Socioeconomics and the Digital Divide: Access, Literacy, and the Online-Classroom Space at the U.S. Postsecondary Institution

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by

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Abstract

This study examines the challenges faced by educators and students and how socioeconomics, the digital divide, and a lack of access can potentially lead to low digital-literacy rates. The digital divide describes those who have access to broadband (high-speed) Internet connections and those who do not. Since education has become reliant on technology, those who cannot access the academic-digital space are at a disadvantage. The primary focus of this thesis is to define digital literacy in online, hybrid, and face-to-face composition classrooms at the postsecondary level. A review of literature was supplemented by a brief survey to students attending Montclair State University in July 2011. The purpose of which was to determine their abilities to access the online-classroom space and to obtain information about what they do once inside online academia. The digital divide is a real space in the college-composition classroom, which unfairly impacts students who are socioeconomically disadvantaged. It is, therefore, paramount that instructors work to narrow the gap by developing their own new literacy skills; thus, enabling the digital literacies of their students.

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Socioeconomics and the Digital Divide: Access, Literacy, and the Online-Classroom Space at the U.S. Postsecondary Institution

The online-classroom space has enabled many students to have successful college experiences. It provides a different type of learning that for many is convenient and practical; however, many students are unable to access this space. I have been fortunate enough to study in online-learning environments throughout college and graduate school, and it is my passion for this type of learning, which inspired me to write this thesis. In the fall of 2006, I had just enrolled in classes at a local community college after working full time for several years, and was concerned about assimilating into the college culture. During my first semester, I discovered that my school offered an array of online classes and since I was working, I figured an online class would be a perfect way for me to earn some extra credits over winter break; nevertheless, I was concerned with taking an online class because I still used a dial-up connection to access the Internet. I knew something had to change in order for me to be successful in the online-classroom space.

I was still living at home and asked my parents if we could switch to a broadband (high-speed) Internet provider so I could take an online class and they agreed. I then conveyed my concerns with having an archaic computer that did not allow me to use the software I needed for the class. Sure enough, a brand-new laptop awaited me Christmas morning. Although I was familiar with ways to navigate the online-learning environment, I began to realize that I did not know everything I needed to know to be a digital citizen. I transferred to Montclair State University in 2008 and learned how to search for and validate scholarly sources. I also figured out how to write using technology via Montclair State’s Blackboard and Webmail services, as well as through blogs, wikis, and discussion boards.

Now I know I am a digital citizen because my level of digital literacy has enabled me to accomplish most tasks and goals using technology. This thesis emerged because I began to realize that not all students, even at the college level, are digitally proficient. I now realize that
the reason I was so successful in an online-learning environment was because I was able to afford a current computer and had access to broadband Internet. Although many U.S. students can relate to my story, many cannot. Many students face challenges everyday regarding socioeconomics and the digital divide. A lack of access can lead to low digital-literacy rates and prevent students from succeeding in academia.

In this thesis, I argue that when students in the U.S. lack access to broadband Internet connections in their homes, and are not able to purchase reliable computers, which are able to support current software, they are at a disadvantage. A lack of access has the potential to interfere with their academic success. It also creates a gap between the haves and the have nots and serves to perpetuate an inequitable academic environment that privileges those who are digitally literate and punishes those who are not. Instructors often assume that their students know how to write using technology, and when their assumptions are sometimes wrong, the students are usually the ones who suffer the consequences. Higher-learning institutions need to recognize that digital literacy is indeed a new pedagogy and should, therefore, implement professional development programs to increase professor proficiency; furthermore, instructors need to utilize the programs that are available to them.

It is also important that broadband access is provided to more Americans. In 2011, however, this is easier said than done. Due to national economic concerns, it may be impractical for politicians to increase spending and support broadband programs. President Barak Obama has started an initiative to provide broadband access to 98% of the country; however, due to financial concerns, this idea may be overly quixotic (see Bridging the Digital Divide by Promoting Digital Literacy). It is, thus, up to teachers to work with what they have available to them—they should educate themselves about technology and devise creative ways to provide their students with digital knowledge. Teaching writing through technology is a new form of teaching that like any other pedagogical methodology needs to be developed and supported by the academic community.
Access to the Internet, namely broadband, and regular access to a current computer is crucial to the success of the current college student. In the Digital Divide chapter of this thesis, I claim that students are most successful when they have broadband access and a current computer at home. The digital divide is a gap between those who are able to access high-speed Internet connections and those who are not. I argue that this gap is primarily fueled by socioeconomics. Students who are financially underprivileged may lack the funds required to access certain technologies, and consequently, might be less digitally literate than those who do have access. The students who are digitally literate have more experience with technology and, therefore, have more potential for educational and employment opportunities. Furthermore, students who are financially underprivileged may also lack the ability to take online and/or hybrid classes, thus putting them at even greater disadvantages.

To be a digital citizen, students need to have access to the Internet and a modern computer capable of running any currently supported operating systems, e.g. In 2011, one would be better suited using Windows 7 as opposed to Windows 98. Under normal circumstances, a newer operating system cannot run on an older computer because technology advances so quickly. Essentially, older computers are often too slow and lack sufficient memory, and are, thus, incapable of supporting new operating systems. If users are unable to run current operating systems, they are unable to use many current software programs—this creates compatibility problems when interacting with other users who do have current computers, e.g., if a student has an archaic operating system and his/her professor has a brand new one, his/her professor may not be able to open a document the student sent to him/her.

If students are not using current-computer equipment, they will not be able to function as efficiently in academia. Proper digital literacy and effective communication are integral parts of any classroom, but especially for composition classes where effective communication is essential. Many postsecondary institutions are anxious to increase revenues and promote technological advancements in the classroom; however, the implementation of technology requires people to
learn at accelerated rates. Technology is always growing and expanding, and part of being a
digital citizen requires the ability to quickly process new information.

It is important that digital citizens adapt with the fluid nature of the technology.
Technology has evolved dramatically since the rise of the Internet. The current Internet, known
as Web 2.0, provides a more interactive experience for users than past Web interfaces. It has
more features and is more complicated than past computer technologies. According to Graham
Cormode and Balachander Krishnamurthy (2008), Web 2.0 includes “websites which encourage
user–generated content in the form of text, video, and photo postings along with comments, tags,
and ratings” (p. 4). Web 2.0 includes user feedback and requires more complex interactions than
Web 1.0—an older-Internet model that could only perform basic functions such as email.
Although Web 2.0 technology is more complicated than Web 1.0, Web 2.0 is multimodal
allowing for greater ease of use. Furthermore, new Web 3.0 (also known as the “Semantic Web”)
technologies are beginning to emerge. Cade Metz (2007) has referred to Web 3.0 as “a place
where machines can read Web pages much as we humans read them” (n.p.). Internet
technologies move faster than people do and as a result, society needs to pay attention to changes
and constantly be willing to learn new information. In order to be a digital citizen, one must be
current with Web 2.0 technologies and be fully prepared to embrace Web 3.0 and beyond.

Since Web 1.0 does not require as much user feedback and interaction, it is simpler to
use. A computer with an older operating system can likely handle the complexities of Web 1.0
but probably not Web 2.0, (Cormode & Krishnamurthy, 2008) and certainly not Web 3.0. If one
were to use an older computer that did not support a current operating system, he or she would
not be exposed to the complexities required of digital literacy.

To be literate overall, one now needs to be digitally literate. Therefore, it is important
that students and teachers know how to operate inside the academic-online space. In my chapter
on Digital Literacy, I argue that writing is a skill separate from technological aptitude, thus
writing through technology requires writers to have a new skill set. This is especially crucial in
the online-classroom space where being technologically savvy is a must. Since technology is now an important attribute to the composition classroom at the U.S. postsecondary institution, digital literacy now requires digital fluency.

The concept of digital literacy is complex and multifaceted. David Buckingham (2006) has defined digital literacy by stating:

> Digital...literacy often appears to amount to a minimal set of skills that will enable the user to operate effectively with software tools, or in performing basic information retrieval tasks.... [users] also need to be able to evaluate and use information critically if they are to transform it into knowledge. This means asking questions about the sources of that information, the interests of its producers, and the ways in which it represents the world. (p. 267)

Essentially, Buckingham (2006) has claimed that digital literacy extends beyond one’s ability to just read and write within a digital space. In order to be digitally literate, one must be able to process information within social contexts. A digital citizen understands cyberspace and knows how to search for credible sources amongst the capricious materials available on the Web. People have the ability to publish virtually anything on the Internet and it is the responsibility of the digital citizen to navigate this space effectively.

It is vital that educators are aware of the challenges and benefits of teaching writing through technology in order to help promote high-digital literacy rates. In a subsection to my chapter on Digital Pedagogies and the Online-Composition Classroom, I discuss faculty preparedness and best practices of teaching writing through technology. Many higher-learning institutions are now providing programs to help with the professional development of faculty members; furthermore, instructors are developing new and clever ways to teach their students using digital media. Such techniques are proving useful in face-to-face as well as online classes.

In order to examine the reality of access and digital literacy at the U.S. postsecondary institution, I conducted a research study called Access and the Online Classroom at Montclair
State University in July 2011. The results of this study support several ideas, which I discuss throughout this thesis: Montclair State is located in a densely populated area where the Internet is plentiful and the economy is better than many other areas of the country (see appendices C and D). Therefore, it is not surprising that many Montclair State students have access and are familiar with the online-classroom space. Although not entirely conclusive, the results of my study and the review of the literature in this thesis present positive correlations between Montclair State students and high digital-literacy rates.

Although many schools, such as Montclair State, can likely claim high percentages of digitally literate students, it is important that all postsecondary institutions in the U.S. are constantly encouraging digital literacy and faculty development. In my chapter Bridging the Digital Divide by Promoting Digital Literacy, I claim that widespread digital literacy cannot be accomplished by some mammoth undertaking by the government but rather by individual institutions and faculty. Although government programs have been implemented to help close the digital divide, it is truly up to each individual teacher to proactively seek new ways to learn and teach through technology. Teaching through technology is complicated because it requires new ways of thinking and doing yet still must encompass time-honored, traditional pedagogies. The mediums of communication have changed because of technology, and like any other new theory educators must adapt and encourage digital fluency in their classroom using whatever mediums are available. There is currently no way to truly close the digital divide and solve the problems affiliated with low-digital literacy rates; but there will always be proactive, clever, and insightful teachers who can help students achieve success in digital academia.

