal or professional growth. Community colleges must be ready to meet the educational needs of these students and support their endeavors. Older students also come to community college facing different barriers than their traditional aged counterparts; they often feel less socially integrated and lack confidence in their ability to learn new skills. In addition, older students face technological anxiety as they struggle to learn computer skills. Thus, it is important to study how older students make meaning of using technology in an educational environment. These insights help give meaning to this population and provide a space for them to voice their experiences.

Older Students and Technology Use

This section of the literature review looks at the current research available regarding how older people and older students use technology. Boechler, Foth, and Watchorn(2007) conducted a study that examined technology and usage among

older students. The study used a sample of older students to run through computer-based usability testing and asked participants for feedback on how the testing went. The authors stated that over the past 30 years, educational opportunities have increased for older adults. With this increase in opportunity comes an expectation to use technology, especially since the realm of education has seen an increase in technology usage. Boechler et al. stated that while there has been an increase in computer usage among older adults, this was not correlated with an increase in their technological skills and competency.

According to Boechler et al. (2007) older adults feel more anxious about technology and computer use than younger adults. The authors claimed that this is often the reason for the older adult's ability to learn new computer skills. In addition to these feelings of anxiousness, the study also mentioned the decline in cognitive ability and fine motor skills that come with aging. These two things can also lead to the inability to gain new computer skills that require memory, information processing speed, and hand-eye coordination.

While Boechler, Foth, and Watchorn's (2007) study did not address student services technology specifically, the results do apply to this research topic, as the authors suggested some guidelines when using older adults in technological studies. Boechler et al. suggested using large font sizes for all printed materials, having comfortable seating arrangements for the computer station, providing a mouse that is easy to manipulate, and taking the time to speak with and get feedback from the adults. These are considerations to be taken into account whenever older adults are asked to use computers.

In their 2007 study on how older learners account for their experiences with technology, Turner, Turner and Van De Walle focused on the experiences of older college students learning to use a computer and the Internet. By conducting group interviews with the students throughout the duration of a training course, the authors found that older students felt alienated in the technological world.

Turner et al. (2007) also found that the older students believed they were too old to learn a new technology, and this sense bred fear for some. The authors often referred to these behaviors as “learned helplessness,” a condition where self-sabotage prevents people from fully opening their minds to try something new. This behavior also led to anxiety about technology for the older students. The authors suggested that when trying to introduce or teach new technology to older students, it would benefit this group to highlight prior skills and recognize their competence in learning, or in other words, incorporate a more constructivist approach to technology.

While Turner et al.’s (2007) study may not be generalizable to all older students, the findings are important as they validate the experiences of older students as they learn to use technology. This point is applicable to this study because it shows that older students have a distinct experience with technology use. A critique of this study is the focus on the experiences of older students specifically with computer training and the Internet. It does not address the use of student services technology.

Chaffin and Harlow (2005) examined various studies to determine how older adults learn and best use web-based technology. The authors looked to several studies on cognitive learning in adults, web-design methods, and why technology use is important for older adults. Based on their findings, Chaffin and Harlow highlighted what topics should be considered when teaching and designing technology for older students.

Based on their scan on available research the authors (Chaffin & Harlow, 2005) found that older students face challenges of learning more slowly than younger students due to physiological and sensory changes connected with age. These changes can impact how a person uses a keyboard and mouse on a computer and can also impact how quickly a person can respond to fast changes on a screen. In addition to these challenges, older students face a culture of ageism. Chaffin and Harlow defined ageism as the perception from society that the elderly cannot do as

much or learn new things due to their limited physical and/or mental capabilities. This environmental dynamic impacts an older student's ability to feel confident in learning new things.

Chaffin and Harlow (2005) spoke to the idea of e-Quality, a concept first described by McConatha (2002), which stated that access to Internet-based technology enhances the conditions of older adults in society. Access and use of this kind of technology allows older adults to feel more independent and connected to the world around them. However, Chaffin and Harlow pointed out that many design elements on the Internet are not created with older users in mind.

While the work of Chaffin and Harlow (2005) provided a good base of understanding of the challenges older people face when using the Internet, it did not address specific aspects of educational technology nor did it speak to the experiences of actual older people who use this type of technology. The research did support the notion that older people have different needs when it comes to using the Internet.

Hawthorn (2007) examined issues in web design for older people by piloting a project that involved actively engaging older people with a web design team while creating an online tutorial. Usability testing on the tutorial with the older people also gave insight as to what user issues this group had. Hawthorn pointed out that a gap exists between web designers and older users. Designers create systems that are better suited for younger users by portraying a look, feel, and usage pattern more consistent with the cultural norms of a younger group.

When conducting usability testing with older users, Hawthorn (2007) found that participants needed to have information presented to them in a slower, more methodical manner. In addition, any design issues that impeded use was taken to be the fault of the user. The older people in the study took it upon themselves to apologize for their inability to understand how to use the online tool. As a result of this study, Hawthorn suggested that designers of web-based tools include older users early on in their design plans. Additionally, Hawthorn

suggested that designers pay more attention to the needs of older users by conducting more studies on the users' experiences with technology.

Hawthorn's (2007) study showed that web design does not normally consider the needs of older users. Because of this, it is important to include and engage older people in the design process. One way of doing this is to observe and understand how older people use technology. While this study does not specifically address community college students, many parallels can be drawn with respect to older users and web design. The findings and suggestions from Hawthorn's study support the need to understand the experiences of older people's use of web-based tools.

Summary. As this section of the literature review shows, web-based technology design must be considerate of multiple user groups. Older students may not find traditional web design suitable, and therefore special consideration should be paid to this increasing user group. In addition, student services programs are trending toward offering more and more services online to meet the demands of students. Implementing these services should not exclude older students, as they are a growing part of the community college.

Summary of Literature Review

The first section of this literature review focused on the digital divide and computer usability. The literature in this section revealed that the digital divide is still prevalent and relevant for computer and technology users in the world today. In addition, the additional layers of the digital divide, such as technological skill attainment, need to be further addressed.

Next, the literature review focused on technology in student affairs. The literature in this section supports the notion that many student services are being placed online, and because of this are impacting more and more students. Technology use is permeating many areas in an effort to increase productivity, offer more services, and help model to students a college's expectation of technology literacy. Because of this, looking at how use of technology in student affairs impacts students is critical.

The third section of the literature review focused on older students in the community college. The review of literature in this section shows that the older student population has specific needs and experiences when it comes to education. Older students are seeking to improve skills for personal or work-related reasons, and have additional barriers that could stand in the way of obtaining their goals. The barriers older students face center around the youth culture that dominates higher education, thus causing anxiety and fear about entering college as an outsider.

The last section of the literature review explored older student and technology use. As shown in the literature, older students are increasingly accessing and using technology but often at varying degrees of full usability. Older students often experience feelings of anxiety when faced with learning new technology, and these feelings can have the potential to impact their educational experiences. The research has shown that computer usage is different for older students. This poses some barriers for students as they enter higher education and find that they are behind in what is expected of them technologically

Each of these findings supports the need and provides context for the research questions asked in this study by allowing a better understanding of the older population as a whole. By gaining insight to what older students are facing this study asked questions that best capture older students' experiences with using technology in the community college setting. By seeing how technology use influences older students' experiences, the study can show how experiences with technology impact the overall community college experience. In addition, providing voice and meaning to these experiences can contribute to identifying some best practices or suggestions as to how technology in student affairs can better serve older students.

Each of the sections in the literature review helped to inform this study by offering links between the importance of understanding the role of technology in education and how it impacts various groups of students. The findings build a case

that looking specifically at older students' use of web-based student services is an important topic. In addition, because interviews with older students were conducted in order to better understand their experience with technology as it relates to their education, this study helps provide a voice to students that is lacking from the research.

CHAPTER THREE – DESIGN OF STUDY

The purpose of this study was to examine the experiences of older students as they use web-based student services. Because of the focus on lived experiences for this group of learners, an interpretive phenomenological case study approach to the research questions was applied. Through this focus, I was able to provide an avenue to give voice to and make better understanding of older student's experiences. According to Gall, Gall, and Borg (1999) "A case study is conducted to shed light on a particular *phenomenon*, that is a set of processes, events, individuals, or other things of interest to the researcher" (p. 292).

My own professional background working within student services at a community college and experience with the design and development of web-based student services framed my interest in this study. Having seen first-hand the positive and negative impact web-based student services have on various groups of students, I feel an intrinsic need to fully understand how online tools impact the overall student experience at community colleges. These experiences influenced the research questions of this study, and influenced my philosophical approach.

This chapter addresses the philosophical approach used to create, conduct, and report this study. It also provides a personal statement of my own worldview and bias for the reader to take into account. Finally, this chapter reviews the methods and rationale used to conduct this phenomenological case study followed by a review of specific details used for data collection, data analysis and participant protection.

Philosophical Approach: Interpretive Social Science

The nature of the research questions asked in this study lends itself to an interpretive social science approach. Interpretive social science has historical roots in hermeneutics, which emphasizes discovering meanings from the careful examination of text and the ability to study things in their natural setting. Thus, a researcher has to submerge her or himself within this larger picture to then make

connections to how various themes and parts relate back to the larger picture (Neuman, 2003). In this study, capturing the experiences of older students' use of web-based student services through interviews allowed for careful examination of transcribed text. In addition, participants kept journals in which they wrote their own thoughts on their experiences using online services and computers. These two types of texts helped me submerge into this population and their experiences.

Interpretive social science falls into the post-positivist view of research in that it rejects the notion of a single truth and that laws beyond one's control govern human behavior. What interpretive social science does is embrace the notion that society is created by those who are in it. Being in society gives it meaning as those in it help to create this meaning. As a researcher, the simple observation of actions of people is not enough. That is, to simply observe actions within a society does not define the society, but rather the interpretation of these actions is what gives it meaning (Carr & Kemmis, 1986). A term often used to describe this is *Verstehen*, a German word referring to personal understanding (Stake, 2010).

This worldview correlates well with the questions asked in this study, because I am essentially looking at how a particular society, in this case older students in a community college, interact with and make meaning from their interactions with web-based student services. These interactions and meanings shape these student's educational experiences.

Neuman (2003) stated that the purpose of interpretive research is, "to develop an understanding of social life and discover how people construct meaning in natural settings" (p. 76). To get to the crux of what matters to people, the interpretive researcher must first learn what is important to those involved in the research study. Only through this meaning can the researcher begin to decipher how meaning is constructed and share this information with others. In this study I submerged myself in the technological lives of older students so as to better understand their experiences with web-based tools. Through interviewing, student journal keeping, and surveying this population of students, I gained a better

understanding of how they create meaning from their interactions with web-based tools.

Carr and Kemmis (1986) wrote this about interpretive social science:

It aims to educate: to deepen insight and to enliven commitment. Its work is the transformation of consciousness, the differentiation of modes of awareness and the enlightenment of action. It expects critical reception (that is, it does not take the simplistic view that its truths are unified into single theories which will compel action along predetermined lines), and it aims to contribute to social life through educating the consciousness of individual actors. (p. 93)

According to Carr and Kemmis (1986), critiques of using an interpretive approach spoke to the inability to “produce wide-ranging generalization, or to provide ‘objective’ standards for verifying or refuting theoretical accounts” (p. 94).

Because the interpretive approach focuses on understanding rather than explanation, it could be argued that it does not have a base for truth that is scientific enough. However due to the nature of my research questions and the ultimate goal to understand the experiences of older students’ use of web-based student services, the interpretive phenomenological approach makes sense. My research questions’ aim is the same as the goal of interpretive phenomenological studies because the focus is on the researcher to capture and understand the essence of a phenomenon in order to better understand how a group makes meaning of it (van Manen, 1990). The value then is placed on the group’s meaning and understanding that can only be done when the role of the researcher is to focus on that particular experience and segment.

Research Method: Phenomenological Case Study

The lived experiences of people are extremely helpful in examining human relationships to the world. By studying lived experiences and rich descriptions of people, a better understanding of what it is that a particular group experiences is gained, and voice is given to those that may not have a chance to have a voice. In other words, my research focus validates older students’ experiences with web-

based technology. Thus, I have chosen the method of phenomenological case study to conduct this interpretive study.

Phenomenology allows a researcher to capture the essence of a phenomenon so that deeper understanding can be gained about a group's experiences and be presented in their voice (van Manen, 1990). Case study is a way to collect a holistic breadth and depth of description of a phenomenon within its natural context. It aims to develop rich and robust descriptions about an experience (Merriam, 2009, Yin, 2009). This section will explore the historical roots, background, and critiques of phenomenology and case study so as to gain a better understanding of why this method best fits the nature of this study.

Phenomenology. The phenomenological tradition of interpretive research is one such way to get at the purpose of meaning constructed by older students. According to van Manen (1990), phenomenological research “is the systematic attempt to uncover and describe the structures, the internal meaning of structures, of lived experience” (p. 10). By uncovering this lived experience, both researcher and participants make meaning of the phenomenon together. Only through this process does meaning make sense, as it is attached to the social action of the experience.

Van Manen (1990) wrote, “phenomenology is the systematic attempt to uncover and describe the structures, the internal meaning structures, of lived experience” (p. 10). The main purpose of phenomenological research is to make meaning and understand actions and interactions of people in their everyday lives (Bogdan & Biklen, 1998). This framework was applied to my study and helped to give insight and meaning into the lives and experiences of older students' use of technology. This development of meaning and understanding gave voice to this population, which then informs community college leaders.

There are several key concepts in regards to phenomenological research. First, the purpose is to capture and bring to light the essence of those who take part in the study so that a reader of the study can fully grasp the phenomenon that

occurred. Second, because phenomenology is rooted in interpreting and understanding human interaction, the researcher must never assume that there is a defined meaning of experiences of the group being studied. Third, the researcher aims to give voice to something, the purpose of the research aims to describe and give a textual context to those experiences being studied. Fourth, there is no single truth that will come of the research. Because meaning and truth will be constructed by those in the study at the given time, it can only be seen in that context. Fifth, the end result of the study is to highlight the authentic voices of the group participating in the study (Creswell, 2012, van Manen, 1990). These major concepts provided a cornerstone for the design and implementation of this phenomenological case study by framing how interview questions were created, how data was captured, and how text was examined.

Case study. This study used a single case study method to explore the phenomenon of older students' use of web-based student services. As a research method, case study is a versatile approach that is used in a variety of situations to contribute to the larger knowledge of groups, individuals, and related phenomena (Yin, 2009).

According to Gall, Gall, and Borg (1999), "Researchers conduct case studies in order to describe, explain, or evaluate particular social phenomena" (p. 289). In the context of education, a phenomenon can be a set of particular experiences students have based on a way a service, program, or curriculum are offered. In the case of this study, the phenomenon is how older students experience online student services. By using a case study methodology, it allowed me to gather, record, and collect a diverse set of data. Case study can involve data collected through narratives, images, quantitative sources, and documents. The uniqueness of case study is that these diverse data sources are rich with meaning and rooted in the contextual concept of the participants or case the researcher is examining.

Summary. The aim of this research was to enlighten others and myself to a particular group's experiences, or in other words, a phenomenon that a particular group is experiencing. In my case the group is older students, and the phenomenon is their shared experience of using web-based student services. By shedding light on this topic, this study contributes to a deeper understanding that will impact readers of the study and older students in higher education.

Personal Statement

My experience with the topic of older students' use of web-based student services comes from direct work experiences in developing such online tools and going into classrooms to teach students how to use them. My background in student services makes me aware of how we provide and support our students in their intellectual and developmental growth outside of the classroom. Seeing how technology can enhance and detract from a student's experiences makes me very passionate about this research. Along with this passion are some values I hold around the use of technology. I believe that technology has the power and ability to positively impact the developmental growth of students and enhance their learning experiences, if utilized in a correct manner. I also believe that many institutions of higher learning often overlook what I consider to be marginalized groups when making decisions about implementing technology to the student body at large.

Going into this research journey I recognized that I come with a set of beliefs which informed and influenced each step of my research process. For me, research should be done to inform practice through critique of the dominant paradigm. In doing research the outcome should empower and give voice to oppressed groups as well as break down oppression at a higher or institutional level. My worldview operates with the lens that oppression exists; and this view can influence research that I conduct or of which I make meaning. Because of the nature of interpretive social science, I have acknowledged this and placed it aside as much as is possible to let the voices of the group being studied guide the research and writing. This was a challenge, however, I believe I was able to honor

the voices of the students in my study, thus creating better understanding so that others who read my research can do with it what they will. I can only hope that they will see it as a way to empower others and make change.

On the flip side, in keeping with the interpretive approach, I believe multiple truths exist and that there is no one prescribed answer. However, I also believe shared experience can be drawn from these multiple truths, and these common themes can help inform the greater good. It is then the researcher's responsibility to use their research to penetrate systems of oppression.

Research Procedures

This section will describe the selection of site and participants in this study. In addition, it will provide details on the type of data needed to address the specific research questions asked in this study, followed by how those data were collected and analyzed. Finally, I will address soundness and participant protection.

Site and participant selection. The case site for this study was a multi-campus community college in a metropolitan area in a state in the Northwest. The desire to focus on this region was driven by time and money constraints. Purposeful selection of the case study site occurred through looking at two crucial criteria: high number of older students enrolled and a wide variety of web-based student services currently being used by students.

A matrix of community colleges along with the two criteria was developed as I conducted an audit of each of the institution's web-based student services and looked at enrollment data. Preference was given to institutions that offer the most available choices of student services online for the all students to use and not just available to students enrolled in distance education courses. In addition, the more robust the online service, the more weight the institution had as a candidate for this study; for example webpages only highlighting content were not ranked as high as those that provided some type of interaction. After narrowing down to a few institutions, I contacted offices of institutional research to determine if they were agreeable to serve as the case for this study. These steps and inquiry process ultimately determined the site for this case study.

Criteria for selection of participants of this study included students aged 55 and older who were currently registered for credit classes. Because of the emphasis of phenomenological case study, it was important for all participants to experience the same thing, in this case the use of web-based student services. Therefore, the groups of students surveyed were all enrolled in for-credit classes, as this population had more chances to utilize online services such as online registration, online advising, and virtual advising, than non-credit students.

From this initial pool, five students continued in the study. These five students self-selected to continue further in the study after filling out the online survey that went to all of the institution's older student population. Continuation in the study included being interviewed twice and keeping a journal throughout the academic term of the study. The limit on participants during the interview and journal-keeping portion of this study was to ensure that enough in-depth time was spent with each person and their transcripts. Several students volunteered to continue in the study, and while they were all contacted, only five were able to commit to the timeline.

Data needs & collection method. There are three research questions for this study: (a) What is the experience of older students with web-based technology in a community college setting?; (b) How do the older students' overall experiences and use of web-based student services affect their community college experience?; and (c) How might older students' background and experiences with web-based student services inform community college policy and practice?

These questions lend themselves to a phenomenological case study approach. To best meet the intent of this approach and answer the research questions, a wide-range of data was needed. Data sources such as institutional data, survey responses, interviews, and journal keeping were needed to create a detailed picture of experiences older students have in regard to online or web-based student services. Each of these sources helped to establish current experience of web-based technology and student services and to shed light on the

diverse backgrounds of the study's participants. The idea behind these multiple sources of data was to create a deep well of information from which to begin to make meaning out of multiple experiences.

Table 3.1 outlines my research questions the following categories of data needs were identified.

Table 3.1

Data Categories and Needs

| Research Question | Data Needed |
|--|---|
| What is the experience of older students with web-based technology in a community college setting? | <ul style="list-style-type: none"> - specific examples of experiences using web-based technology - participants' descriptions of their comfort level with technology, including prior history with technology use - participants' uses of technology in their community college (what is expected, what is done on their own, etc.) - kinds of services used and participants' satisfaction |
| How do the older students' overall experiences and use of student service web-based tools affect their community college experience? | <ul style="list-style-type: none"> - examples both positive and negative of how web-based tools have influenced participants' community college experience - reasons why the participant views the examples given as positive or negative |
| What suggestions do older students have to improve their experiences with web-based technology as it relates to their educational journey? | <ul style="list-style-type: none"> - specific suggestions on how to improve services based on personal or observed experiences |

A multiple choice and ranked survey was created to paint a picture of information for this particular population – who they are, how long they have been in school, and basic demographic information (See Appendix A for full survey questions). In addition, it established a baseline of information for what types of online services older students use during a term and how satisfied and well-

prepared students were with the services they used. The survey was developed using an online survey tool and was emailed as a link included in a recruitment letter to a total of 2,350 students during the Winter 2010 and Spring 2011 terms. Students wishing to participate further in this study also self-identified through completing the survey.

Interviews with this self-identified group of students allowed me to directly engage with the participants in this study. This is critical to a phenomenological approach, as value is placed on the researcher being able to immerse herself in the culture and environment she plans to study in order to interpret and collectively make meaning of experiences. The act of keeping a journal over the course of a term also allowed me to engage with the participants in this study through their ongoing reflection on using online services. The journals allowed me to be a participant during the everyday moments of the students. Those students who elected to continue with the interview and journal-keeping portion of this study participated in in-person interviews at the community college they attended. Interviews lasted anywhere from 30-90 minutes. An entry interview took place at the start of the term. At this interview participants were given a blank journal and instructions. They were given the choice of how they wanted to keep the journal – either written by hand or in some other format. At the end of the term an exit interview took place and journals were collected. Interviews were recorded and then transcribed. These transcriptions were shared with each participant for fact checking.

Kvale (1996) wrote that interviews “aim to give descriptions of the lived world of the interviewees with respect to interpretations of the meaning of the described phenomena” (p. 30). In order to get this type of response, I needed to respect the environment in which the interviewees live, as well as respect the cultural norms of the interviewees. Because of this, the approach for the interview method was more of an educational conversation where I learned from the participant and allowed them to invite me into their world (Patton, 2002). Using

open-ended questions allowed for more of a conversational feel where each participant and I engaged in a discussion together. I approached each interview with a guiding set of questions and let the conversation happen naturally, this helped to preserve the participant's conceptualization of their lived world. Open-ended questions allowed for variation among interviewees to be minimized, allowing for easier analysis (Patton, 2002).

Based on identified data needs, the following set of interview questions (Appendix B), or guiding questions, were used as a means to start the conversation:

1. Describe your familiarity with computers.
2. Describe your prior computer use before coming to school.
3. Describe what things you have done on the computer since coming to school.
4. How would you describe the online services this school offers?
5. Which of the online services do you use at school? Have you used [fill in with corresponding options that the school offers]?
6. Describe what has been easy or hard about using online services and/or computers at school. Can you please give an example?
7. How do you think online services could be improved for older students at your school?

The same participants who selected to be interviewed were also asked to keep a journal of their online experiences throughout the course of the term. The instructions for the journal asked participants to record their experiences and use of online services each week (See Appendix C for full journal instructions). They were asked to reflect on the following series of questions with each entry:

1. Which online student services were you accessing?
2. Where were you using the computer (at home, school, a public

- library or other public computer space, or work)?
3. Why did you choose to use the online student service?
 4. What were your experiences and thoughts regarding either using the service or finding information online?
 5. How did those experiences make you feel?
 6. Do you feel as if the experience met your needs?

The journals were collected at the beginning of the final interview with each student and then transcribed.

Data analysis. Creswell (2012) wrote that the end goal of phenomenological inquiry concludes with the reader being able to better understand the essence of the shared phenomenon and the way in which the group studied was able to make meaning of that. As such, it is important that data analysis be able to reflect these ideals. Creswell summarized a method of analysis based on works by Moustakas (1994) that I used to analyze the data gleaned from the interviews and journal transcripts. Each of these steps listed below was applied to each one of my specific research questions in relation to all the data gathered.

The six steps that Creswell (2012), described in for data analysis include:

1. A full description from the researcher of their experiences of the phenomenon.
2. Careful review of the interview text is done in order to pull out how participants in the study experienced the phenomenon. These are listed individually with equal value, which creates a comprehensive list of statements.
3. After this list is compiled, the researcher begins to group the statements in “meaning units” and then provides descriptions or examples of what these meanings are.