**Digital Divide**

People are often unable to access the Internet and other technologies such as current computers and software programs due to their socioeconomic status (SES). This lack of access creates a gap, known as the digital divide. Many demographic factors contribute to a lack of access such as age, race, gender and education level; however, socioeconomics create the most
prominent gap in access between the haves and the have-nots. According to Colleen Swain (2004):

The digital divide describes the differences between the technology/information “haves” and “have-nots.” Yet the daily use of technology in society expands, so an individual’s fluency with technology and his ability to use technology as a functional tool in daily life will need to be considered. The many obstacles include educational experiences, workplace opportunities, access to information, and communication opportunities. (p. 210)

The digital divide serves to separate those who have control over their digital citizenship and those who do not. It also divides people based on their knowledge of technology. Put simply, one cannot understand how to use digital mediums if s/he cannot gain access to them.

Statistics have indicated that Americans from low-income groups are less likely to have Internet access at home. According to David Thomas (2003), in 2001, 47% of families in poverty had Internet access in the home, whereas 82% of families who were not in poverty had access. Thomas (2003) has claimed that although many higher-learning institutions have improved access to technology in the classroom, many students with poor SES still do not have access at home. This creates a great rift between social classes in the field of education. A lack of access to digital media has the potential to stunt students’ overall literacies.

The Internet has essentially become a catalyst for socioeconomic inequalities in the U.S. In their article “The Income Divide: Trends and Predictions for Levels of Internet Use,” Steven P. Martin and John P. Robinson (2007) have suggested that income above all other variables has had the greatest influence on access to the Internet. Martin and Robinson (2007) have concluded that in order for low-income groups to achieve full Internet penetration, access needs to be diffused more equally over time. It is predicted that Internet access will eventually improve amongst low-income groups thus allowing them affordable or free access; however, it is expected that Internet penetration to low-income groups will be a slow process (Martin & Robinson, 2007).
Until Internet access is more available to low-income groups, these groups will continue to suffer the economic consequences associated with a lack of access. According to a U.S. Department of Commerce report (2009), 95% of the population had some kind of Internet access in 2009 yet only 64% of the population had broadband access in their homes (Kruger & Gilroy, 2010). Further, Cecilia Kang (2011) had claimed, "5 to 10 percent of the nation does not have access to connections that are fast enough to download Web pages, photos and videos" (n.p.). If students lack high-speed connections, they would probably have difficulties navigating the complicated technologies required of online academia, e.g. audio/visual software, and synchronous-online classrooms. Many students lack access altogether and some students who do have high-speed Internet access will still not be able to function effectively in digital spaces due to the poor quality of their connections. The classroom, especially the online and hybrid classrooms rely, in part on the ability of users to operate interactive software.

The cost of Internet access and the physical ability to connect to the Internet, especially in rural America, are cited as two of the greatest barriers, which individuals face regarding access. In their 2011 report, the National Telecommunications and Information Administration (NTIA), a branch of the U.S. Department of Commerce, provided valuable statistics regarding the diffusion of broadband Internet, who is using it and who is unable to use it. The U.S. Department of Commerce (2011) has discussed that consistent correlations exists between income and broadband use. The Department reported that in October 2010, 89.6% of U.S. families with an annual household income of over $150,000 used broadband whereas only 32.1% of families who earn less than $15,000 are broadband users. Families with higher incomes are able to afford better connections, more current computers, and software, and are more likely to be educated and digitally literate. For that reason, it is more probable that they would adopt the Internet and be able to gain access to broadband.

Geography also greatly affects broadband access. Families living in urban areas typically have access to the Internet whereas families in rural areas often do not. Seventy percent of
households in urban areas use broadband and only 60.2% of rural households use it (U.S. Department of Commerce, 2011). The Department has reported that 9.4% of non-adopters who live in rural areas have claimed the reason for not adopting is a lack of availability to access yet only 1% of persons from urban areas have claimed the same reason. This lack of access to rural America has the potential to stigmatize people due to geography and may also possibly prevent them from advancing in education. According to the Department, 3% of Americans do not have broadband available to them at all because of where they live geographically. Utah has the highest rate of broadband users at 79.7% and Mississippi has the lowest at 51.7%. Nine U.S. states have less than 60% of broadband users (U.S. Department of Commerce, 2011).

In regards to non-adopters of broadband Internet, 14.1% percent of Americans do not use broadband because they do not own an adequate computer and 25.3% do not use it because they have claimed it is too expensive. Almost 46% of non-adopters do not use broadband because they claimed they do not need it and/or are not interested it using it (U.S. Department of Commerce, 2011). These figures have suggested correlations between income and access and also between access and interest in adopting the Internet. Many Americans have not yet realized the value of the Internet. According to the U.S. Department of Commerce (2011):

As the Internet economy grows, the nature and pace of its growth depend on the ability of the nation’s citizenry to adopt and make use of the Internet. Supply side factors, such as availability of broadband service, are critical. Equally important, however, is the ability of consumers to participate in online opportunities. The rapid diffusion of broadband Internet in the United States relative to other major technologies over time underscores how important this infrastructure is to Americans. (p. 2)

The Department has essentially claimed that when and if broadband is readily available to the majority of Americans, people need to adopt it and integrate it into their lives. Just like the telephone and other such advances in technology, citizens of the world would be better served by the widespread implementation of broadband Internet. It has the potential to improve education
and communication in the U.S. and around the world.

In order for broadband to be available to a greater population of Americans, more time and money needs to be invested in providing access. Such investments, however, come with more than just economic burdens. Martin and Robinson (2007) have discussed that one of the greatest debates regarding Internet usage and the digital divide are the inequalities between usage trends and distribution. The authors have claimed that the reason for the debate stems from the fact that statistical invariance exists because “most measures of computer and Internet are binary in form, and standard measures of inequality were not designed for binary variables” (Martin & Robinson, 2007, p. 2). In other words, most statistical data collected on access and the digital divide is not easily evaluated using past collection methods. Such inconsistencies have the potential to complicate funding and prevent the implementation of programs, which would potentially improve access to Americans.

Inconsistencies in data collection have skewed the statistical information collected on the changes in the digital divide and the broadband needs of Americans. Martin and Robinson (2004) have claimed that it is difficult to determine full-saturation rates amongst population groups since sampling sizes and methodologies have changed over time. They have discussed research studies from the Pew Research Center (2005) that have indicated that Internet-usage trends for certain populations, such as households with the highest income levels and individuals who did not complete high school, have seen little increase between their 2001 and 2004 reports. These findings have indicated that these populations are nearing their maximum Internet saturation rates, meaning that their digital needs are being satisfied. Essentially, if the Americans with the highest income levels are at full saturation then everyone in that group who desires to use broadband is able to and anyone who is going to adopt the Internet has already done so (Martin & Robinson, 2004). The authors have claimed, however, that due to variances, some of these conclusions are based on faulty data.
Researchers are hesitant to make conclusions about Internet saturation based on current statistics since so many potential variables exist in the sampling design. If data collection methods are erroneous, there is a possibility that even more people are being denied access. This is problematic because when researchers believe that a population is fully saturated, they are basically assuming that virtually everyone in that group who wants to or needs to use broadband is able to, e.g., in my view, if researchers believe a certain rural town is at full saturation, they might report to the government and to Internet providers that it is not necessary to increase connectivity to the town; nevertheless, there could be many people in that town who desire connectivity and can afford to pay for it, yet will still be denied access.

If research data is incorrect, this has indicated that not enough is being done to connect those who do not have access. Drastic statistical variables make it difficult to determine how, where, and when funding initiatives should be distributed, thus slowing the saturation of broadband-Internet usage nationwide. If the digital needs of certain groups are not being met, many students may be left at a disadvantage. Access is a key component to a successful college career and students need to have access in order to get online and navigate the digital-learning environment.

**Digital Literacy**

Access to broadband Internet complicates literacy. Digital literacy includes one’s ability to read, write, and communicate rhetorically using broadband Internet, Web 2.0 technologies, current operating systems, and complex-computer software. In academia, one also needs to be able to use academic search premiers, such as JSTOR, validate scholarly sources, and understand academic mediums such as Blackboard. Such databases existed in print long before the rise of the Internet—they were less accessible and, therefore, harder to use. However, even though the Internet enables users to find scholarly materials more effectively, it also allows users to find invalid sources just as successfully. Essentially, the digital divide is the new knowledge divide, and since technology is complicated, digital novices need to work harder in the classroom than
students who are technologically savvy.

A digital-skill set includes a vast knowledge about the uses of technology, and also proficiency with social media on several devices including personal computers and smartphones (cellular phones that can access the Internet). According to David Buckingham (2006), students use technology outside of the classroom in their everyday lives through mediums such as the Internet and smartphones. He has claimed:

The Internet...and other contemporary technologies provide new ways of mediating and representing the world, and of communicating. Outside school, children are engaging with these media, not as technologies but as cultural forms. If educators wish to use these media in schools, they cannot afford to neglect these experiences: on the contrary, they need to provide students with the means of understanding them. This is the function of what I am calling digital literacy. (Buckingham, 2006, p. 264)

Many students use the Internet; yet only use it for leisure. Another type of literacy is demanded for academic writing through technology. Digital literacy includes holistic skill sets for both personal and academic technological writing. Basic literacy includes more than one’s reading and writing skills—it now encompasses knowledge about the functions of digital media. A basic understanding of this new digital literacy is an essential tool for students to have in the classroom. According to Buckingham (2006), this level of understanding only sets a baseline for comprehension. It is, therefore, important that instructors teach students about the logistics associated with digital academia so they can expand their use of digital mediums into the classroom.

A lack of access to technologies, such as broadband, and the inability of students to properly utilize technology once inside a digital space have the potential to hinder the learning of college students in the U.S., thus perpetuating the cycle of digital illiteracy. For instance, college professors may expect their students to be able to navigate the Internet for a variety of purposes, such as searching for scholarly sources. If a student grew up with limited or no access to the
Internet, s/he could be at a disadvantage in the classroom where many of his/her peers may potentially be digital citizens. S/he would have to work harder just to keep up. The use of current Web 2.0 technologies in the classroom requires one to be technological savvy. Access complicates learning in traditional face-to-face classrooms and it causes further issues for online and hybrid (mixed in-person and online) classes. Inevitably, some will experience problems just getting to the classroom and many will still have issues with the technological operations required to successfully complete a class.