4. The researcher self-reflects the descriptions and begins to construct how the phenomenon was experienced, being sure to pay attention to all possible perspectives and meanings.
5. An essence of the overall experience is created.
6. This same set of steps is performed for each individual account of the experience.

After using this technique to analyze the data, I shared the initial meanings that emerged with the participants to ensure their voice and meanings were captured correctly.

Survey data were reviewed and analyzed in a similar way by looking at patterns and trends. Because of the nature of the survey questions, a simple look at overall frequency of statements or satisfaction was applied. This analysis was then compared with the themes that emerged from the interviews and journals.

Trustworthiness. Several things were done to ensure the trustworthiness of my study. Because of the nature of interpretive social science, terms like validity and reliability did not necessarily apply, and if they did, they had a different meaning. Creswell (2012) focused on the quality and verification of a study. One way I ensured quality of my research was to be deeply immersed for a relatively long period of time with the group I studied and getting to know the community college in which this case study took place. By taking the time to immerse myself in the institution and by conducting multiple interviews I was able to fully observe the culture and cultural norms which then helped me when making observations and pulling out themes.

An essential part of establishing trustworthiness of a study was through triangulation. By gathering data through four different methods: institutional data, survey, interviews and journals, it allowed for a convergence of information that built evidence (Ely, Anzul, Friedman, Garner, & Steinmetz, 1991). By allowing for multiple ways for data to be gathered, I established varying ways to gather

information to see if the evidence matches, or in the case of this study, if a phenomenon exists.

Self-reflection was also important as I collected and interpreted data. Through self-reflection, I was able to test my understanding of older students as a group and in relation to their experiences using web-based student services. After each chunk of data collection I wrote my thoughts and initial reactions to what I had observed. In addition, after each analysis on a data set was performed, I wrote to keep track of what my reflections were. This journaling process followed me throughout the course of this study and provided me with the necessary means to ensure that my study was sound. By focusing on these things, I helped to ensure that my study was grounded and would make sense to the reader and to those participating in the study.

Protecting human subjects. Because of the nature of interviews and journal keeping, I needed to ensure that protection of participants in my study was met. I completed the Oregon State University's (OSU) Instructional Review Board's (IRB) course on Human Subjects. This initial course provided a general overview of the protection of human subjects in research settings. In addition to completing this course, I followed appropriate guidelines of OSU to submit the IRB proposal. In addition, I adhered to the guidelines given at the participating institution where the study took place. This included making sure I had the correct consent forms for interview participants, and if needed to use interpreters. Additionally, I protected participants by not using their real names and assigning pseudonyms.

Summary of Design of Study

This chapter addressed the philosophical approach used to create, conduct, and report this study. It also provided a personal statement of my own worldview and bias for the reader to take into account. Finally, this chapter reviewed the methods and rationale used to conduct this phenomenological case study followed by a review of specific details used for data collection, data analysis and participant protection.

In this chapter, I reviewed the philosophical approach of this study, interpretive social science, and explained how my research best fit into this post-positivistic approach. Interpretive social science is rooted in hermeneutics in which emphasis is placed on discovering meaning through studying things in their natural setting and through careful and thoughtful examination of text. It requires the researcher to submerge in a study so connections and themes can be seen. These then relate back to each other and a larger picture allowing for meaning to be constructed.

Under the umbrella of interpretive social science is the research method of phenomenological case study. This method was particularly well suited to my research questions, because the emphasis of my research questions was to understand the experiences of older students' use of web-based student services. The crux of phenomenological research is to create and understand meaning, actions, and interactions of people's lives and experiences. Yin (2009) wrote that, "A case study is an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident" (p. 18). The marriage of a case study with a phenomenological view allowed for a rich and diverse collection of data; these data were then closely examined which led to the capturing and defining of older student's experiences with web-based student services.

Through initial screening based on criteria of student population and development and offering of online student services, a multi-campus community college was picked for the site of this study. Working within the boundaries of both the case site's institutional effectiveness office and following Oregon State University Institutional Review Board procedures, I developed a recruitment strategy for older students to participate in an online survey and addressed confidentiality of both the institution and participants. Through the survey process, students self-selected to participate further in the study through participation in

interviews and journal writing; confidentiality of all participants was ensured through assignment of false names. In addition to these direct sources of data, institutional data were also examined.

Data analysis followed by first transcribing interviews and journals. To address soundness of the study, transcriptions of the interview were shared with participants. Careful review of the text allowed for patterns to emerge based on groupings of similar themes. These themes were then refined and compared with the survey data to paint a picture of the experiences of older student's use of web-based student services. Each theme is reported in the subsequent chapters along with their relation to findings and the research questions.

CHAPTER FOUR: FINDINGS

This chapter focuses on the presentation of the findings from this phenomenological case study. The chapter is organized in several sections starting with background descriptions of the institution where the study occurred and profiles on the student survey participants and the five interview and journal participants. I address coding and clustering of the data that led to theme development. Data used for theme development came from surveys, interviews, participant journals, and the case study institution. Each theme is then described in detail. Finally, these themes or findings, are related back to the research questions: (a) What is the experience of older students with web-based technology in a community college setting?, (b) How do the older students' overall experiences and use of web-based student services affect their community college experience?, and (c) How might older students' background and experiences with web-based student services inform community college policy and practice?

Profile of College

This section provides two descriptions of the community college site used in this study. The first is a general profile of the college itself, including enrollment, demographic trends, and other institutional data. The second is a profile of the types of online student services the college offers and how they are used.

General profile. The community college for this phenomenological case study was chosen through a systematic evaluation of community colleges within a state in the Northwest. After careful review and consideration of current online student services, population of older students, and institutions' willingness to participate in the study, a multi-campus college within a metropolitan area was chosen. To maintain the confidentiality of this college, I have assigned it the pseudonym of Metro Community College, or MCC.

MCC is comprised of three comprehensive campuses, and eight centers. The comprehensive campuses offer a full range of career technical and transfer

programs, degrees, and certificates in one location. The centers offer workforce development, community education, and other academic programs. MCC provides a large selection of distance learning courses and for some degrees, students are able to complete most of the requirements without attending an in-person class.

In the 2009-2010 academic year, MCC had a total credit student population of 54,966. Of brand new students enrolling at the college 32.2% of students stated they had prior college experience. Between Fall 2009 and Spring 2011, the average age of a MCC student was 29 years old. Of the total student population during this time, those who are aged 50 and older represented about 6.05% (MCC, webpage, 2011).

Online student services profile. Since 2004 MCC has been using an online portal system to deliver a myriad of college and student services. This online portal, which will be referred to as MyMetro for this study, requires students, faculty, and staff to log in with unique usernames and passwords. Once in MyMetro a student can register for classes, pay their bill, check on their financial aid, access the college email, learn about events and services, access their online and in-person class webpage, and get important announcements.

Prior to the establishment of this portal system, the college had a variety of departmental webpages that were accessible through their public site that primarily showcased informational text. With the inception of the portal system, the college was able to move toward a delivery of service model. Each of the student and enrollment services areas is represented in the portal, and as such business and service flow enhanced by moving toward a self-service model where students could access services and perform transactions without needing to come to a campus or center.

Students at MCC are introduced to these online student services as soon as they begin the admissions process. While there remain in-person options for these services, the college proactively encourages students to take advantage more and more what can be accomplished online. The main admissions page for the college

directs students to an online admissions form that accounts for over half of admissions transactions. After the point of admission, students are instructed to complete an orientation either online or in-person. Part of this online orientation covers the myriad of online services available to students.

In addition to these online services, MCC also provides students an online avenue to become socially connected. MCC has a presence on Facebook, which strives to provide an online community that houses both social, and college related news and discussions. MyMetro also offers online “Groups” or mini-web communities for student clubs and programs.

Since 2004, MCC has received two federally funded grants to enhance and streamline front and back end services to create ways in which students can become more self-serving online for student services, business office, and financial aid functions. A college policy dictates that official communication from the college will be done online through email or announcements in MyMetro.

Profile of Student Participants

This section reports on the profile of the MCC students that chose to participate in this study. Students who participated in the survey portion of this study are described based on the demographic and general information they reported. Students who continued on with the interviews and journal keeping are described in more detail.

Profile: Student survey. During the Spring 2010 and Winter 2011 terms, an online survey was sent to a combined 2,350 students aged 55 and older at MCC. The combined response rate for the two deployments of the survey was 100 (N= 100), or a 4% response rate. Each time the survey was administered, it was open for the duration of two weeks. Basic demographic information was asked as part of this self-reporting survey. The average age of the students completing the online survey was 60. A total of 79% of the students reported that they had some prior college experience. Compared with the institutional demographics, the 100 students who participated in the survey were relatively higher in terms of female and White/Non-Hispanic participation. According to MCC, the gender breakdown

is 56% female and 44% male, compared with the 73% female respondents and 24% male respondents. MCC reports to have around 72% of their student body as White/Non-Hispanic compared with 84% of the survey respondents under the same category (Metro Community College webpage, 2011).

Table 4.1

Summary of Demographic Information from Survey Participants

| Category | Number of Students % | MCC Profile % |
|------------------------|-------------------------|------------------|
| Female | 73 | 56 |
| Male | 24 | 44 |
| Non-Reported Gender | 3 | n/a |
| White/Non-Hispanic | 84 | 72 |
| Hispanic | 3 | 10 |
| African American | 3 | 6 |
| Asian/Pacific Islander | 4 | 10 |
| Native American | 3 | 1 |
| Multiracial | 3 | n/a |
| Non-Reported Ethnicity | 0 | n/a |

Profile: Student interview & journal participants. After the administration of the survey, students who were interested in participating further in the study provided their email addresses. An invitation was sent to each of these students to continue with two interviews and an academic term's worth of journal

keeping. From these contacts five students were able to commit to the duration of the study.

The final five participants (pseudonyms used below) included four women and one man. Four of the participants reported their ethnicity to be White/Non-Hispanic, one chose not to answer the question. The average age was 58, lower than the average age from the survey participants. All reported having some prior college.

Ann was a 59 year-old female who had a long career with the postal service. During that time she was highly involved with the labor union both at the state and national level. She retired from the postal service and returned to school to earn an Associate of Applied Science Degree in Management. Ann reported that she used computers for data input and word processing throughout her career but did not own a home computer until she returned to school. Ann reported feeling very competent with computers, although she chose to keep her journal in a more traditional manner through writing in the book provided and on scraps of paper. She has taken classes at MCC on and off since 1969.

Betty was a 57 year-old female with limited prior college experience. She was coming to school with the hopes to earn an associate's degree. At the time of the interviews, she was not yet decided on a major. During her work career, she held a variety of jobs in the banking industry. She had been taking classes at MCC since 2009 and stated that she was familiar with computers due to her work experience.

Carl was a 57 year-old male student who had been attending MCC since 2006. Prior to MCC he had earned a bachelor's degree from a four-year public institution. He worked for the public transit system in their facilities department and decided to come back to school at MCC to earn an Associate of Applied Science degree in Accounting. He reported that he had very little experience with computers prior to attending MCC.

Della was a 58 year-old female who had earned two prior associate degrees from MCC (Data Processing and Computer Information Systems) and a Certificate in Microcomputer Information Systems. She also earned a bachelor's degree from a state university. She had been with the college since 1985 and was currently back for a career change due to being laid off at her prior job. Her career had been mainly in the computing or technical departments of several small businesses. After being laid off, she was tracked into a health information systems field through a state unemployment office.

Ellen was a 61 year-old female who had earned a bachelor's degree from a state university and had also attended MCC when she first graduated high school in 1968. The majority of her work career had been in the area of bill collections. She had not been working for some time and decided to return to school after her son had started college (also at MCC) and she divorced from her partner. She reported that she was not seeking a degree but was going to MCC to take classes for fun.

Table 4.2

Summary of Student Interview and Journal Participants

| Category | Ann | Betty | Carl | Della | Ellen |
|---------------|-------------------|------------|-------------------|---------------|------------------------|
| Age | 59 | 57 | 57 | 58 | 61 |
| Gender | Female | Female | Male | Female | Female |
| Prior College | Yes | Yes | Yes | Yes | Yes |
| Reason at MCC | AAS in Management | Undeclared | AAS in Accounting | Second Career | Taking Classes For Fun |

Notes. AAS is short for Associate of Applied Science

Summary. A total of 100 students elected to fill out the online survey for a 4% response rate. The survey was sent to currently enrolled credit students at

Metro Community College, aged 55 and older during the Spring 2010 and Winter 2011 academic terms. The average age of the students filling out the survey was 60. Overall, more female and more White/Non-Hispanic students participated as compared to the institution's average make up from the same categories.

From this group of 100, five students elected to participate further in the study by agreeing to two interviews and a term's worth of journal keeping. The average age for this group was 58, and four of the five were females. All of the five participants in this sub-population had prior college experience. While four of the five were returning to MCC to seek some type of degree or get additional training for a second career, one reported going back to school for fun, or continuous learning. All reported using computers in some capacity in their prior or current careers.

Coding and Clustering of Data

The phenomenological case study methodology relies heavily on multiple sources of data to create a picture of meaning on the group being studied. In the case of this study, several sources of data were used, including: raw survey data, interview transcripts, journal transcripts, and institutional documents. The strategy of analysis for these data was done in a systematic manner, starting off with the development of codes or categories that, when linked or examined for frequency, turned into themes. Table 4.3 describes the type of data and techniques I used in analysis.

Table 4.3

Coding and Clustering of Data Collected

| Type of Data | Coding & Clustering Technique |
|-------------------------|---|
| Survey | <p>Simple analysis of raw data for averages and frequency.</p> <p>Grouped common data into themes.</p> |
| Interview Transcripts | <p>Professionally transcribed.</p> <p>I read transcripts three times, each time looking for theme development and theme frequency.</p> <p>Grouped themes.</p> <p>Used quotes to support themes.</p> |
| Journals | <p>Self-transcribed from student journals.</p> <p>I read transcripts three times, each time looking for theme development and theme frequency.</p> <p>Grouped themes.</p> <p>Used quotes to support themes.</p> |
| Institutional Documents | <p>Collected documents from institution – reports, web content.</p> <p>Analyzed all documents for significance to themes and research questions.</p> |

Specific steps in the development of coding and subsequent themes were done several times to be sure the same patterns emerged each time. The lens

through which coding and themes were developed was based on the research questions for this study: (a) What is the experience of older students with web-based technology in a community college setting?; (b) How do the older students' overall experiences and use of web-based student services affect their community college experience?; and (c) How might older students' background and experiences with web-based student services inform community college policy and practice? Once themes were developed from analysis of all data sources, the themes were linked back to the research questions that framed this study.

Themes

Through analysis of the data, six themes emerged. The themes are not ranked, and each hold equal value. They are:

1. Student Assumptions
2. Self-Motivation
3. Influence of Prior Work Experiences
4. User Preferences
5. How and What Online Services are Used
6. User Suggestions.

Each of these themes emerged through the clustering of codes in the data. The themes are introduced below.

Theme One: Student assumptions. There were three sub-clusters of coding that contributed to this larger theme of Student Assumptions. The first sub-cluster dealt with the students' own assumptions that their experiences with computers and web-based services were either unique to their peer age group or that everyone in their peer age group has had similar experiences.

The second sub-cluster was the older students' assumption that peers in their age group do not know about computers and technology. While this was closely related to the first sub-cluster, there were distinct differences in how

students in the interviews talked about what they assumed their peers did not know or understand. The assumptions described in the interview data for this sub-cluster were very detailed and often paired with sympathy or solutions.

Sub-cluster three involved assumptions made by the older student in terms of how others perceive of them in the community college setting. Whether it was about perceptions of using technology or perceptions about getting help in-person there was an underlying assumption that younger staff or students treat older students differently.

In summary, the theme of Student Assumption deals with the preconceived ideas and notions that older students had around their own experiences, the experience levels of others in their age group, and notions of how younger students or staff perceive them. These assumptions influenced older students' experiences at the community college and, as shown in following sections, their experiences with web-based technology.

Theme Two: Self-motivation. The theme of Self-Motivation refers to the proactive nature of older students when it comes to learning how to use a computer or web-based technology. In this study, this proactive nature also reflected the older students feelings of burden that it was their responsibility alone to learn how to use computers. MCC did not offer a computer literacy placement exam nor did it state that students have to have a certain level or computer competence before starting classes. However due to the nature of how services are offered and how instructors use technology in the classroom, it was an unstated expectation that a certain level of computer proficiency was required to be successful. While MCC did offer some basic computer classes both in their non-credit and credit offerings, these were usually not required as part of a degree program. As for learning how to use online student services, students who took advantage of new student orientation either online or in-person were exposed to videos or screen shots of basic functions like registering for or dropping a class.

This theme of Self-Motivation fed into the experiences of older students

use of web-based technology and services at a community college setting and has implications as to how community colleges can improve online tools and services for students.

Theme Three: Influence of prior work experiences. The students who participated in the survey cited their prior computer experience coming primarily from their prior or current careers. The type of work performed on computers fell into two distinct categories: data input/output and word processing.

The stories and descriptions about prior computer experience in the work setting portrayed computer use in such a different manner than how these same students are using computers today. None of what was described was interactive in the sense of accomplishing a task or receiving a service, which are what many online student services are based on (getting your transcripts online, paying a bill, registering for classes, watching an online orientation video, etc.). Prior experiences in the work setting influenced how the older student used and interfaced with online services.

Theme Four: User preferences. User Preferences described how older students in this study prefer to use online or web-based services. Preferences that emerged in this study centered on how information was processed by students, what expectations of online services students had, and how older students accessed computer services. Preferences had a relation to the experiences of the older students in this study, and these experiences can inform policy and practice during an institution's creation of online student services.

These User Preferences are critical in understanding older students' experiences in community college in relation to web-based student services and help inform institutional practice in this area.

Theme 5: How and what online services are used. The online survey, interviews, and journals, asked students to share what online services they were using. The online survey focused on what services students were using, how satisfied they were with using the services, and how well prepared they thought

they were for using the online services. The interviews and journal transcripts allowed students to expand on their thoughts and feelings as they used these services. From these data sources, I was able to cull the essence of what services were used the most and how they were being used. Information from this theme sheds light on how using web-based student services can affect an older student's experience in a community college.

Theme 6: User suggestions. At the end of each interview, a specific question was asked in terms of what participants thought could be improved online for older students. These suggestions from participants came from direct experience or assumptions made about peers in their age group. Clusters from this part of the interview transcript showed that suggestions fell into one major category: making things easier. Many of the suggestions centered on how to visually make information more appealing or easier to read. These suggestions have a direct correlation to how older students' experiences can help inform community college practitioners.

Summary of Themes

There were six total themes that emerged from the variety of data in this case study. The six themes are:

1. Student Assumptions
2. Self-Motivation
3. Influence of Prior Work Experiences
4. User Preferences
5. How and What Online Services are Used
6. User Suggestions.

These themes were derived from careful examination of the text associated with interviews and participant journals, along with analysis of survey data. In the section below, the themes and supporting data are related back to the research

questions for this study: (a) What is the experience of older students with web-based technology in a community college setting?, (b) How do the older students' overall experiences and use of web-based student services affect their community college experience?, and (c) How might older students' background and experiences with web-based student services inform community college policy and practice?

Themes in Relation to Research Questions

This section of the findings described how the six themes found in this study relate back to the research questions. The section is organized by each individual research question followed by the related theme or themes and supporting data gathered for this case study. The data included results from an online survey, interview and journals transcripts from student participants, and institutional reports and data from MCC. The analysis included a comprehensive review of all the data sources above, clustering of themes, and development of larger umbrella themes. A summary at the end of this section supplies a review of findings in relation to the research questions.

Research Question 1: Experiences of older students with web-based technology. This section presents findings and themes related to my first research question: What is the experience of older students with web-based technology in a community college setting? The rationale for this question was to provide a picture of how and why older students use web-based technology as part of their college experience. This research question linked to a theme presented in the prior section: How and What Online Services are Used. Primarily drawing from the survey data, this theme helps to establish a picture of what online or web-based services older students are using, how they use it, and how confident or not they feel when using it. These helped to establish the older student's experiences.

The survey showed that students felt prepared to use many of the web-based services offered at MCC. Of the services they felt most prepared to use,

students cited online registration and email most frequently. This related directly with what web-based services students planned on using during the term.

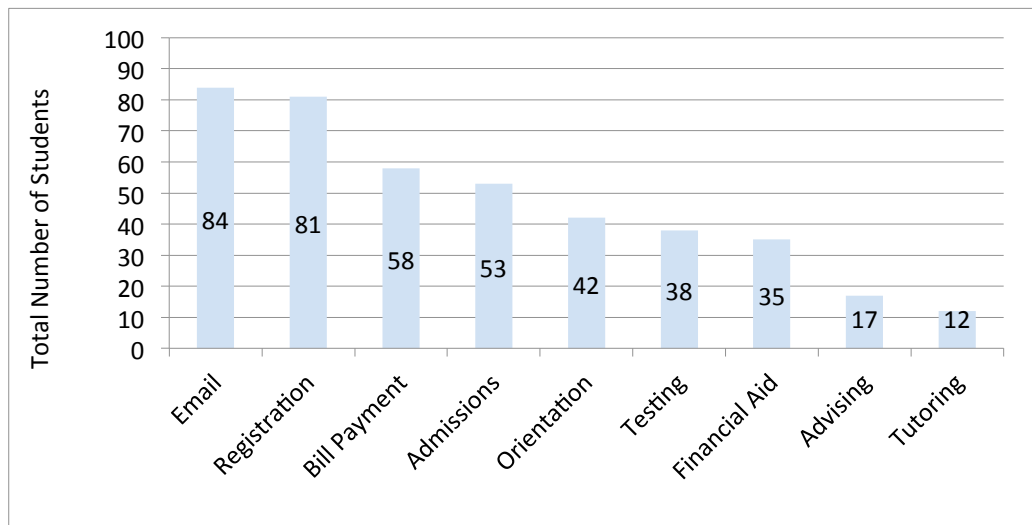


Figure 2. Online services students feel most prepared to use.

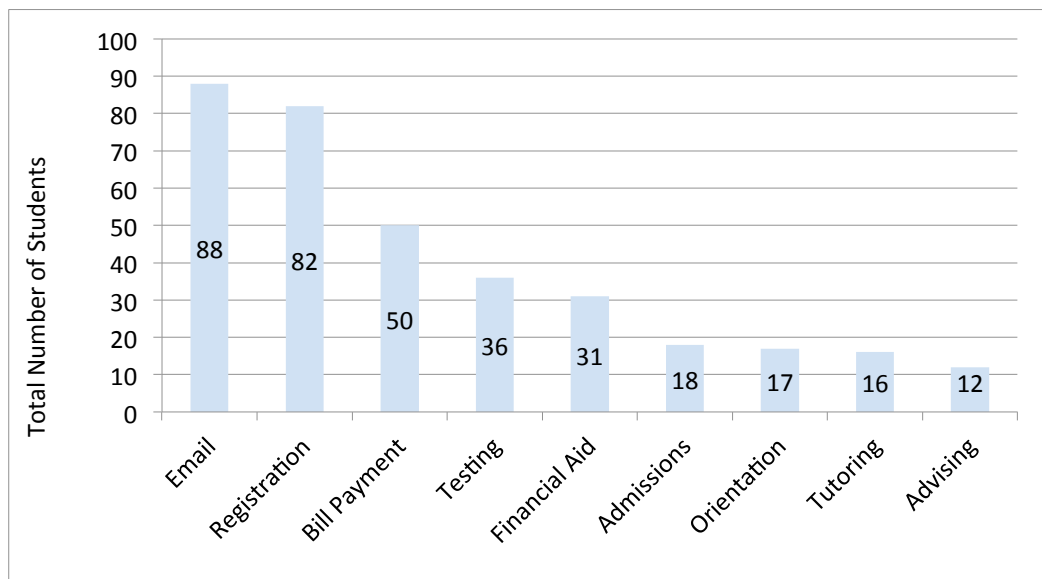


Figure 3. Online services students report using during the term.