The implementation and uses of access and technology have created several issues in the classroom for both educators and educational institutions. Glynda Hull (2003) has discussed the importance of digital literacy today, and how it is a part of virtually every aspect of popular culture. Since technology is an accepted and useful aspect of everyday life, its popularity has thus expanded to the classroom. Hull has mentioned how "differences in our interconnected-world grow ever more salient" (p. 230), and it is, therefore, crucial that educators and educational institutions meet the demands associated with digital academia.

Due to limited use of broadband Internet, many students are prevented from studying in the digital-academic environment and, thus, have lower digital literacy rates. According to Joanna Goode (2010) "students who are not using technology are potentially at an academic disadvantage compared to students who do use these new technologies" (p. 584). Students who are not familiar with digital academia lack the technological fluency, which enables them to compete with their classmates. Essentially, just because a student has access via their university and has some basic knowledge of the Internet does not mean that s/he understands facets such as quality of sources, importance of integrity and how to understand and avoid biases. These facets of digital learning require a greater understanding of the academic uses of the Internet and other technological mediums.

College students need to be taught how to function in digital academia. Goode (2010) has discussed that college freshmen who have had little exposure to technology in the classroom
are at a disadvantage since their professors expect them to understand how to use digital mediums and how to apply them in the classroom. According to Goode (2010), “schools, under the guise of meritocracy, reproduce inequalities through the content and implementation of curricula” (p. 591). Essentially, academia better serves the students who are adept to technology, thus perpetuating the digital divide. Curriculums liken technological savvy to a status symbol thus reinforcing inequalities.

Digital literacy is directly connected to access and it cannot be fully achieved unless students are able to practice using technology at home and in the classroom. Arnetha F. Ball (2008) has argued that “far too many students who attend schools in poor and underresourced communities have not yet mastered the writing skills needed to excel in today’s technologically advanced society” (p. 294). She has evaluated how there is a growing need for people to be able to communicate in the workplace using technology, and students who cannot access technology on a regular basis are at great disadvantages. Undoubtedly, the SES of students has the potential to create access issues, which can contribute to a lack of forward progress for many students. Alan Jeffrey Kelton (2004) has claimed, “technological fluency is like learning another language” (p. 25). Just like the study of language, there are many patterns and variables that need to be learned in meaningful ways. Indeed students need to understand the digital language so as to be able to communicate rhetorically in academia.

Students need to understand how digital academia functions and how it requires different ways of operating than other online mediums such as using social networking or surfing the Web for personal purposes. Kelton (2004) began his Master’s Thesis by posing the question, “Is there a connection between technology and writing and the access (or lack thereof) to both that continues to hold back students who come from economically challenged environments” (p. 1)? Due to financial issues, students from low-income groups already have to face many obstacles in their daily lives. When they have to learn the codes associated with writing through technology on top of their daily economic and academic struggles, it creates difficulties for them. I use the
Learning the codes of digital academia is particularly troublesome for basic writers, namely those entering college for the first time who may also lack digital fluency. Kelton (2004) has claimed:

Students channeled into basic writing curriculum are at a disadvantage because not only do they need to learn the codes associated with learning to write in a manner considered acceptable by the academic establishment, they must also learn the codes to work with technology. (p. 2)

Essentially, when basic writers enter the classroom with limited technological skill-sets they will probably have trouble adapting. They have to learn to write in a new way and also have to develop technological skills at the same time. Since college composition classes require a new way of learning and writing, incoming-college freshmen are probably not prepared to write academically in a digital environment.

Although most college freshmen are learning new ways of thinking and writing, those who are already digitally literate are at a great advantage. Joanna Goode (2010) discussed how a lack of access perpetuates low digital literacy via two case studies she conducted on college students: Lara, who lacked access to the Internet at home and Scott who was technologically adept. Upon entering college, Lara had minimal experience with computers since she did not have Internet access at home due to financial reasons. Lara claimed her lack of access and inability to use technology made everything from registering for classes to completing homework assignments very difficult for her. She also had to spend two hours on a bus traveling to campus so she could use the Internet in her school’s computer lab. Scott, on the other hand, had regular
access to technology since childhood. Scott's aptitude enabled him to get a job on campus working with technology. He also used the Internet to create a small business for himself and excelled using academic digital spaces. Due to access, Scott is thus better prepared for academia, whereas Lara's lack of access forces her to struggle just to get by. Lara epitomizes how a lack of access has a negative impact on the lives of college students.

Instructors often expect students, like Lara, to be able to logon at anytime—they design assignments assuming that their students have access to the Internet and that they know how to use technology effectively in the classroom. This puts students like Lara at even greater disadvantages because even if she was able to access the Internet in her home, her lack of experience using technology would still make it difficult for her to acquire the level of digital proficiency that her classmates, such as Scott, already have. In their article, "The Myth about the Digital Divide," Brian L. Hawkins and Diana G. Oblinger (2006) have discussed that many Americans think “everyone” has access to a current computer and a reliable Internet connection and, therefore, the digital divide is becoming a non-issue. Students like Lara prove this is not the case. Hawkins and Oblinger (2006) have argued that the digital divide is indeed still a present and growing problem in the U.S., and great variances still exist amongst college students regarding usage trends and digital capabilities. When students lack access to the Internet or are unable to navigate the digital space, potential problems can arise in the classroom where their instructors often expect them to be technologically adept.

Many college students do have access, but it is important that educators and higher-learning institutions realize that access and current-computer equipment is not a reality for all students. Hawkins and Oblinger (2006) discussed that 91% of students enrolled in private postsecondary institutions own a computer of their own yet only 35% of students who attend community or junior colleges own their own equipment. Since private institutions are more expensive to attend than community colleges, these figures show correlations between income and access. The students from the private schools likely have more money and are, thus, able to
purchase their own computers. Students who attend community colleges potentially have lower incomes and also represent a population of non-traditional students such as full-time workers and persons with children. In order to create equality in the classroom, it is vital that institutions continue to study access trends and pay attention to the digital-literacy levels of their students.

If students are not able to access the Internet and are unfamiliar with technology they will inevitably fall behind their peers and could potentially be less successful in college and in the workplace. Prominent to Hawkins and Oblinger's (2004) argument is their question, "how limiting will inadequate online skills be to students" (p. 13)? The authors have claimed that students need technological savvy to effectively communicate and analyze information. The students who have access are better prepared to navigate the digital space and, thus, are more likely to develop a digital skill set.

The Internet is now a primary source of information for most Americans and hence, one needs to use the Internet to stay informed. Lloyd Morrisett (2001) has argued:

No technology, in itself, will ever eliminate the differences that arise among people who effectively utilize technology and those who do not... Internet content can be created that allows everyone the opportunity to learn to read, and as readers, take full advantage of the cornucopia of information resources that exist and are being created. The divide between those who can read well and those who cannot is a real divide. Rather than being a "digital divide," Internet can be a road to information freedom. (p. x)

Essentially, Morrisett (2001) has claimed that once the concept of access is removed from the equation, the Internet can and should be a place where literacies are expanded upon, not restricted. The classroom is a natural place for this expansion to occur.

**Digital Literacy and the Digital Divide 2.0: The Second-Level Digital Divide**

Some students do not have access at all, and also a population exists of individuals who do indeed have reliable access to broadband Internet connections and a current computer, yet cannot function within a digital space because they have not learned how to navigate the Internet
and other computer technologies effectively. This is especially true in academia where new codes are often being introduced to novice-college students. In her article “Second-Level Digital Divide: Differences in People’s Online Skills,” Eszter Hargittai (2002) has described one’s online-skill set as a “second-level digital divide,” which extends beyond access to a computer and the Internet, and includes “the ability to efficiently and effectively find information on the Web” (p. 2). The second-level digital divide or what Stephanie Vie (2008) has referred to as the digital divide 2.0, is essentially a way of describing the gap between those who are digitally literate and those who are not.

The digital divide 2.0 includes people who do not use the Internet at all as well as people who do use the Internet but lack digital savvy. Included in the digital divide 2.0 are those who are unable to access the Web due to socioeconomics and other such demographics, or are non-adopters, and also those who do have access yet are not familiar with ways to communicate effectively in professional and academic spaces online. These individuals are able to browse the Web and use social networking but lack the sophistication needed to succeed in an academic-digital space. According to Hargittai (2002), teachers need to guide students, and training and support programs need to be implemented to help students know what to do once inside an academic-online space. Just because a student can use technology for personal uses does not mean s/he can use it for all purposes, namely the current-classroom space. The digital divide 2.0 creates issues especially in academia where success relies in part on digital literacy.

The digital divide 2.0 has also been used to describe professors who lack digital fluency in the classroom. In her article "Digital Divide 2.0: 'Generation M' and Online Social Networking Sites in the Composition Classroom," Stephanie Vie (2008) discussed that a phenomenon has occurred in which students have more knowledge about technology than their instructors. Vie (2008) has argued that the digital divide is more than just a matter of access between the have and the have-nots, but is also an issue related to one's experience using digital mediums. She described “Generation M” students as those who use technology daily and are, therefore, familiar
with various digital mediums such as the Internet. She has argued, however, that just because these students know how to use digital media does not mean they know how to communicate academically through technology. Students often rely on their professors to teach them the best ways to write through technology, but professors are often unable to use digital mediums as effectively as their students and, thus, cannot teach them best practices.

Gaps in technological savvy often exist between students and instructors. In order to understand the gaps in the digital divide 2.0, in 2006 Vie (2008) conducted a nationwide survey consisting of undergraduate students and postsecondary-composition instructors. Results indicated that the majority of students used the Internet namely for social networking but not for academic purposes. Vie (2008) also conducted interviews, which revealed that some faculty members were still resistant to teaching through technology. If Vie's results are indicative of the average college-student/professor dynamic in present-day U.S. then paradox exists between students and their instructors—the students are comfortable using technology but their literacy skills are not up to par because they use the Internet primarily for social purposes. And instructors know how to communicate rhetorically but perhaps are not as familiar with the online space as their students. Instructors, even at the college level, should never assume that students know how to use technology in the classroom and, as a result, should teach best practices of technology use to their students. This is clearly a problem if professors do not know how to use technology themselves.

Problems can potentially arise when students are more familiar with technology than their professors. Students tend to be younger than their professors and those students who have access to the Internet often engage in various online activities such as social networking. As a result, they have some level of digital fluency but perhaps not enough to succeed in digital academia. Dânielle Nicole DeVoss, et al. (2004) of the group DigiRhet.org discussed the findings of a study they conducted on a college class at Michigan State University based on digital literacy. The researchers reported that students have access to so many forms of technology such as social-
networking cites, smartphones, video games, and a variety of computer hardware and software, that they have to code switch in order to be able to write academically.

The students in the study did not have difficulties with access to technology; rather they faced challenges in their abilities to communicate academically using technology. Although these students did know how to write in an online space, they could not function as effectively in an academic-digital space. DeVoss, et al. (2004) have claimed, "we see a divide where students may download complex, multimodal documents but lack the training to understand how to construct similar documents for academic assignments" (p. 234). If students are not digitally literate they face potential problems with their general literacy skills and abilities to succeed in academia.

Students who lack access to the Internet and other forms of technology also have to learn new writing codes. As DeVoss, et al. (2004) have mentioned, some students have access but lack training. Yet some students have neither access nor training thus creating a myriad of problems for them in college. Students, particularly those who lack access due to economic concerns may be unfamiliar with how to write within an online-academic space and, therefore, need to learn a new way to write altogether. Pen-and-paper writing requires a different skill set than writing through technology. These students have to struggle just to find access—if and when they obtain access they essentially have to learn how to write all over again because their pen-and-paper literacies will not suffice in the twenty-first century college classroom.

Experts have found correlations between one’s aptitude for technology and his or her literacy abilities. Mary R. Lea and Sylvia Jones (2010) discussed a research study they conducted on undergraduates at Open University in the U.K. Although their study does not represent the U.S. postsecondary institution, correlations are evident between their U.K. study and the other studies mentioned in this thesis. Lea and Jones (2010) claimed their project was necessary because the relationship between technology and literacy needs to be evaluated more extensively within academia. They have argued that most average students can use technological mediums,
such as social networking, but further research needed to be conducted to determine their ability switch codes and use these technologies for academic purposes.

The results of Lea and Jones' (2010) study indicated that engaging in digital media for academic purposes required a level of "rhetorical complexity" (Lea & Jones, 2010, p. 9). Researchers have concluded that technology is making people smarter, thus making digital literacy a crucial component to academia. They have claimed that students are more challenged when engaging in digital literacy than when participating in academic projects that do not involve technology. Digital mediums require students to learn in a multimodal environment—they must engage in literacy and critical thinking all while deciding the best way to express their ideas through potentially complicated digital mediums; furthermore, students who use technology in the classroom are under even greater pressures to remain current. As new technologies emerge, they must learn how to use them and thus learn how to present their academic work in new ways.

**Digital Pedagogies and the Online-Composition Classroom**

Teaching writing through technology is complicated, and thus requires careful attention from educators. Since digital pedagogies are being recognized and accepted throughout academia, teachers should follow suit. The Conference on College Composition and Communication (CCCC) (2004) has issued a statement in which technology in the classroom is recognized as a valuable form of education. CCCC (2004) recommended that when instructors teach writing online they should utilize the same principles of good practice involved with traditional pedagogical theories, accompanied with strategies to help students solve problems using digital mediums. CCCC (2004) has further recommended that administrators accommodate students who are unable to access the Internet and other such technologies, which are necessary to a holistic online-learning environment. The statement issued by the CCCC (2004) is an important model for educators to follow. Instructors should be encouraged to seek out new techniques in order to adapt to new forms of technology.
Emerging technologies for the classroom are complementing past and present programs and are benefitting students and instructors. Carolyn Mooney (2011) the Senior Editor of special sections for *The Chronicle of Higher Education* has discussed student views and faculty assumptions about technology. In her article, Mooney (2011) presented the results of a 2010 survey conducted by the Higher Education Research Institute at the University of California, Los Angeles on students and faculty members. She has claimed that although students seemed optimistic, 45-58% of faculty are stressed with keeping up with technology and only 19-23% of faculty agree that the rewards associated with their efforts are “very descriptive” of their institutions” (Mooney, 2011, p. 23). The reported attitudes of faculty members have indicated that although technology is being implemented in the classroom, not enough is being done to compensate faculty for professional development in technology.

Faculty are often more comfortable using traditional methods yet students are demanding technology in the classroom. In her article “Teaching with Technology: A Shared Learning Experience,” Yvonne Wichman (2011) has discussed how professors are sometimes overwhelmed by the shift from traditional to online classes and are, consequently, unprepared to teach writing through technology. This is problematic because institutions and students demand courses to be innovative. Although emerging technologies are an important part of forward progress, Ben Gose (2011) has warned that corporate America has pushed for overcomplicated technologies to be integrated into the classroom too fast and educators are not always prepared to use certain technologies. Gose (2011) has discussed that tools such as wikis and wireless clickers for classroom lectures may overcomplicate curricula in certain classroom spaces, thus damaging the content of lessons. Institutions mistakenly believe that mediums such as word processors are overly simplistic to use and are, therefore, too basic. Hence there is a push for more sophisticated forms of technology. This push is problematic because many instructors and students still struggle with using supposed “basic” technological mediums such as word processors.

A certain level of digital literacy is a core requirement of any composition class and
every instructor should be prepared to teach writing through technology. A conflict exists, however, when teachers are forced to integrate technology into the classroom before they are ready. Clearly instructors need to be knowledgeable about the subject matter they teach. Even if teachers are well prepared to teach a class, they now must deal with the added burden of learning how to use technology, how to integrate it into their lesson plans, and how to teach it to their students. Since students rely on educators to teach them the practical uses of technology in the classroom it is no longer acceptable for instructors to be digital novices. Wichman (2011) has discussed that often instructors are learning the best ways to communicate digitally at the same pace as their students. Many instructors are less adept with technology then their students and, thus, are unable to help them in the same capacity that they are able to with other subject-matter materials that may not require technology.

Instructors who learned how to write using entirely different methods now have to essentially reinvent their pedagogies to encompass technology. Wichman (2011) has discussed that student-teacher feedback is an important part of technological advancement in the classroom. She claimed “[her] pedagogy has survived and thrived in today’s technological revolution, but [she] could not have done it with the knowledges shared with [her] by [her] students” (p. 217). Although students rely on their teachers for knowledge and instruction, digital technology is still relatively new and, as a result, has a learning curve. It is, therefore, logical that teachers learn about technology from their students while their students learn it from them.

Since students tend to be younger than their professors, they are part of a generation that has grown up with technologies such as the Internet, thus students are often more skilled in using technology while their professors are more adept with pedagogical theories and practices. It is, therefore, logical that a reciprocal-learning experience will yield the best experiences for both students and instructors. Reciprocal learning creates a community of knowledge where information and techniques are shared, as opposed to the traditional top-down hierarchy where teachers are more rigid and prescriptive. Instructors should always embrace the ability to learn
from their students.

Nonetheless, it is critical that instructors strive to learn new digital techniques as quickly as possible so they can help their students who are not yet digital citizens. In her article “Measuring Up: The Uncertainty of Assessing New Media,” Linda Stewart (2011) has posed an important question for composition teachers: “If I don’t know the language, workings, platforms, or the production involved in creating new media, how can I assign them to my students” (p. 229)? This is a question that instructors should address before teaching a class, especially a composition class where communication and literacy are critical. Teachers not only have to learn how to use technology but they have to learn it well enough to be able to teach it to their students by designing lesson plans around writing through technology.

Many higher-learning institutions offer training programs for faculty and students, often sponsored by college Information Technology (IT) departments, which are designed to help educate the university community about technology. For example, the IT department at Montclair State has a group devoted to digital training known as the Technology Training and Integrations Group (TTI). According to the mission statement of the group, TTI is dedicated to:

Offering a wide variety of training opportunities, faculty development programs and initiatives…. Our focus is on adapting emerging and promising technologies to the teaching curriculum and demonstrates best pedagogical uses that will enhance the learning environment. (“Training and Events,” n.d.).

The programs offered by TTI provide faculty members and students with valuable resources for learning about technology in education. Montclair State’s TTI program has promoted teaching through technology and continues to offer professional-development workshops to students and faculty members. The TTI workshops have provided the Montclair-State community with opportunities to develop and flourish with technology.

The IT website at Montclair State has listed 144 developmental courses for 2011 with 27 workshops being offered in August 2011 alone. Course include: “PowerPoint: Creative,” “Excel,
The website also offers “Tech Tips” and resources for teaching with technology. Furthermore, since TTI supports digital pedagogies, an instructor could approach the group with questions and refer his/her students to the department for help. An instructor might even request collaborations such as class visits or in-class workshops.

TTI proves Montclair State is taking teaching through technology seriously and strives to encourage best classroom practices to faculty members and the university community. The key to this access is awareness and initiative on the part of faculty members. Although instructors may resist development workshops for several reasons, such as unfamiliarity and a lack of compensation for attending the workshops, instructors should be proactive by familiarizing themselves with the IT departments at their institutions and seek out the best ways to obtain the information required to teach effectively through technology.

Since the field of teaching writing through technology is still so new, the idea of fully integrating technology into the classroom is often a deterrent to faculty. Also off putting to instructors is the idea of assessment (Stewart, 2011). Professors once needed to assess students’ efforts, abilities, and progress. Now teachers are forced to evaluate students’ writing in addition to navigating the complexities associated with their digital literacies as well. In order to assess students’ digital writing, faculty members have to obtain a certain level of complexity within the digital space.

In order for instructors to be adept with writing through technology, they must engage in writing within digital spaces. By composing through technology, teachers will be able to discover the challenges and advantages to writing in this new way—they will be learning by doing, which will help them to understand the ways in which their students may compose using technology. By having this perspective, teachers will be able to better assess their students. Teachers are best prepared to evaluate student work after they have attempted to complete a class assignment themselves—this way they can anticipate any potential challenges. If an instructor
struggles with certain elements of an assignment, s/he can assume that his/her students could face difficulties as well.

Faculty should also share their experiences with digital composition with each other. Teachers with more experience in teaching writing through technology can assist their peers in determining the best practices for their classrooms. Crucial to peer collaboration is the implementation of professional development workshops designed to offer consistent techniques and practices to teachers. Stewart (2011) has argued that when teachers learn how to properly assess student writing they are creating an atmosphere conducive to learning and democratic philosophies, which are essential elements to a successful classroom.