Students who participated in the online survey were asked to rank their level of expertise with computers on a scale of one to five, with five being Very Experienced and one being No Experience at All. 100 total students answered the

survey and the breakdown for this question was such: 28 students reported being Very Experienced with computers, 34 felt they were Experienced, 32 selected Moderate Experience, 5 reported Little Experience, and finally one student reported that they had No Experience at All. Students were then asked to describe their experience. From this open-ended question, the overwhelming majority of students reported about computer experiences that were job related. Many students were very specific in terms of software or types of computers they had experience with (Apple, Gateway, PC, Word, Excel, HTML, etc.). There were a few comments about prior experiences that showed a general lack of experience with what might be described as more technical things (like software or programming). These comments ranged from not being able to type well, to only using the computer for word processing.

The survey data described a baseline of knowledge and expertise older students had with computers and web-based technology. What it showed was that while the majority of the older students had prior experiences and expect to use the array of services offered at MCC, their past experiences did not always translate to being comfortable or knowledgeable with present day technology. The older students in this study reported that they felt the least prepared to use online Advising, Tutoring, and Testing. These online services at MCC required some interaction with the computer, whether it be sending messages back and forth in real-time, or using a messaging system, or spending time within a test environment that presents a series of questions a student must answer within a time limit. These types of interactions with web-based technology were very different from some of the past experiences reported by students in this study. Compared with the top three services older students felt most prepared to use, Registration, Email and Bill Payment, the more interactive services were not as input-output driven. That is to say, a user of online registration was still inputting data (a course registration number) and getting something out of that entry (a spot in a class), whereas a user

of online tutoring may need to interact frequently via online chatting or other means with the content or online tutor to receive information.

Summary. Older students in this study primarily felt as if their prior experience with computers and web-based technology prepared them to use the college's online student services. Although older students reported feeling experienced, the survey showed that the two largest online services used during the term were email and registration, two functions that made up the minimal amount of time a student at MCC would need to spend on web-based services. Older students in this study also described prior computer experience as primarily being from the workforce with emphasis on specific software or hardware, data input, and word processing. These types of experiences may not actually reflect the type of interaction or technology that the college has built with their web-based services. Finally, while the college offered an array of services, older students in this study primarily reported using the essential functions of registration and email during the duration of a term.

Research Question 2: Overall experiences and effect on the community college experience. This section presents findings on the second research question in my study: How do the older students' overall experiences and use of web-based student services affect their community college experience? The rationale for this question was to capture the essence of experiences of this student group with web-based student services and how this usage has influenced their college experiences. Related themes that link to this research question were introduced in the previous section. This research question linked to two themes presented in the prior section: Student Assumptions and Self-Motivation. This section is divided into two sub-sections that address findings related to the research question under each of these themes. The final sub-section provides a summary of findings related to this research question.

Student assumptions. The themes within Student Assumptions dealt with the preconceived ideas and notions that older students have around their own web-

based or computer experiences, the experience levels of others in their age group, and notions of how younger students or staff perceive them as users of web-based or computer technology. These assumptions shaped how older students experience web-based technology at a community college. There were three sub-clusters under Student Assumptions. The first was a polarizing self-assumption on the older students' part that their experience with web-based technology is either the same or uniquely different from that of their peers. Betty described her baseline expectation of computer use in college by saying, "I think the expectation is that you know how to use it [computers]. I've never had anybody feel like they had to come and hold my hand so yeah, I think so." Carl offered a different point of view and had this to say about what has been hard about using online services and computers at school, "The hardest thing was learning what everybody else already knew, how to email and how to print stuff and how to format your papers and things like that." Ellen described feelings of uniqueness from other students because of her experience. She said, "I feel like I'm very different than a lot of older students because I really am computer savvy." Betty had a different point of view:

I would think that most older students are like me, they've been working. I mean you'd have to be in a vacuum if you weren't, if you didn't know how to use a computer. I mean you do everything, banking -- I mean everything is online. So, I don't know that age is really relevant to that, in my experience. All of my friends that are my age, they've been working just as long as I have -- everybody knows how to use a computer. Everybody uses it to pay their bills, to email or send pictures, or go on Facebook. I just don't know anybody of my age that is afraid of using a computer.

These polarizing self-assumptions shaped the way in which students perceived their ability to effectively use technology in an educational setting. Those who were very confident in their abilities felt offended or talked down to when offered proactive help with online tools. As Betty put it, "I guess I never even thought about it. I just did it. It's not something I'm afraid of. It's not even something that I think about. It's just how you do things." Those students who felt

completely underprepared did not feel comfortable asking for help or clarification and may suffer quietly. Carl relayed an experience of not knowing how to use the online printing service at one of MCC's computer labs. As he put it:

I was trying to print something and what I was seeing on the screen was not what was being printed. I didn't understand print preview. I didn't understand, and so I ended up printing a bunch of junk and got yelled at by the guy in the red vest.

When relaying the story, Carl never mentioned asking for help from the computer lab staff member (referred to as wearing a red vest).

The second sub-cluster under Student Assumptions relates somewhat to the first in that it focuses on those students who feel that their experiences with web-based technology is unique from their peers; that is to say, they feel very adept using computers and feel as if their experiences are so unique that their peers must not know anything about technology. For example, Ann said:

I am absolutely certain in fact that people over the age of 50 have no flaming idea of what the use of library technology could be in assisting them at create papers and it creates an unnecessary fear, an unnecessary apprehension about the written word that will be required because if you're not familiar with computers, that sounds like a burden.

The students who participated in the interview who felt most comfortable with technology often made sweeping assumptions about their peer group. One student reported that she wasn't sure if older students even knew something as "basic" as changing font sizes on a document. Ann's journal entries were peppered with references to visiting the Yahoo! Financial website in to check on stocks. She referenced her experience of setting up passwords for other financial sites in relation to setting up passwords for online services for school by saying:

I'm familiar with financial things so I have a system of how I do my passwords. I'm not sure that older people would get that. That they, in fact, can choose - they can have a pattern to a repetitive password.

The last sub-cluster addresses assumptions made by older students of how others in the institution (faculty, staff, or students) perceive them as they use web-

based technology and/or computers. This assumption is grounded in the self-belief that others perceive older student to have no knowledge or that they are slow to learn anything technical.

Transcripts from student interviews provided the most in-depth picture of the experiences of older students in relation to this theme. Of younger students Betty said:

They think you're not going fast enough, you're not going fast enough! Well, you know, people, younger people, of course, pick things up quicker, some things. I would say that that's probably, you know when you're learning something new, that maybe, there is a little bit of impatience there on the younger person's part where older people, I think, tend to look at things, figure out what they're doing, and maybe, not just jump in and start pushing buttons right away and, kind of, try to figure it out as they go along.

Ann described her general experience as an older student:

Every single class, except Tai Chi that I'm in, including the professors, I am the oldest person in the class. There has not been one single experience I've had at [MCC] where I wasn't substantially older than everybody including the teacher. At some point, you notice it. You deal with it because I've got guile, experience.

While this experience was something that was not directly related to use of technology, these feelings or observations influenced how and when older students sought help – either for technology related issues, or for general student issues.

Ann described this interaction with an academic advisor on campus after she looked online for information and decided she needed more help:

Because I'm a younger old person, you know I'm a younger retiree, and I think I'm perceived as an adult who doesn't need to do this. So I'm perceived as a person who does not have special needs and so I'm not put in the category of someone who is deserving of the very scarce resources of assistance.

Student assumptions regarding their own experiences, those of others in their age group, and how others perceive them had an influence on individual experiences in college. In specific relation to the research question, the experiences

of older students with web-based technology in a community college were shaped by their self assumptions. Students in my study who felt very prepared to use web-based technology often thought that they were unique to their peers. They might not have experienced significant differences in terms of using technology, but they did perceive their situations to be unique or could not understand why all older students did not have their same experiences. Others felt as if everyone in their age group should know how to use web-based services and technology. The students in my study who assumed this almost could not comprehend why older students would not have similar experiences. These judgments based on student assumptions had interesting inter-group dynamics and could be seen as polarizing, especially to those older students who truly did not have prior computer experience. Finally, the participants in my study referred many times to how they assumed younger faculty, students, or staff perceived them because of their age. Whether these perceptions were based around technology use or based on interactions with people on campus, older students in this study felt as if they were being treated differently. Specifically they felt as if they were being looked down upon because of their age and because younger people thought they were not capable. These experiences, in particular, had a direct impact on how older students experienced using web-based technology, because if a student felt as if he/she could not use online resources and could not go in person to a campus to get help, they felt even more isolated. These assumptions and perceptions did not contribute to a positive campus climate.

Self-motivation. The theme of Self-Motivation spoke to the older student's proactive stance when it came to learning how to use web-based technology as part of their community college experience. Part of this proactive stance stemmed from the belief that it was the ultimate responsibility of the older student to take on this learning, without help from the institution, specialized services, or their peers. These experiences of self-motivated learning influenced the experiences of older students and web-based technology. Often these experiences were described as

being isolated or showed a high level of self-reflection. Carl, in particular, did an eloquent job describing his experiences with computers as he started school at MCC. Of all the student interview participants, Carl was probably the least prepared and least familiar with computers prior to coming back to school. Carl talked about his first experiences and said:

I knew I didn't have any knowledge about computers so I was going to have to get that knowledge before I felt comfortable continuing on in school so the classes I chose were the basics using computers: beginning Word, beginning Excel, the math classes so I could feel more confident in using a computer to continue on with the school. It was like, well if I want to learn, if I want to get to here, I've got some real basic knowledge to get to before I can even begin where someone like out of high school would already have.

Once in classes Carl still struggled with use of some web-based technology. He described a situation regarding the use of email in a class:

The hard [part] was the lack of knowledge using computers. I didn't know how to email and so one of the math classes I took -- it's like the second term I started -- he [the instructor] wanted you to email a copy of our report that we had to do in class and I didn't know how to do that... So I just taught myself how to do it. It was realizing you don't know how to do it, you either teach yourself or you quit. But since I wasn't going to quit, I just had to figure out how -- I asked around and just went home and practiced. You just learn those things.

Carl also wrote about his frustration with his online classes, and this self-motivation he mentioned carried over when he ran into problems with finding particular articles online or trying to watch an online video for class. Several places in his journal entries referenced him finding the information on his own, without the help of the instructor.

When asked what and how online services could be improved for older students, Carl said, "I think it's up to the student to take the initiative to know that you have to learn this, not be in denial that you can just get through college without being familiar with a computer."

Ann, who self-described as being confident with computers, also talked about how she spent countless hours on her own trying to figure out the online services offered by MCC. She described her first experiences as a student at MCC using the online portal (MyMetro):

I spent quite a bit of frustration when I first got here because I thought, according to [MyMetro] that I didn't understand that I was going to go to "my courses." I thought I had to go straight to Blackboard for a class that wasn't using Blackboard. I didn't know and nobody told me. So, I had to figure it out. I spent quite a bit of time screwing around on the [MCC] website trying to figure out stuff. For me, it really wasn't intuitive.

When asked specifically about what online student services she used, Ann talked at length about what she herself had to learn, even if she did not end up using a particular service or program. She said:

I've done a little bit of trying to figure out for myself -- okay, here are the categories: registration, I've figured out how to register. I figured out how to pay for my classes. I was not doing financial aid so I did not do that, but I did figure out how much it would cost and how to pay for it and how to establish an account so I pushed the button.

Ann also experienced some frustration in a class that was using a class webpage through MyMetro. The frustration had to do with finding files the instructor had posted. In her journal, Ann wrote, "I realize I am a college student and part of attending school is learning whatever web information system your teacher uses." She then went on to log her time spent clicking on each file and section on the website to find what she needed.

Neither Ann nor Carl talked about seeking help for figuring things out. Instead, the examples given described a need to problem solve and learn on one's own. This feeling of self-motivation to learn something that was unfamiliar or to figure out a problem showed one aspect of the experiences of older students with regards to web-based technology. What students in my study presented was a picture of self-reliance, thus making it even more important to have clear information online for web-based services or information.