**Faculty Preparedness and Best Practices for Teaching Writing Through Technology**

Both online and in-person classes should be treated with the same gravity; however, they often require different pedagogical techniques. Teaching writing through technology requires new skill sets for instructors. The same pedagogies that may be effective for in-person instruction may not suffice in online and hybrid learning environments. It is, thus, critical that instructors are aware of the differences between traditional and digital pedagogies and are able to adjust their teaching practices accordingly. Instructors should, furthermore, inform students that academic writing through technology is indeed different than personal or casual writing—it requires a different code. David Buckingham (2006) has claimed that when teachers encourage or “sponsor” students to use technology in the classroom, they are promoting digitally literacy. Deborah Brandt (1998) has defined sponsors as “any agents, local or distant, concrete or abstract, who enable, support, teach, model, as well as recruit, regulate, suppress, or withhold literacy” (p. 16). Teachers may sponsor students’ digital literacies by providing them with opportunities to write using technology in the classroom. By teaching students to write properly and effectively in academic digital spaces, instructors can help students develop academic writing skills, and also help negate any negative sponsors students may have encountered, e.g. improper or casual use of language in the media.
When students are sponsored to write using technology, they are more likely to be successful. Nora Bacon (1999) discovered that students' writing was dependent on both academic foundations as well as social constructs, and that students' attitudes towards writing could potentially shape their abilities. She has described how academia has influenced the thought processes of students when it comes to writing outside of the classroom. If students are taught academic writing using digital mediums, they are better prepared to write effectively using technology throughout their lives.

Best practices of teaching writing through technology should be included in all types of classes—both in-person and online; however, since online classes are still new, teachers should pay attention to the environmental differences and adjust accordingly. Laura Davis (2011) has discussed her experiences with online learning and makes recommendations for the teaching of online classes. Initially, she did not think the online-learning environment was effective, so she requested to teach an online class at her institution only to prove its ineffectiveness. Ironically, however, she ended up having a rewarding experience with her online class and concluded that since there is such a high demand for online classes, instructors should be encouraged to explore online pedagogies as a part of their best teaching practices. Davis (2011) has claimed her "previous attitude is common among many teachers," (p. 32) because people are naturally resistant to change. She has called online teaching an alternative to in-person classes that has both strengths and weaknesses, which should be evaluated.

Online learning provides new opportunities and challenges for both instructors and students. Davis (2011) mentioned that the online classroom gave her a place to share her writing with her students. Since she was in an online space, she had to communicate with her students through writing and, therefore, did more writing than she would have done in an in-person classroom. Since she was sharing her writing with her students, her students were more comfortable sharing their writings with her. This reciprocal-sharing environment is unique to an online classroom where speaking is little or none. She also tried to make the environment more
exciting by varying the fonts she used for the online class, using informal fonts to convey casual messages and business-like fonts to denote more serious tones. Although different than traditional classrooms, Davis' (2011) positive attitude and unique techniques have helped to make the online-classroom space more comfortable and conducive to learning. Teachers need to be creative all the time, but especially once they enter the new world of the online classroom.

In order for students to navigate the digital space effectively, it is vital that their professors take a hands-on approach to teaching them about technology uses in the classroom. In her article “New Dimensions: Equipping Students,” Ruth Goldfine (2011) has discussed both the benefits and challenges associated with teaching writing through technology and offers what she has found to be best practices. She has embraced the need for digital communications and has recognized that a composition-computer lab is a great place for students and teachers to interact because it allows instructors to provide students with instant feedback. Professors and students are able to use technology in face-to-face settings and professors are able to answer students' questions and show them how to use computer technologies.

Students need to be made aware of how to communicate in an academic digital space and should be taught how to navigate the Internet for scholarly and credible materials. Salient to Goldfine’s (2011) discussion is her recommendation that instructors “bridge the gap between personal and academic use of technology” (p. 77). Many students know how to surf the Web yet many do not know how to do it for academic purposes. Goldfine (2011) discussed that computer users have differences in digital abilities—some are able to use technology for personal entertainment but may not be competent in a professional or academic digital atmosphere. Students need to be taught how to code switch and maintain a level of digital literacy that encompasses both personal and academic usages. A computer lab is a great place for teachers and students to accomplish their goals.

In order to aid in the development of students’ digital skills, Goldfine (2011) has listed recommendations for instructors. She has noted that most students do not begin to develop a full
skill set for using information technology until college, so instructors need to be aware of this and attempt to determine the skill levels of their students. She has suggested that professors consider distributing surveys to their students so they can discover the variances in digital skill levels in the classroom. In an effort to acclimate students to digital academia, professors could also provide technology seminars in class (Goldfine, 2011). Naturally, only instructors who know how to use technology in the classroom could provide these lessons. It is, therefore, important that professors study the pedagogical theories and practices of technology use before they attempt to present them to their students.

Digital writing is still relatively new and, thus, requires the careful attention of teachers. As a compliment to her discussion about digital literacy, Goldfine (2011) has discussed the role of technology in the writing process. She has claimed that many educators mistakenly believe that computers will produce better writers. She has claimed that word processors disturb the planning, reading, organizing and revising stages of the writing process and also lessen students’ abilities to detect errors and learn proper grammar and spelling skills. She has, however, also cited the benefits associated with word processing. She suggested that instructors should encourage students to take advantage of the benefits associated with word processing such as the ability to move around sections of a paper by cutting and pasting. The technology allows students to organize quickly and effectively thus aiding in their drafting processes. It also allows for easy revisions. Technology use is indeed an important part of the college-composition classroom but as Goldfine (2011) has cautioned, it requires a unique approach to pedagogy in order to be successful.

An important part of integrating best practices into the composition classroom is the ability to make information relatable to students. Jenny Sadre-Oraifa (2011) has discussed strategies and best practices for teaching writing in digital spaces and has noted the importance of encouraging self-identity and discovery. She has claimed that students take feedback personally and their work adapts as their personalities form. This, according to Sadre-Oraifa (2011) is
particularly true for students in the first two years of college where they are still discovering their identities as adults. To help students express themselves and share their thoughts with their peers, she had her students join at least one blogring, which is a weblog community on Xanga, a social networking site. On Xanga, students were able to blog about texts for their class and exchange ideas in an online environment that was familiar to them. She reported that Xanga worked so well in her classroom that students asked to use it outside of the classroom as well.

Students were learning to integrate technology into every part of their lives, both personal and academic. Such practices have helped students to view writing as a part of their lives rather than merely an academic chore. Sadre-Orafai (2011) has suggested that blogs are an effective tool for nurturing the needs of students because blogs permit students to explore their academic identities. They also allow students to discuss academic materials with their peers in a forum that is familiar to many of them. Vie (2008) has discussed the importance of instructors “effectively integrating technological literacy instruction into the composition classroom in meaningful ways,” (p. 11) and how digital mediums such as blogs and wikis deserve attention from instructors. If students are comfortable using social networking in their everyday lives, they will probably be able to use it in the classroom as well. If executed properly, the use of blogs and wikis has the potential to engage students thus making their transition from personal to academic writing more familiar and fluid.

The integration of online classes is indeed an important attribute to any contemporary postsecondary institution. Meagan Kittle Autry (2011) a Ph.D. candidate in communication, rhetoric, and digital media at North Carolina State University designed an academic blog, which stemmed from her work teaching hybrid classes at the university. Autry (2011) has mentioned that the online element of the hybrid class has enabled instructors to better integrate technology into the classroom and use mediums such as e-textbooks. Autry (2011) has warned, however, “we must ensure that technology is not used in the classroom without careful consideration of its affordances and outcomes” (n.p.). Many measures should be taken in order for certain
technological mediums to be effective and reliable; furthermore, the hybrid-class model requires a specific tailoring of techniques and lesson plans, e.g., certain lessons may work well in a face-to-face environment but could be confusing and unsuccessful when presented online due to logistical concerns.

Online and hybrid classes require different pedagogical strategies than traditional face-to-face classes and it is, therefore, important that educators are specifically trained on techniques to help them navigate the hybrid-classroom environment. Autry (2011) has recommended faculty training workshops for elements such as “what percentage of learning would be face-to-face vs. online [and] what the classroom alternating schedule would be” (n.p.). Such faculty-development programs would allow hybrid classes to be integrated more effectively into the curriculum. In her blog, she has argued that hybrid classes provide opportunities for teachers to mix their instruction by utilizing the online space for certain activities and the in-person classroom for others. She warned, however, that hybrid classes must be thoughtfully designed and teachers should integrate effective pedagogical techniques.

Engagement should be an integral part of both the online and in-person classroom spaces. In order for a hybrid class to be successful, an instructor should make conscious decisions about what will be included in each classroom environment. For instance, one lesson may be better suited for online and another for in person classes. Autry (2011) has claimed that hybrid classes provide some of the conveniences of the online class model with the added benefit of in-person contact with the instructor. She has, however, warned that online lessons need to be treated with the same gravity as in-person classes. The online space in a hybrid class should not be viewed as an enhancement to a traditional classroom but rather an integral part of the classroom experience.

**Resistance to Technology in the Classroom**

Although there is a great demand for online learning, faculty members are often resistant to technology in the classroom or simply do not know how to use it. It is, thus, important that teachers are encouraged to be digitally literate, so they can teach students about the academic uses
of technology. W.B. Carnochan (2008) has argued that resistance to digital scholarship is based on illogical notions and that "you can evaluate an electronic publication in the same way you evaluate anything else, except that (being old school) you may want to read it in printed form" (as cited in Purdy & Walker, 2010, p. 178). In order for colleges to remain current with technology, it is important that faculty value online scholarship in the same way that they value printed materials. James P. Purdy and Joyce R. Walker (2010) explained that the Conference on College Composition and Communication (CCCC) and the Modern Language Association (MLA), two well-renowned organizations that advise literacy in education, have supported the legitimacy of digital scholarship and it is, therefore, important that faculty use these materials in order to remain current. Technology in the classroom is innovative and the institutions and individual faculty members who choose not to pay attention will eventually be left behind.

Resistance to technology by English faculty members is, in most cases, avoidable. According to Cynthia L. Selfe (1999), the reason that educators in the humanities tend to disregard technology in favor of more traditional approaches is because computer technology "can suggest a cultural strangeness that is off-putting" (p. 413). At the end of the twentieth century, she had called for professors of the humanities to truly think about how to properly utilize technology in the composition classroom. She claimed that when composition teachers choose not to pay attention to technology they "share in the responsibility for sustaining and reproducing an unfair system" (p. 415). Students need technology in the classroom because they will use it in the workplace and as a part of their everyday lives outside of school.

When composition teachers resist technology in the classroom, they are potentially stunting forward progress for both the study of English and the pedagogical theories surrounding composition and literacy. Chris M. Anson (1999) discussed the possibilities of teaching writing through technology as an innovation that would change the academic world so long as educators learned to embrace it. He noted the importance of allowing technology to advance and argued, "as teachers of writing and communication, we have an obvious investment in considering the
implications of technology for working, teaching, and learning even as that technology is emerging” (Anson, 1999, p. 276). Allowing technology to flourish in the classroom is important because it encourages literacy and communication skills that are critical for student writers. Anson’s theories on teaching writing through technology were still speculative in 1999; however, in 2011, many advances have been made regarding technology use in the classroom, which should be recognized.

Faculty members are resistant to technology for several reasons. As aforementioned, some are simply “old school” and would prefer not to adapt; however, some are resistant to technology in the classroom because of obstacles they face as teachers. Peter Shea (2007) has discussed the results of a survey conducted on online-faculty members from thirty-six colleges across the U.S. The study described both the obstacles to and advantages of online learning, such as faculty motivation and inhibitions. Educators claimed that the advantages of technology use in the classroom included greater interactions amongst students and faculty, convenience, and greater access to diverse student populations (Shea, 2007). The barriers reported include: faculty compensation issues, technical difficulties, such as WiFi failures, as well as training and plagiarism concerns (Shea, 2007). Faculty members described flexibility as the number one motivator and inadequate compensation as the top de-motivator (Shea, 2007). No matter how widespread technology is today, resistance is a real problem, which needs to be addressed by institutions and individual faculty members.

Instructors often complain that learning to use technology in the classroom is a huge undertaking, which they are not motivated to learn. When first learning to integrate technology into the classroom, instructors must spend a large amount of time, often personal-time, navigating through the various digital tools available. This time is being spent in addition to all of their normal class preparations and evaluations. As a result, it is logical that teachers would expect salary increases and are thus less motivated to explore the advantages of teaching through technology when they do not receive pay raises. Technology can complicate pedagogy; however,
it can also promote innovation in education.

**Online/Hybrid Classes and the Non-Traditional Student**

An integral part of innovation in higher education is the integration of online learning. Online education represents a large part of academia and its benefits can no longer be ignored. Wuensch, Aziz, Ozan, Kishore, and Tabrizi (2008) have noted that the online-classroom space has the ability to maximize the educational experience for students by providing innovation and convenience. According to Wuensch, et al. (2008), since there are core differences between the online and face-to-face classroom models, it is important that researchers evaluate these differences. Wuensch, et al. (2008) thus conducted a study on students at 46 randomly chosen U.S. universities in 2006 with the intention of determining students’ attitudes regarding both online and face-to-face classes. Survey results indicated that participants rated online classes as more convenient and that they better allowed students to work at their own paces. Students did, however, denote that face-to-face classes offered a meaningful and comprehensive learning experience since interactions and communications were done in person as opposed to online. It appears as though students deem both online and in-person classes as important. Perhaps this means that the hybrid model is a fair compromise; or perhaps the online classroom and face-to-face classes should always coexist harmoniously so as to provide students with the most choices.

In the U.S., students are demanding online learning and most institutions have paid attention to these demands. According to The National Center for Education Statistics, a branch of the U.S. Department of Education’s Institute of Educational Sciences (IES) (2008), in the 2006/2007 school year, 97% of public two-year institutions, 89% of public four-year institutions and 66% of all U.S. institutions offered some form of online classes. IES (2008) also reported that 11,200 postsecondary institutions offered complete degree and certificate programs entirely online. These figures have indicated that there is a supply and demand for online classes at the U.S. postsecondary institution; furthermore, the majority of institutions offering online classes are public two-year institutions, namely community colleges. Community colleges usually represent
many non-traditional students such as adults working full-time jobs while attending school. This population would be best served by the conveniences of an online education, such as little or no travel to campus and flexible class times; however, these students need to have reliable access in order to make online learning a reality.

Due to several factors, such as economic changes, many non-traditional students are now attending college, and online learning provides them with opportunities that were not available to students of the past. According to Peter Shea (2007), the majority of students today have at least one characteristic, which labels them a “non-traditional” student and they are, therefore, desirable candidates for online learning. Characteristics of non-traditional students include factors such as age, and job status (Shea, 2007). Students from poor SES backgrounds often have to work full-time jobs while pursuing an education. This makes online classes and accessibility to digital scholarship especially important to them.

Although there is a clear demand for online learning, developing digital classrooms is complicated because they are still so new. Consequently, they need to be evaluated thoroughly and updated accordingly. In order to study the online-learning environment, Kyong-Jee Kim and Curtis J. Bonk (2006) conducted a study on administrators and faculty in postsecondary institutions primarily in the U.S. They reported that in the fall of 2004 “over 2.35 millions students were enrolled in online classes” (p. 23). This shows a strong demand for online classes at the postsecondary level—these figures have probably increased since 2004 showing an even greater demand for online learning. Kim and Bonk (2006) have further argued, “online learning environments are facing a ‘perfect e-storm,’ linking pedagogy, technology, and learner needs” (p. 22). Essentially, online learning is still at a stage where demand is great yet many challenges need to be resolved before online classes can be fully integrated into mainstream academia and available to a greater population of students.
Access and the Online Classroom: A Research Study at Montclair State, July 2011

The online-classroom space, digital literacy, and the digital divide are complicated components of education. Although the scholarship I have evaluated in this thesis is indeed comprehensive and helpful to my research, I wanted to study the reality of access at Montclair State University where I completed my graduate education. As a result, in July 2011, I distributed a brief survey via email to Montclair State juniors, seniors and graduate students enrolled and/or registered for the summer and fall 2011 to gather statistics about access and the online classroom (see appendix A). I sought to discover attitudes about online learning by asking participants if they had taken online and/or hybrid classes before and whether or not they would take one in the future. I also asked questions about their abilities to navigate digital mediums for academic purposes. A sample population of 495 students participated in the study. I chose to survey juniors, seniors and graduate students because this population should have had the opportunity to take an online class. They have completed a few years of college and, therefore, should have an opinion regarding online learning at the postsecondary level. I chose not to include freshmen and sophomores in my study because they have just started college and thus, may not have had the chance to take an online class.

According to the results of my survey, 73% of participants have taken at least one online and/or hybrid class at Montclair State and/or another postsecondary institution. Thirty-three percent agree and 35% strongly agree that they would definitely take an online and/or hybrid class. These figures indicated a demand for online classes at Montclair State. There are several factors, which may have possibly contributed to this demand. Thirty-seven percent of participants work full time all year and 46% work part time all year. Only 7% worked exclusively during school breaks in-between semesters and only 9% did not work at all. Furthermore, 77% percent of participants were commuter students. Since the majority of participants were employed at a job all year and needed to commute to campus, they would
probably benefit from online classes, which offer more flexibility and less travel than traditional classrooms held in person.

Results have further indicated that the majority of participants do indeed have access to high-speed Internet connections and a current computer. Ninety-six percent of participants have high-speed Internet access at home and 70% have an Internet-ready mobile device. Ninety-four percent of participants have regular access to high-speed connections outside of their home. These figures are not surprising since 97% of participants live in the U.S. Northeast and 77% identify themselves as commuter students. I can thus conclude that most participants live close to the Montclair-State campus. Montclair is located in Northern N.J. where, due to a large population there is a high saturation of broadband coverage (see appendix C). Furthermore, there is more economic development in N.J. than in many other U.S. states (see appendix D). This increases the likelihood that students are able to afford monthly service charges and the costs associated with computer ownership.

Further, 25% of participants disagree and 66% strongly disagree that they are unable to take online classes because of access to high-speed Internet connections. Twenty-six percent of participants disagree and 68% strongly disagree that they are unable to take online classes because they lack access to a reliable computer. Therefore, I can make correlations between Montclair State students and access. Most of my participants have access to broadband and a current computer and most of my participants have agreed that they are able to access the online-classroom space.

Results have also indicated that the majority of participants are comfortable navigating digital spaces for academic purposes. Twenty-seven percent of participants agree and 68% strongly agree that they are comfortable using the Internet and basic software tools. Thirty-eight percent of participants agree and 49% strongly agree that they are comfortable using social networking purposes for academic purposes; and finally, 37% agree and 48% strongly agree that they are comfortable conducting research using online databases, such as the ones available for
scholarly-journal articles. Since the vast majority of participants have taken at least one online and/or hybrid class, I can deem these results accurate. Since most participants have already taken online classes, they have probably already participated in some form of academic interaction online. Furthermore, since participants included juniors, seniors and graduate students, it is likely that they have had the opportunity to write a research paper of some kind and have thus, needed to use academic search premiers such as JSTOR and EBSCO. Although not entirely conclusive, based on their responses, the majority of participants can be considered digital citizens, which means they are likely able to handle the demands of the online learning environment.

My survey has allowed me to take a close look at digital literacy and the digital divide at Montclair State. Although I was able to make some meaningful correlations between the findings of my research study and my review of the literature, I do have to consider potential variables, which may have skewed my research. To start, I have suggested that most of my participants can be considered digital citizens; however, I am basing this on their responses. Most students indicated that they were comfortable using the Internet, they are able to perform searches using academic search engines and they are confident in their abilities to use social networking for academic purposes. I am, thus, comfortable labeling the majority of my participants as digital citizens; however, there is a possibility that some students only think they are digitally literate when in fact they may not be, e.g., a student may have used social networking cites for personal reasons yet have never used them for academic purposes. This student may figure his/her use of Facebook or a similar website has prepared him/her to use social networking for academic purposes. S/he may not have realized that an academic blog or discussion board requires professional language and thoughtful, academic responses, whereas Facebook interactions are often much more casual.

I also have to consider other variables in data collection; for instance, the Office of Institutional Research at Montclair State distributed my survey on my behalf to all juniors, seniors, and graduate students enrolled and/or registered for the Summer and Fall 2011 semesters.
Results have indicated, however, that one freshman, six sophomores, two alumni, and seven other participants returned the survey. There are many reasons why this may have happened. Since the study was distributed in the summer, some students who were about to begin their junior year may have identified themselves as sophomores. Also, participants may have identified themselves as alumni or “other” because they plan to graduate by the end of the summer. Also, some students may be enrolled in non-degree programs and were not sure how to identify their class rank. Some students may have somehow taken the survey by mistake but I do not think there is any indication that my results are inaccurate. Overall, 98% of participants identified themselves as being either a junior, senior or graduate student, so I can be confident that my results were not affected by irrelevant responses.