Summary. There were two themes that emerged from the data of this study that directly related to the research question that asked how the overall experiences of older students with web-based technology influence their experiences at a community college. These two themes were Student Assumptions and Self-Motivation. The rationale behind this question was to gain an understanding of how older students' experiences with web-based services affect their community college experience. Based on the theme of Student Assumptions, I found that older students' held varying and often polarizing assumptions of themselves and each other in terms of their ability to use technology. In addition, there was an overall acceptance by older students that computers and web-based technology are an essential part of the educational experience. Older students also felt as if younger students, faculty, and staff in the community college believe older students are not as able to cope with or learn about web-based technology. The experiences of the students in my study showed that these self-assumptions impacted how they go about asking for help, how they become acclimated to college, and how they do or do not feel connected to those in their peer groups.

The theme of Self-Motivation showed the self-reliance and proactive nature with which older students approach learning about web-based technology in a community college setting. Students in my study took it upon themselves to recognize their deficits in terms of technology expertise and took steps to learn what they thought they needed to succeed as a college student. In addition, students in my study reported spending their time to problem solve or find information online rather than asking for help. They took it upon themselves to figure things out and seek information, whether it was classroom or student services related.

Research Question 3: Influence of background and experiences on policy and practice. This section addressed my third research question: How might older students' background and experiences with web-based student services inform community college policy and practice? This question served as the

overarching question or theme for this study by aiming to discover how the development of online student services in community colleges might best serve older students. The question also framed the experiences of older students in lived experiential detail. The following themes found in the data related to this question: Influence of Prior Work Experience, User Preferences, and User Suggestions. Each of these themes is addressed in this section, ending with an overall summary.

Prior work experiences. The descriptions given by the participants from both the open-ended question on the survey and interviews about computer experience fell into two categories: data input and/or word processing. These descriptions were rich with specific names of software programs (Unix, DOS, C++, Windows, etc.) and descriptions of first model computers like the Commodore or mainframes that took up whole buildings. The descriptions painted a picture of a very different time in the history of personal and desktop computing than that of today. These prior experiences seemed very far from how students access and use technology in today's community college setting. As Ellen described it:

I remember what they [computers] looked like in the '60s and '70s. I mean, this whole building - the computer would fill the whole building - and it had to be very cold in that room and then to look and see computers like yours [a desktop], it's just amazing to me... At that time, the computers were huge. You were a programmer or a keycard punch operator, neither of which really interested me.

This physical description of a computer was a far cry from the rows and rows of computers found in today's college computer labs.

Descriptions about working on mainframe computers also came up in the interviews. Both Ann and Della described learning to perform work duties on mainframe computers and then making the transition to personal or desktop computers. An experience both Ann and Della shared was attending MCC during this time period and taking classes in Microsoft Word.

The invention and widespread use of the Internet or World Wide Web did not penetrate the mainstream workplace until the mid 1990s. Della, who was by far the most experienced with computers of the students in this study, remembered web-based programs in her workplace starting off as email systems. She said, “That’s when things kind of evolved, exploded.” The prior computer experiences were limited to mainframes and data entry and other technology that required little user interaction. The online services required today require a level of interaction between the user and the interface that may not have been experienced by older students.

Carl had a different experience with computers in the workplace. Carl worked for the city light-rail transportation system. He had this to share about his experience using computers at work:

I work for [the city transportation system]. There are computers there and you are given a company email address to log on. I haven't logged on for several years ‘cause I just can't remember the password and there is nothing on there that I don't get on the bulletin board. It just didn't serve a real purpose for my what I was -- my job is cleaning the trains and there is no real relevance for an Internet computer on that job. It's mainly just information.

The experience Carl had with computers at work was very minimal and as he described, computing was a non-essential function of his job. Carl took it upon himself to take computer classes before he started school, because he ascertained the importance of having this skill to progress with his degree.

Older students in the community college setting had a wide range of prior work experience that influenced their comfort level and use of computers and web-based student services. These experiences shaped the way in which they approached use of web-based student services at a community college. The experience of using online services that are interactive might be very different from using a computer for data input or word processing. For older students where the use of computers was not an essential job function, the idea of using a computer regularly to perform tasks or do work might at first seem like a strange

idea. Recognizing these differences when creating or implementing online services could help to improve service and usability.

User preferences. The interviews conducted for this study, along with journal transcripts, revealed a set of user preferences older students have around using web-based services. These preferences related to the experiences of older students and, in turn, could be informative for setting a context of understanding that can inform the policy and practice of creating online student services.

In terms of receiving and taking in information, older students in this study often shared the practice of printing out informational text or using printed information over an online version. This practice fell both in the online instructional realm and the student services realm. Della described why she enjoys the particular format of her online class:

I kind of liked the format cause she's [the instructor] got, they call it the lecture and you can print it out. You can read it and re-read it as many times as you want and highlight it.

The idea of having her class materials in print format was very appealing to Della, Ann, and Betty. All three shared similar stories about referring to material they had printed while they were online. In the case of Ann, she had printed out degree worksheets to use as she went on the academic advising site to find answers to her questions. Betty reported using the printed class schedule to highlight what classes she wanted to register for and having it with her as she completed online registration in MyMetro. She liked the feeling of having her classes picked and “all ready” before going online to enter the specific registration information. Della spoke of printing out pages of information so she could read and re-read it whenever she wanted.

A preference highlighted from the participants’ interviews and journals showed that there was an expectation that online meant truly *online*. In other words, if a student chose to perform a task online because they thought it was faster or it was more convenient, they wanted to be able to find all the information

or complete the whole transaction without needing to call someone or come onto campus. There were many examples from the students where they were either directed toward an online service or searching online for information, only to find out they had to call in or come in person to complete a transaction or gain more specific information. When an older student began to use a web-based service, they expected all aspects of that service to be web-based. Ann talked about wanting more from the online advising experience she had. When she finally exhausted the online options she said, “It tells you that you can physically come in and see them, to come in and wait around.” Della spoke about her experience with trying to contact the registration office online to change her contact information. She said, “So I thought I should have been able to go in and just change it online, but I couldn’t. It says you have to call.”

These expectations probably stemmed from wanting to use web-base services, because they were viewed as convenient or easy. As Della put it:

I like doing it online because it’s instant. You get it done. You take care of it. If you want to pay for something, you know, go in and pay for it online and be done. You don’t have to be standing there, waiting.

Even with this perception of convenience, when the older students in this study ran into trouble with web-based service they were using, making a phone call for help was still an option that they wanted to have. Speaking with someone on the phone, a “human being” as Ann said, was something that was welcome.

Interviews and journals showed that students often accessed their computers from home rather than on campus. Students in this study had a range of experiences with using computers on campus, but the overwhelming preference was to use their home computer. Carl had expressed frustration with first learning how to use the on-campus computer lab. Ann wrote in her journal:

I wish there was a simple practical explanation about how computer access works on campus. I didn’t know I could log on and use one in the [student union] building lab. I don’t know how printing materials works. I heard you can make copies and print in the library, but I don’t know that for sure about that either.

Betty, who felt more confident with using either the computer labs or terminals on campus, said, “You know, every once in a while, if I have time, I go into the computer lab. But, mostly I work on my home computer and just use a flash drive or whatever to take my stuff into school.”

User suggestions. There were many ideas and suggestions from the student participants in this study about how to make things “easier” on the web or how to make things easier for older students in relation to using computers or technology in college. In reviewing the transcripts of the interviews and journals, I compiled a summative list of suggestions and rationale behind the suggestions. Some of these suggestions related directly to web-based student services, and others bridged student services and instruction.

1. **Use of Audio/Video:** Older students reported that reading dense text online was hard. Some students said that processing information in this format was difficult; others talked about the strain on their eyes reading from a screen with such fine print. The idea of using Audio/Video was seen as a better way to present content or information. This was true when showing how to perform a task online with audio that would walk a student through step by step on where to click and what to enter.
2. **Larger Fonts/Captions:** The use of larger fonts in any materials online would make it less strenuous on eyes to take in content. Older students complained that things were too tiny on a computer screen, and a smaller font type only exacerbated their frustration. Along the same lines, any video or audio used should include captions (with larger font) for students to be able to fully understand what information is being relayed.
3. **Computer Competency Rankings:** Two students in this study touched on similar ideas of having some kind of description or

ranking of what kind of computer related competency is required before entering a class or program. The idea was to inform students up front as to what kinds of skills they will be using in a particular class or program (email, typing, viewing online videos, etc.) so that students can know right away if they are going to have trouble with a particular concept.

4. **Literal Descriptions of Actions:** Often, when looking at online information, a different color font or an underlined phrase means that a user can click on it to get to more information. Instead of this implied direction, putting actual descriptions for actions such as, “double click here” were suggested. Students in this study talked about the literal meaning of directions, perhaps alluding to the cultural norm online with how information is written and presented. This cultural norm may be something unfamiliar to some older students.
5. **Make it Quick:** Ann was particularly descriptive in her explanation of why doing things online should be quick and not require students to sit in front of a computer for hours typing. She described her own situation of having arthritis in her joints and hands. The act of sitting at a computer station for long periods of time typing on a small keyboard was not appealing or comfortable. She could not understand how her younger classmates could sit so still for hours at a time doing things online. If things took longer, she wanted to be able to do it on her own time. Otherwise, she suggested that the quicker or easier it was to complete the better.

None of the students in this study suggested any kind of orientation, workshop, or other formalized support that focused on general computer literacy. This could relate back to an earlier theme where older students in this study

believed it was up to them to learn what needed to be done to be successful with computers and online services in a college setting.

Summary. There were three themes that emerged from this study that related back to the research question – How might older students’ background and experiences with web-based student services inform community college policy and practice? The three themes were: Influence of Prior Work Experiences, User Preferences, and User Suggestions. The rationale behind this research question was to provide a context to how older students may be better served online in a community college. This question helped to frame their experiences and served as an overarching question to all three of the research questions asked in this study.

Older students’ prior work experiences had a direct impact on how they experienced using online student services. Because older students had a widespread variety of work history and, within that, a variety of experiences using computers, this influenced their comfort level using computers and web-based student services. Because many of these prior work related experiences with computers were at a time when technology was used differently, the experience of using online services might be very different from past experiences using a computer for data input or word processing. Some older students might not even have prior work experience where computers were an essential job function. Understanding the myriad of user history could help determine the best way to implement an online service.

Looking at User Preferences was also a helpful practice that could ultimately inform policy and practice around the development and deployment of online student services in a community college. Older students reported wanting to be able to print out material for especially dense information. They also cited home computer use as a preference to coming onto campus and using computer labs or terminals. Finally, students felt that if a function or service was offered online, the extent to which they could complete a transaction or service should all

be online, because only having some information online and being told to come in or call someone for more details created feelings of frustration.

There were pointed questions in both the interview and the student journals that asked older students in this study what online services they thought could be improved for older students. These responses were reviewed and culled into five categories: (a) User of Audio/Video, (b) Large Fonts/Captions, (c) Computer Competency Rankings, (d) Literal Descriptions, and (e) Make it Quick. Rationale and details for each of these suggestions were reviewed and provided direct insight to how online services could be improved for older students.

Summary of Findings

The first section in this chapter profiled the community college in which this study took place. The section addressed two different profiles of the college: a general profile and an online profile. MCC is a large multi-campus district located in the Northwest. The average age of students attending was 29, and the population of students aged 50 and older was 6.05%. MCC's online student services consisted of a large array of both interactive and informational content. Students at MCC had access to an online portal system called MyMetro that allowed them to manage several areas of their student account, complete transactions, and get information and updates from student services areas. In addition, MCC students were encouraged from the point of admissions (which is primarily done online) to access the wide variety of online options, including orientation, advising, and business transactions.

The next section focused on the profile of the students who participated in both the survey portion and interview and journal-keeping portion of this study. Surveys were sent to currently enrolled credit students aged 55 and older. The survey was deployed twice in this study during the Spring 2010 and Winter 2011 terms. The survey instrument was online, and an email inviting students to participate in the survey was sent to a total of 2,350 students. The combined response rate for the two deployments of the survey was 100 (N= 100), or a 4%

response rate. The survey was open for the duration of two weeks after each deployment. The average age of the student completing the online survey was 60.

Students who completed the survey were invited to continue in the study through participation in two interviews and a term's worth of journal keeping. Five students were selected to participate in this part of the study, and each of them completed two interviews lasting anywhere from 30-90 minutes and kept journals that were then collected at the final interview. The average age of these five students was 58. All of the five students had some previous college experiences and each of them was attending MCC for different reasons.

The next section in this chapter described how coding and clustering of data from the survey, interviews, and journals was done. Heavy reliance on multiple reviews of the transcripts was used as well as several rounds of coding and clustering. Initial results of coding and theme clusters were checked and linked back to the three research questions asked in this study.

From the coding and clustering, six themes emerged from the data. These six themes were:

1. Student Assumptions
2. Self-Motivation
3. Influence of Prior Work Experiences
4. User Preferences
5. How and What Online Services are Used
6. User Suggestions

The final section in this chapter linked these six themes back to the research questions for this study which were: (a) What is the experience of older students with web-based technology in a community college setting?; (b) How do the older students' overall experiences and use of web-based student services affect their community college experience?; and (c) How might older students'

background and experiences with web-based student services inform community college policy and practice?

The findings associated with Research Question 1 revealed that older students in this study felt prepared to use the college's online student services primarily due to their past experiences. Older student's prior experiences with computers were most often described with emphasis on specific software or hardware, data input, and word processing. These specific types of experiences were different from the type of interaction or technology that MCC has built with their web-based services. Finally, even with the array of online services offered by the college, older students in this study primarily reported using the essential functions of registration and email during the course of a term.

Findings that related to Research Question 2, which asked how the overall experiences of older students with web-based technology influenced their experiences at a community college, identified two themes: Student Assumptions and Self-Motivation. The theme of Student Assumptions revealed that older students hold varying and often polarizing assumptions of themselves and each other in terms of their ability to use technology. There was also a sense from older students that younger students, faculty, and staff in the community college believe older students are not as able to cope with or learn about web-based technology. These self-assumptions impacted how older students went about asking for help, becoming acclimated to college and feeling or not feeling connected to those in their peer groups.

The theme of Self-Motivation revealed that older students had self-reliance and were proactive when it came to learning about web-based technology in a community college setting. The data showed that older students took it upon themselves to recognize their deficits in terms of technology expertise and took steps to learn what they thought they needed to succeed as a college student. This included the act of spending time to problem solve online rather than asking a person directly for help.

Research Question 3 focused on the how older students' background and experiences with web-based student services could inform community college policy and practice. The research revealed three themes linked to this question. They were: Influence of Prior Work Experiences, User Preferences, and User Suggestions. The study found that paying particular attention to the older students' prior work experiences with computers was important because many of those prior work related experiences were at a time when technology was used differently. The experience of using current online services might be very different from past experiences using a computer for data input or word processing. In addition, some older students' prior work experiences might not have had computing as an essential job function. Shifting into an educational culture where online services were the norm and where computer use was an expected and integral part of the learning experience could be a culture shift.

User Preferences also helped inform policy and practice around the development and deployment of online student services. The study revealed that older students liked being able to easily print out materials that were important to them or required multiple viewings. A preference to using home computers versus computers on campus was also revealed. Finally, students felt that online should truly mean online. That is, if a function or service were offered online, than that transaction or service should all be able to be completed entirely online.

Findings under Research Question 3 also related to specific User Suggestions that were revealed throughout the interview and the student journals. Students were asked how services might be improved for older students, and the responses fell into five categories: (a) User of Audio/Video, (b) Large Fonts/Captions, (c) Computer Competency Rankings, (d) Literal Descriptions, and (e) Make it Quick. Paying attention to each of these suggestions could be important for community college leaders as policies and procedures are developed and put into practice.

In this chapter I have revealed the findings from my research on the experiences of older students use with web-based student services in a community college setting. In the following chapter, I will summarize and describe my findings for each research question in relation to existing literature. I will then address implications for practice and future research in the area of online student services and the experiences of older students. Finally, I will share my self-reflection on this research and findings.

CHAPTER FIVE: SUMMARY, DISCUSSION, AND IMPLICATIONS

The purpose of this study was to examine and understand the experiences of older students' use of web-based student services during their time in community college. The study provided a place for participant voice to be captured, shared and analyzed through participant interviews and journal keeping. These methods combined with survey and institutional data aimed to uncover a deeper understanding and meaning of how older students' experiences with web-based services can help inform community college leaders.

This final chapter is organized in three parts. The first, Summary and Discussion, focuses on the findings in this study in relation to the research questions and review of literature. The second part reviews how the findings in this study could impact Implications for Practice for community colleges through their policy development and processes. Finally I will discuss Limitations of the Study and Implications for Future Research.

Summary and Discussion

This section focuses on the findings in relation to the three research questions for this study and the relevant literature. The three research questions of my study were: (a) What is the experience of older students with web-based technology in a community college setting?, (b) How do the older students' overall experiences and use of web-based student services affect their community college experience?, and (c) How might older students' background and experiences with web-based student services inform community college policy and practice?

Findings showed that older students have some unique experiences with using web-based technology in a community college setting, much of which depends on prior knowledge. In addition, the findings showed that some of these experiences may have both a positive and negative impact on the overall college experiences of older students and that community college policy and practice should take these experiences into account when creating and implementing web-based student services. The philosophical approach used in this study was

interpretive social science using a phenomenological case study at a large multi-campus community college. Findings and implications from this study may differ from other community colleges based on size, student demographics, and existing student services technology. The types of data collected and analyzed for this study included interviews and journals from five student participants, survey data from 100 participants, and institutional data.

Research Question 1: What is the experience of older students with web-based technology in a community college setting? Data analysis of the survey and interviews revealed that older students in this study felt prepared to use web-based technology in a community college setting. Most of this sense of preparedness stemmed from prior experiences with computers and web-based technology through workplace settings. While older students may come into a community college feeling experienced with such technology, the data showed that older students may limit technology use to things that are required as part of conducting college business, specifically email use and online registration. This could be because older students in this study primarily cited their prior experiences with technology through the specific descriptions of software, hardware, data input, and word processing – all of which were workforce related experiences. These types of computer performance functions did not reflect the type of computer interaction or current technology that the college in this study, MCC, has built with their web-based services, which require a high level of interaction.

The initial review of literature for this study, discussed in Chapter 2, showed that colleges are responding to demand of their students by creating and implementing a wide variety of online student services. Miller and Pope (2003) specifically addressed how the incorporation of technology through online new student orientations can help to set a benchmark, or expectation, of the kind of computer literacy entering students should see from their institutions. At MCC, a review of their online new student orientation did not show any explicit information or remarks to students about the degree of computer or technology

literacy needed as an entering student. Instead, emphasis was placed on use of the online tools to perform basic functions, such as registration and email communication to faculty and staff. As a result of this students may not be using the depth of online services available at the institution.

While reviewing the various sources of data in this study, I did not find any themes of reluctance from students regarding use of technology. This absence of reluctance could infer that older students are willing and able to use a wide variety of online student services and technology, but they are not doing so because they are not being pushed in that direction. Instead, they are being told to use the minimal amount that is needed to perform functions around admissions, registration, and communication with faculty or staff. In an article about online student services in community colleges, Smith (2005) spoke to the need for colleges to make sure that online services are being used efficiently. That is, if a college decides to put time and money into development of online services, they should be make sure that use of all the services are at a cost benefit to the institution. Analyzing the effective use of online services should include more than just the number of users. Colleges should also consider the populations that are using, or not using, the services as a measurement of improvement.

Older students in this study felt the least prepared to use those online services that relied on interaction, such as advising and tutoring. This could be due to the prior experiences older students have with computer technology. Most of the prior work experience reported by students in this study did not describe using computers as a way of interaction, but rather information gathering. Older students in this study did seek information about advising online, but they never mentioned using the online advising service that MCC offers. This online advising service consisted of a database of questions and answers for students but also provided a way for users to email a specific advising related question and attach documents that then go to a professional advisor.

While the literature reviewed in Chapter 2 supported the need for a variety of online services, it did not focus on the differences between the levels of services offered and the impact of those services on different student populations, specifically older students.

Research Question 2: How do the older students' overall experiences and use of web-based student services affect their community college experience? The two major themes that emerged from this study that shed light on this question were: Student Assumptions and Self-Motivation. Under the theme of Student Assumptions this study found that older students often viewed their peers from the same age group in a polarizing way, either thinking that older students were not capable of being technologically savvy, or thinking that all older students should be able to use technology without any problems. Some participants in this study described themselves as being very capable of using technology and online services, but in the same description they stated a belief that they were somehow an exception to the larger older student population. Older students also assumed that younger students, faculty, and staff believe older students are not as capable as younger students when it comes to learning about web-based technology. All these self-assumptions impacted the older student experience, because they influenced how older students feel connected to college resources, information, and the college community.

The data also allowed the theme of Self-Motivation to emerge. This theme showed that older students are very self-motivated and proactive around learning about web-based services. What this study revealed was that older students were able to recognize their technological deficits and find ways to overcome those deficits in order to become a successful college student. Much of this focused on taking the time to find information on their own rather than asking someone in the college community directly for help.

These themes from the data supported the literature discussed in Chapter 2; specifically these themes related to barriers that older students face as they enter

institutions of higher education. The literature describing the experiences and realities of older students in community college referred to barriers that exist for this population. The American Council on Higher Education's (ACE) report (2007) on older adults in higher education specifically shed light on the experiences that older students may have as they try to overcome their own internal struggles of not fitting into an educational culture that tends to favor traditional age, i.e. younger, students. These struggles can lead to feelings of not connecting to an institution and peer groups that create an additional barrier for older students. The report highlighted the lack of training and/or support for older students around computer use, citing this as another barrier for older students as they try to integrate and succeed within the higher education setting. This study and resulting data highlighted that older students face multiple barriers to feeling connected to a larger peer group but have found ways to get information and succeed as a student with little to no structured help from the institution.

The data in my study also showed that older students themselves might contribute to additional barriers of feeling connected to an institution due to inner-group assumptions around being a college student. Since older students held assumptions that others within their own age group were not capable of learning about online technology quickly or were unable to use computers. The literature reviewed did not address this last point, however Palazesi and Bower's (2006) interview-based study did find that older students often felt forced to adapt to a learning culture that values younger learners. In addition, Chaffin and Harlow (2005) found that when older students feel as if ageism is prevalent when computer use is concerned, this can influence how confident an older person feels as they attempt to learn new things. This was also supported by Sorey and Duggan's (2008) study in which they claimed that many educational institutions base their services and programs around the needs of younger learners. In all these cases, older students are being asked to adapt to a culture that may not be their

cultural norm. This perhaps is why they have strong inner-group assumptions and the self-motivation to try and “fit” into this new culture.

The literature reviewed in Chapter 2 described barriers and experiences older students may have in higher education. While the data in this study may fit under general headings of these identified barriers or experiences, the fact that my study was able to dig deeper through interview and participant voices allowed for more specific themes to emerge that may give deeper insight to what was found in the literature.

Research Question 3: How might older students’ background and experiences with web-based student services inform community college policy and practice? There were three themes linked to this final research question: Influence of Prior Work Experiences, User Preferences, and User Suggestions. The data showed that a student’s prior work experience with computers is important to understanding how students approach using web-based services, because many of these experiences occurred during a time when technology and computers were used primarily for data input or word processing. Also, the data showed that some older students’ prior work experiences did not include computer use as an essential job tool. No matter which experience the older students in this study had in their prior work life, getting familiar with an educational culture where online services and computer use are the norm is experienced as a culture shift.

The literature discussed in Chapter 2 supported these findings in that the experiences the students in this study described are parallel to the definition of what Tien and Fu (2008) stated as a “second-level digital divide.” Another way to describe this would be what Hawkins and Oblinger (2006) called “computer literacy.” In both these cases, the authors described a gap between people who truly feel acculturated to a digital online environment, and those who do not. The experiences described by students in this study also corroborated what Prensky (2001) described as the experiences of “digital immigrants” as they experience a

culture that is dominated by computer and technology use. Findings in my study helped give voice to these experiences.