Since the survey was distributed via email, I have to consider the fact that many of the students who took the survey did it because they indeed had access to the Internet and a current computer at home. Since my survey was distributed in July, which is in between the regular Spring and Fall semesters, I can assume that there are less students on campus using the computer labs and that there are also less students living in dorms. So the students who took the survey probably took it at home as opposed to on campus. Since it was an online survey, clearly everyone who took it had access to a computer with some form of Internet capabilities. It is, therefore, likely that my results represent a population of people whom already have access and probably have been able to spend time inside academic-digital spaces.

Although my survey results represent most juniors, seniors, and graduate students at Montclair State, results might not represent the entire Montclair State community or all postsecondary institutions across the country. My research at Montclair State does not represent the statistics of other colleges and universities throughout NJ or the U.S. Furthermore, Montclair State is a suburban campus so other colleges in urban and rural areas of the U.S. may have a different population of students. Furthermore, since Montclair State is a state university, it may also serve a different population than community and/or private colleges. The correlations I
make to digital literacy via online learning at Montclair State will, furthermore, not represent all students who take online classes in the U.S.

In addition to considering the ethics of my survey, I must also address other ethical concerns throughout this thesis. To narrow my scope, I have chosen to focus on access and socioeconomics with a discussion about geographical factors; however, there are many other demographics, which lead to a lack of access such as: age, race, gender and education level. Although I do not discuss these demographics, they do factor into the digital divide as well. I argue that socioeconomics is the most prominent concern regarding access; however, it is not the only factor that contributes to the digital divide.

**Bridging the Digital Divide by Promoting Digital Literacy**

In order to help bridge the digital divide, as well as the second-level digital divide in the U.S., changes need to be made at various levels. Instructors need to be willing to attend faculty-development courses, institutions need to provide professional development workshops, and programs need to be funded. Additionally, students require access to broadband Internet and current computers in their homes. According to a press release from the Office of the Press Secretary (2011), President Obama is launching an initiative intended to increase high-speed wireless Internet coverage to at least 98% of Americans. Included in President Obama’s plan is doubling the “wireless spectrum available for broadband” (The White House, Office of the Press Secretary, 2011, n.p.), which will make broadband available to a higher percentage of Americans, including the financially underprivileged and those living in rural areas. President Obama hopes the initiative will cut the deficit, increase public safety, and promote innovation.

Critics of the initiative have questioned whether or not President Obama’s plan will be successful. Amy Schatz (2011) has mentioned that many critics have argued that America cannot afford the initiative. Schatz (2011) discussed Fred Upton, the chairman of the House Energy and Commerce Committee, who has argued that not enough research has been conducted concerning the government money already spent on expanding access. Essentially, no one is sure if what the
government has already done is working. It is, therefore, unclear whether or not Obama's broadband initiative will be successful. Cecilia Kang (2011) has argued that saturating the country with such large amounts of high-speed connections will come at high costs. Such high costs, according to Martin and Robinson (2007) will slow broadband penetration thus maintaining the digital divide.

Mobile -Digital Literacy

Although not a complete solution to the digital divide, many initiatives have been developed regarding Internet-ready mobile devices such as digital textbooks, smartphones, and tablet devices such as iPads. The Federal Communications Commission (FCC) (2011) is trying to expand access to students outside of the classroom by providing them with mobile devices that can access the Internet. The mission of this program is to bring digital equality to students who could not otherwise afford these devices. If students were able to access the Internet via mobile devices, students without home computers would have the ability to get online. The program would also provide high-speed Internet via fiber networks to schools, and “schools will have the option to provide Internet access to the local community after students go home” (FCC, 2011, n.p.). If successful, this program will enable more students to have access but will not be enough to close the digital divide. This extended access will only serve community residents who live in close proximity to a school that offers this fiber-network program. Other community residents would have to continue to fend for themselves.

Mobile devices that can access the Internet may be a partial solution to the digital divide; however, mobile devices do not have the same functions as personal computers. Katie Brown, Scott W. Campbell, and Rich Ling (2011) have discussed that paradox exists because teenagers from low-income households pay more to use the Internet on mobile devices than teenagers with higher incomes. Since low-income teenagers are less likely to have computers with Internet access at home, they often use their phones to replace or supplement their access to the Internet.

It is cheaper for people to buy mobile devices than it is to buy personal computers
although data plans for phones can be very expensive costing more than traditional broadband connections for homes. According to Brown, et al. (2011), "teens from lower income families and minority teens were significantly more likely to use their phones to go online" (p. 144). The authors have suggested that mobile access to the Internet is enabling people from lower-income groups to get online, and consistent access would not otherwise be a reality for this population.

Amongst teenagers who use phones that can access the Internet, 41% have annual household incomes of less than $30,000 (Brown, et al., 2011). This statistic has indicated a correlation between socioeconomics and the use of mobile devices. Students may be using smartphones to access the Internet because they cannot afford to purchase computer equipment. According to Brown, et al. (2011), only 70% of low-income families have a computer at home whereas 92% of families who earn more than $30,000 annually own one.

Teens who have a current computer and broadband access at home would likely prefer to use a computer with a full screen as opposed to a small phone. Brown et al. (2011) discussed a study done by the Pew Research Center and the University of Michigan, in which researchers sent surveys and conducted focus groups on teenage mobile-users. Results indicated, "teens that accessed the Internet via mobile phones in 2009 were in the minority" (p. 149). In the focus group, one teen claimed the reason she seldom used her mobile phone to access the Internet was because she owned a personal computer and preferred using it to a phone. According to the Brown et al. (2011), most teens would prefer to use their personal computers yet many students from low-income families have to use mobile devices instead of personal computers due to economic concerns.

Internet-ready mobile devices do indeed have the potential to increase access to persons from low-income groups. Brown et al. (2011) have argued, "mobile Internet is better than no Internet, but cannot match the interface of traditional computers" (p. 145). Essentially, they agree that mobile devices may help to supplement one's Internet use; however, mobile Internet is hardly a full replacement for computers. Since some students have used their phones to replace,
at least in part, their use of regular computers means that they are probably not spending enough
time doing scholarly research, writing complex documents and using the types of software that
only personal computers offer.

Students who use phones as their primary means of accessing the Internet are probably
typing text messages, short email responses and are only using limited Internet features because
of the small screen sizes and limited software options offered on phones. Tablet devices such as
the iPad, however, may help to alleviate some of these concerns. Brown, et al. (2011) have
discussed how tablet devices such as the iPad are creating more options for access. Tablets offer
many of the same features as a regular computer more affordable prices. They are also much
larger in size than a phone thus providing a potential middle ground for access.

Nonetheless, tablet devices are not yet ready to be a complete and reliable alternative to
traditional computers. Josh Keller (2011) has discussed an emerging program, which was
launched by Stanford University. The program provided iPads to medical students with the hopes
of replacing print materials. The initiative was not entirely successful, which came as a surprise
to educators since Stanford is considered to be a well-funded and tech-savvy campus. Keller
(2011) discussed how the “educational potential of mobile devices is a slow, uneven process” (p.
4) and many obstacles need to be addressed in order to make progress.

Tablet devices such as iPads do offer many conveniences for students; however, they are
still very new and thus require more time to develop. Keller (2011) discussed the opinions of
medical-school officials who have claimed that iPads are particularly useful for medical students
since they are easy to travel with, and medical students often negotiate travel between hospitals
and their school’s campus; however, issues still remain for iPad uses in the classroom such as
Internet connectivity. The university is not yet able to handle the traffic of every student needing
WiFi in one classroom at the same time. Keller (2011) is optimistic for the iPad initiative at
Stanford, but cautions that most universities and colleges do not have the funding that Stanford
has. Mobile devices do provide an alternative to access; however, in 2011, they are not
developed enough to provide overarching access and close the digital divide.

**Recommendations for Future Research**

As an expansion to this thesis, it would be useful to distribute additional surveys and conduct case studies on students, faculty, administrators and information-technology personnel across the U.S. In my survey Access and the Online Classroom, I was able to take a snapshot of the reality of access at Montclair State; however, I was not able to gage students' levels of digital literacy. I touched on it briefly by asking questions about students' abilities to navigate within the academic digital space; however, there is no way I could determine students' digital literacies based on a short survey. In order to truly quantify digital literacy and correlate my findings to the digital divide, I would have to conduct case studies on students over an extended period of time, studying factors such as their ability to access broadband, time spent online and the types of activities they were engaged in within digital spaces. I would have to study them as students and as writers holistically. In order to broaden my research, I would include other higher-learning institutions across the U.S., qualifying them with categories such as geography and household income-levels.

Another area that could benefit from further research is a study on IT departments at postsecondary institutions. As aforementioned, the IT department at Montclair State offers several training workshops for students and faculty; however, I was unable to determine the turnout and success rates of these programs. I cannot be sure how these workshops are promoted to faculty members. Also, I cannot establish what other kinds of collaboration are possible; for instance, could a professor reach out to IT and ask for an in-class workshop? Can a professor send a student to IT for one-on-one training for a specific purpose? Does IT have the funding to be able to offer these extras? If professors were able to bridge the gap between technology and the classroom, it would make it easier for their students to integrate technology into the classroom. At least at Montclair State, the resources are there—it is just a matter of utilizing
them. In order to establish a baseline of IT integration at the U.S. postsecondary institution, I would expand my research so as to include several other institutions.

**Conclusion**

An initiative such as Montclair State's TTI program is a great way for institutions to teach faculty and students about technology uses in the classroom. Programs such as TTI must be embraced and supported in order to develop and expand. I strongly recommend that instructors attend professional development workshops for technology and encourage their colleagues and students to attend as well.

Attending the workshops, however, is not enough. Professional development courses will probably provide instructors with insightful information; however, it is up to each individual teacher to implement best practices into the classroom. Educators could distribute surveys to their students to determine if they have access to broadband and also to learn about the types of computers and mobile devices they use. Additionally, instructors can facilitate conversations with their students about the various uses of digital media. Teachers should work creatively with what they have available to them. Digital tools such as wikis and blogs are great ways for teachers to engage students in both in-person and online classes. Additionally, instructors should always make sure their students know the basics of technology such as word processors.

There have been many solutions to the problems associated with access, digital literacy, and digital pedagogies. Academics are becoming increasingly aware of the problems and how to fix them. Students are demanding online classes and educators are becoming more open minded about the benefits associated with teaching writing through technology. As my research suggests, teachers are calling for professional development and are sharing their own best practices; furthermore, institutions, such as Montclair State, are offering IT programs which focus on the pedagogical approaches to technology.