Discrete activities that helped shape the theme of User Preferences suggested that older students prefer the following: to print out materials that are important or require multiple viewings, to use their computers at home versus on campus, and to fully be able to perform online tasks. That is, when a service is billed as an online service, all steps or actions around that service should be able to be completed online. These activities and/or preferences also helped shape specific User Suggestions revealed throughout the study. These suggestions fell into five categories: (a) User of Audio/Video, (b) Large Fonts/Captions, (c) Computer Competency Rankings, (d) Literal Descriptions, and (e) Make it Quick. Aspects of these themes were supported by the literature found in Chapter 2. Boechler, Foth, and Watchon (2007) and Hawthorn (2007) discovered aspects in their studies and findings that suggest similar recommendations: larger fonts and including older people when considering aspects of web design. Findings in this study deepen the understanding of these suggestions by providing a context of experiences.

Findings in my study were able to provide specific context to the experiences of older students and their use of online student services. Findings were generally consistent with the literature review, however what my study was able to do was narrow down the experiences of these students to a setting where the number of older adults will continue to be on the rise – community colleges.

Questions for Practice

The experiences of older students captured in this study provide an opportunity for leaders and practitioners in the community college setting to consider changes in the design and implementation of online student services. To what extent should these considerations center on practices and design that feel more inclusive and user-friendly to a population that is often marginalized when such technologies are put into place? A leader or practitioner could consider

multiple aspects of design and support that will ultimately benefit all students by understanding how use of current online technologies impact student experiences.

Often when an institution creates new in-person student support services or programs there is research done regarding constructing the right components to support students, and care put into understanding various impacts of such a program on the student experience. To what extent could the same approach used to develop in-person services be applied when developing or enhancing online student services?

Should an institution implement a rating system of how much computer use is required for a certain task, class, or service? This kind of system may give those students who are not as computer savvy the opportunity to ask up front for extra help or guidance. It may also force an institution to do an internal audit on the ease of use for online technologies.

It may not be enough to simply think of transferring aspects of student services online without thinking of how these services will impact the experiences of students, especially students from non-dominant groups. Should computer literacy be part of the college placement or assessment process? A computer literacy test that examines how comfortable students are with using technology to navigate information may help give institutions a benchmark so they can understand how many of their students are “digital natives” versus “digital immigrants.” The implementation of such an assessment may have implications on areas such as academic advising, orientation services, and instruction.

In the age of the Completion Agenda, it may be important for leaders to recognize and understand the experiences of older students, both in relation to use of online student services and experiences at community college in general, as it may contribute to better retention of students. In a 2011 article outlining what community colleges need to be doing to meet the Completion Agenda, O’Banion included the following as one of 10 things that should be done, “Apply appropriate technological innovations to create, implement and monitor the student

success pathways to optimize efficiency and effectiveness” (p. 32). The use and role of technology will continue to be a large presence in community colleges. As such, to what extent should leaders consider placing more attention on the experiences students are having as they interface with such technologies?

Data from this study suggested some implications for practice based on user suggestions. There were five specific suggestions that may be considered as leaders and practitioners consider the development or enhancement of online student services:

1. Use of Audio/Video: Could this be an alternative way to present information that older students reported as being too dense with text? This format might be particularly helpful if the content deals with instructions.
2. Larger Fonts/Captions: Larger fonts could equate to less strain on eyes. Could an institution take this into consideration as video or audio captions are presented?
3. Computer Competency Rankings: How would an institution create a description or ranking of computer related competency for classes, programs or services? By providing a description of specific technical skills needed (email, typing, viewing online videos, etc.) students may be able to self-identify what areas they need support with.
4. Literal Descriptions of Actions: Do the people involved with creating online services assume that all students are acculturated to an online environment? If they do assume this, how can online services be created that allow for more specific directions instead of relying on implied directions?
5. Make it Quick: Can tasks or transactions be streamlined so that it takes as little time as possible to complete something? This approach could reduce the amount of time a student has to sit in front of the computer,

which for some older students may be hard due to arthritis, joint pain or strained eyesight.

Limitations of the Study

The purpose of this study was to examine and understand the experiences of older students' use of web-based student services within a community college. Findings from the study were drawn from a literature review, a survey, in-depth interviews with students, journals by students who participated in the interviews, and institutional data from a large multi-campus community college in the Northwest.

This study has several limitations, addressed here, in order to fully disclose the suitability of the research and to frame the reflection of possible future research for this topic area.

1. This study was conducted in a large, multi-campus community college in the Northwest and therefore findings in this study may not be applicable to institutions that are smaller, rural, and/or from another region of the country. Replication of this study, or additional research at another type of institution would contribute to the discussion and capture more experiences of older students.
2. This study was limited to a short period of time, the span of one academic term (11 weeks). A longer time period would allow for more depth and reflection that might reveal additional themes.
3. The student participants in this study all self-selected to be a part of the research. The survey for this study was distributed via an email with an embedded link. Students who chose to participate in the survey may have a level of comfort with technology already as they would have had to go to an online site to fill out the survey. In other words, students in this study

may have already had a level of comfort with online technology simply due to the way the study was designed.

4. While the college chosen for this study had a wide array of online student services, there may be colleges around the nation that offer more, or better, online services. The robustness of a college's online student services may factor into students' experiences and further exploration may add to the discussion.

Implications for Future Research

The findings from this study raise multiple questions and point to further research in the areas of older student experiences in community colleges and the development of web-based student services. I have organized possible considerations of future research based on themes revealed from this study.

The first three themes found in this study: Student Assumptions, Self-Motivation, and Influences of Prior Work Experiences, described the particular experiences of older students in community college and their use of web-based student services. Under these themes, several findings revealed a need for research in the following areas:

1. This study revealed that older students hold varying assumptions about themselves and other older students. Some of these assumptions showed inner-group dynamics of ageism as some of the older students in the study thought their experiences with technology put them "above" others in their age group. How do aspects of self or group identification impact the experiences of older students in community college? Understanding how these identifications impact the individual and collective experiences of this group will shed more light on the experiences and challenges older students face.
2. Older students in this study took it upon themselves to figure out aspects of web-based services with which they were unfamiliar.

How does this self-motivation, or drive, compare with other aspects of their academic life? What does it tell us about how to design services and provide information? Is the concept of self-motivation in terms of technology use consistent or not with other aspects of motivation for older students? Do older students who do not take it upon themselves do figure it out have a lower level of engagement overall? How might this impact retention?

3. Older students in this study were influenced by what type of experiences they had in the workforce around computers. As the workforce changes and more people look to institutions of higher education, specifically community colleges, for retraining, what can we expect other groups to have experienced in terms of computer use? What can our current workforce tell us about the culture of computer use and web-based services that may influence institutions of higher education?

The last three themes found in my study, User Preferences, How and What Online Services are Used, and User Suggestions raise an additional set of questions that have an implication on future research. These are:

1. How are student affairs graduate programs preparing professionals to work with and collaborate with designers of web-based services? As student affairs professionals dig into the foundations of their profession by learning theories, best practices, and leadership skills, what can they be learning about the development of online student services? How can they be better prepared to translate between the needs of student services and needs of technology developers?
2. What are the best practices when it comes to developing online student services? Is there a set of best practices that institutions can follow when looking at development of such services or programs? Do these practices

point to a strong collaboration between student affairs and the technical departments? How does the development of these services take into account various groups within the institution that are not part of the dominant culture? That is, does it take into account groups of students that may come from ethnically diverse backgrounds, older students, and lower social-economic status? What about other groups?

This study can be applied to other groups that face barriers in higher education, specifically within the community college setting. In the future I would recommend expanding this study to compare and contrast experiences of older students with those of traditional age. I would suggest taking into account the role that social-economic status plays in the experiences of students and access to technology.

Finally, I believe future research on this topic would be further enhanced if done at a variety of other institutions, including, but not limited to institutions with a significantly higher enrollment of older students, rural colleges, and colleges with a higher population of distance learning programs. Experiences of older students may be significantly different based on the institution they are attending, and exploring the similarities and differences may allow for a deeper understanding.

Acknowledgement of Participants

I focused on the older student population for this study because of my interest in understanding the experiences of non-dominant groups in higher education. The students who participated in this study were extremely committed to helping me further my knowledge. They balanced their incredibly busy school and personal lives to make room to share their experiences with me. I am very indebted to the students for their participation, but most importantly for sharing their voices with me and allowing me into their lives.

Personal Reflection

In the spirit and tradition of Interpretive Social Science, I conclude this study with a personal reflection. This study has given me the chance to push and grow in various ways as a community college leader, student services practitioner, and researcher. By conducting a study that focuses on capturing the experiences and voices of a group with whom I do not personally identify, I have learned how to be more deliberate and authentic when trying to honor perspectives and experiences that are not my own. This practice has carried past the boundaries of this study and has enhanced my ability to advocate for marginalized groups and give voice to issues of education inequity.

Community college demographics are constantly shifting. Student services leaders and practitioners often seek to better understand various student populations in an attempt to better connect with and serve students. My experience in conducting this study has led me to believe that older students are often overlooked as a collective group with unique needs, particularly in the realm of student services. Leaders and practitioners in student services should engage in more conversations about the older student experience. Similar conversations have taken place for other groups, such as students of color or first-generation students, that have ultimately led to programmatic or other changes that aim to better support these groups.

Finally, as more and more student services are being placed online, student services personnel and technical personnel must be in collaborative conversations. Conducting this study has led me to reflect on this, as I believe that both of these groups have the students' best interest at heart. However, technical experts may not be content experts, and vice versa. I encourage my colleagues on both sides to play off the expertise of others and honor the voices and experiences of our students. Technology for technology's sake is never good, especially if the student experience and student need are not driving the discussion.

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APPENDICES

Appendix A

The set of questions below will be formatted using an online survey tool and sent to student's MCC email accounts. Participation is voluntary. By answering the questions in the survey, students will be agreeing to be a participant in the study.

1. Please choose one
 - a. Male
 - b. Female
2. What is your date of birth?
3. What is your race/ethnicity?
 - a. Choices to match institutional admission categories
4. Have you attending a college other than [Metro Community College]?
 - a. Yes
 - b. No
 - c. If yes, what college and how long?
 - d. If you answered question #4 please indicate what you studied.
5. Please describe what your prior experience with computers is.
6. How long have you been a student at [Metro Community College]?
7. What is your educational goal?
8. Please check all the online student service you have used at [Metro Community College].
 - a. Admissions
 - b. Registration
 - c. Bill payment
 - d. Advising
 - e. Financial Aid
 - f. Tutoring
 - g. Email
 - h. Orientation
 - i. Testing

9. On a scale of 1 to 5 please rank the satisfaction of using each of the online student services you selected in question #8.
10. On a scale of 1 to 5 please rank how prepared you were to use each of the online services you selected in question #8.
11. Please check all the online services you plan on using this term at [Metro Community College].
 - a. Admissions
 - b. Registration
 - c. Bill payment
 - d. Advising
 - e. Financial Aid
 - f. Tutoring
 - g. Email
 - h. Orientation
 - i. Testing
12. If you are interested in participating in the interview and journal-keeping portion of this study, please provide your name and email in the space below. By providing this information you are agreeing to be contacted by Katy Ho.

Appendix B

Interview Questions

1. Describe your familiarity with computers.
2. Describe your prior computer use before coming to school.
3. Describe what things you have done on the computer since coming to school.
4. How would you describe the online services this school offers?
5. Which of the online services do you use at school? Have you used [fill in with corresponding options that the school offers]?
6. Describe what has been easy or hard about using online services and/or computers at school. Can you please give an example?
7. How do you think online services could be improved for older students at your school?

Appendix C

The researcher will provide the journal used for this study. The journal itself will be a blank notebook with lined paper. Directions for the journal will be stapled to the inside front pages of each notebook. The directions are as follows:

As part of your participation in this research study you are being asked to keep a journal of your experiences using web-based student services as a student at Portland Community College. Once a week, please take the time to write about your use of online or web-based student service, or how you are using the computer to access information about such student services at your school. Take into consideration how you felt using the service.

For each journal entry please address in detail the following questions:

1. Date of journal entry
2. Which online student services were you accessing?
3. Where you were using the computer (at home, school, a public library or other public computer space, or work)?
4. Why did you choose to use the online student service?
5. What were your experiences and thoughts regarding either using the service or finding information online?
6. How did those experiences make you feel?
7. Do you feel as if the experience met your needs?