I recommend that college instructors strongly advocate technology and demand professional development in an effort to help bridge the digital divide and improve the digital
literacies of students. If postsecondary institutions are not paying attention to the phenomenon of
digital pedagogies, faculty members should express their desire for faculty and student
development programs. Naturally, no matter how prepared educators are to teach through
technology, students who lack access to broadband and a current computer will always be at a
disadvantage. It is important that faculty members pay attention to the ever-changing digital
pedagogies and that institutions provide professional development and training to the university
community; however, more needs to be done to truly bridge the digital divide. Perhaps the digital
divide simply represents another consequence of poverty and inequality in America, which will
take time, funding and the determination of caring and knowledgeable teachers in order to be
resolved.
References


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analysis can lead to successful online teaching and why teachers of English studies should care about online learning. In L. Stewart & L.R. Davis (Eds.), *Teachers as avatars: English studies in the digital age* (pp. 31-46). New York: Hampton Press, Inc.


shows_an_unconnected_nation.php


Appendix A

Survey Results: Access and the Online Classroom, Montclair State University, July 2011
1) I have taken at least one online and/or hybrid class at Montclair State University (MSU) and/or another postsecondary institution other than MSU.
   a. Yes 362 (73%)
   b. No 132 (27%)
   no answer 1 (0%)

2) I would definitely take an online and/or hybrid class at MSU and/or another postsecondary institution other than MSU.
   a. Strongly Agree 175 (35%)
   b. Agree 162 (33%)
   c. Neither Agree Nor Disagree 79 (16%)
   d. Disagree 49 (10%)
   e. Strongly Disagree 28 (6%)
   no answer 2 (0%)

3) I am comfortable using the Internet and basic software tools such as word processors, electronic spreadsheets, and basic audio/visual software such as PowerPoint.
   a. Strongly Agree 338 (68%)
   b. Agree 135 (27%)
   c. Neither Agree Nor Disagree 13 (3%)
   d. Disagree 7 (1%)
   e. Strongly Disagree 2 (0%)
   no answer 0 (0%)

4) I am comfortable using social networking technologies such as blogs and discussion boards for academic purposes.
   a. Strongly Agree 242 (49%)
   b. Agree 187 (38%)
   c. Neither Agree Nor Disagree 35 (7%)
   d. Disagree 19 (4%)
   e. Strongly Disagree 10 (2%)
   no answer 2 (0%)

5) I am comfortable conducting research using online databases such as the ones provided on the Sprague Library website, e.g., EBSCO, ERIC, and JSTOR.
6) I have access to high-speed Internet connections (not dial-up) and a reliable computer at my permanent residence.

<table>
<thead>
<tr>
<th>Option</th>
<th>Count (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>475 (96%)</td>
</tr>
<tr>
<td>No</td>
<td>13 (3%)</td>
</tr>
<tr>
<td>Not Sure</td>
<td>5 (1%)</td>
</tr>
<tr>
<td>No answer</td>
<td>2 (0%)</td>
</tr>
</tbody>
</table>

7) I own a mobile device that can access the Internet, e.g., iPad or smartphone.

<table>
<thead>
<tr>
<th>Option</th>
<th>Count (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>345 (70%)</td>
</tr>
<tr>
<td>No</td>
<td>148 (30%)</td>
</tr>
<tr>
<td>Not sure</td>
<td>1 (0%)</td>
</tr>
<tr>
<td>No answer</td>
<td>1 (0%)</td>
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</tbody>
</table>

8) I have regular access to high-speed Internet connections (not dial-up) and computers owned by public institutions or facilities, e.g., college-computer labs, libraries, or my workplace.

<table>
<thead>
<tr>
<th>Option</th>
<th>Count (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>464 (94%)</td>
</tr>
<tr>
<td>No</td>
<td>21 (4%)</td>
</tr>
<tr>
<td>Not Sure</td>
<td>7 (1%)</td>
</tr>
<tr>
<td>No answer</td>
<td>3 (1%)</td>
</tr>
</tbody>
</table>

9) I am unable to take online and/or hybrid classes because I lack regular access to a reliable Internet source.

<table>
<thead>
<tr>
<th>Option</th>
<th>Count (Percentage)</th>
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</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>2 (0%)</td>
</tr>
<tr>
<td>Agree</td>
<td>8 (2%)</td>
</tr>
<tr>
<td>Neither Agree Nor Disagree</td>
<td>30 (6%)</td>
</tr>
<tr>
<td>Disagree</td>
<td>124 (25%)</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>329 (66%)</td>
</tr>
<tr>
<td>No answer</td>
<td>2 (0%)</td>
</tr>
</tbody>
</table>
10) I am unable to take online and/or hybrid classes because I lack regular access to a reliable computer.

<table>
<thead>
<tr>
<th>Option</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Agree</td>
<td>4</td>
<td>1%</td>
</tr>
<tr>
<td>Neither Agree Nor Disagree</td>
<td>28</td>
<td>6%</td>
</tr>
<tr>
<td>Disagree</td>
<td>127</td>
<td>26%</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>335</td>
<td>68%</td>
</tr>
<tr>
<td>No answer</td>
<td>1</td>
<td>0%</td>
</tr>
</tbody>
</table>

11) My class rank is:

<table>
<thead>
<tr>
<th>Rank</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>1</td>
<td>0%</td>
</tr>
<tr>
<td>Sophomore</td>
<td>6</td>
<td>1%</td>
</tr>
<tr>
<td>Junior</td>
<td>117</td>
<td>24%</td>
</tr>
<tr>
<td>Senior</td>
<td>178</td>
<td>36%</td>
</tr>
<tr>
<td>Graduate Student</td>
<td>183</td>
<td>37%</td>
</tr>
<tr>
<td>Alumni</td>
<td>2</td>
<td>0%</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
<td>1%</td>
</tr>
<tr>
<td>No answer</td>
<td>1</td>
<td>0%</td>
</tr>
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</table>

12) I identify my gender as:

<table>
<thead>
<tr>
<th>Gender</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>113</td>
<td>23%</td>
</tr>
<tr>
<td>Female</td>
<td>380</td>
<td>77%</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>0%</td>
</tr>
<tr>
<td>No answer</td>
<td>1</td>
<td>0%</td>
</tr>
</tbody>
</table>

13) I describe my age in years as:

<table>
<thead>
<tr>
<th>Age</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 18</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>18-23</td>
<td>247</td>
<td>50%</td>
</tr>
<tr>
<td>24-29</td>
<td>114</td>
<td>23%</td>
</tr>
<tr>
<td>30-40</td>
<td>76</td>
<td>15%</td>
</tr>
<tr>
<td>41-50</td>
<td>36</td>
<td>7%</td>
</tr>
<tr>
<td>51-60</td>
<td>19</td>
<td>4%</td>
</tr>
<tr>
<td>Over 60</td>
<td>1</td>
<td>0%</td>
</tr>
<tr>
<td>No answer</td>
<td>2</td>
<td>0%</td>
</tr>
</tbody>
</table>
14) While taking classes at MSU I am/was employed at a job:

<table>
<thead>
<tr>
<th>Option</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Full Time (all year)</td>
<td>181</td>
<td>37%</td>
</tr>
<tr>
<td>b. Part Time (all year)</td>
<td>230</td>
<td>46%</td>
</tr>
<tr>
<td>c. Summers and/or school breaks only</td>
<td>37</td>
<td>7%</td>
</tr>
<tr>
<td>d. Not at all</td>
<td>45</td>
<td>9%</td>
</tr>
<tr>
<td><strong>no answer</strong></td>
<td>2</td>
<td>0%</td>
</tr>
</tbody>
</table>

15) While attending classes at MSU I live:

<table>
<thead>
<tr>
<th>Option</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. In a dormitory or temporary-housing facility owned or sponsored by the university</td>
<td>72</td>
<td>15%</td>
</tr>
<tr>
<td>b. In a temporary-housing facility off campus that is not owned or sponsored by the university</td>
<td>41</td>
<td>8%</td>
</tr>
<tr>
<td>c. At my permanent residence from which I commute to campus</td>
<td>380</td>
<td>77%</td>
</tr>
<tr>
<td><strong>no answer</strong></td>
<td>2</td>
<td>0%</td>
</tr>
</tbody>
</table>

16) My permanent residence is in the:

<table>
<thead>
<tr>
<th>Option</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. U.S. Northeast</td>
<td>478</td>
<td>97%</td>
</tr>
<tr>
<td>b. U.S. Midwest</td>
<td>4</td>
<td>1%</td>
</tr>
<tr>
<td>c. U.S. South</td>
<td>1</td>
<td>0%</td>
</tr>
<tr>
<td>d. U.S. West</td>
<td>4</td>
<td>1%</td>
</tr>
<tr>
<td>e. Outside the U.S.</td>
<td>8</td>
<td>2%</td>
</tr>
<tr>
<td><strong>no answer</strong></td>
<td>0</td>
<td>0%</td>
</tr>
</tbody>
</table>
Appendix B

Demographics of the Student Population at Montclair State University
Spring 2010:

- **Undergraduate:**
  - Total Enrollment: 13,130
  - Female: 61%
  - Non-Resident Alien: 471
  - Black, non-Hispanic: 10%
  - Asian or Pacific Islander: 6%
  - Hispanic: 22%
  - White: 58%
  - American Indian or Alaska Native: <1%
  - Two or more races: 1%
  - Non-resident aliens: 2%
  - Average age: 23 years
  - NJ residents: 97%
  - Top five majors: Family and Child Studies, Business Administration, Psychology, Biology, and English.
  - Non-declared major: 11%

Spring 2009:

- **Graduate:**
  - Total enrollment: 3,799
  - Degree Seeking: 76%
  - Part-time: 72%
  - Female: 72%
  - Black, non-Hispanic: 9%
  - Asian or Pacific Islander: 4%
  - Hispanic: 8%
  - White: 75%
  - American Indian or Alaska Native: <1%
  - Two or more races: <1%
  - Non-resident aliens: 4%
  - NJ residents: 94%
  - Average age: 32.5 years
  - Top five graduate majors: Teaching, Counseling, Business Administration, Educational Leadership, and English.
Appendix C

2011 Map of U.S. Broadband Coverage
(Hopkins, 2011).
Appendix D

“U.S. Heatmap Depicting Individual States Overall Economic Ranking”
Overall Economic Ranking. A state's OER can be determined by looking at three main factors: personal income per capita, unemployment rates, and crime rates. These can give us an idea of how well-off a certain state's general population is. If the population is employed, well-paid, and not resorting to crime to survive, we can infer that they are indeed well-off economically.

(Mandell, 2011).