

Developing digital literacies: Engaging technical communication at an urban
community technology center

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Abstract

This study provides needed insights for technical communication scholars regarding underrepresented users and how they are engaging with technical communication texts and practices as they develop their digital literacies at an urban community technology center (CTC) in the Southeastern United States. By taking an ethnographic and community-based approach to data collection and utilizing grounded theory for analysis, I found that learners engage in all three dimensions of networked learning (e.g., learners connecting to other learners, tutors, and other available resources), tutors serve as local technical communication experts who help learners develop crucial cultural knowledge about using ICTs and how to physically operate them, and learners utilize multimodal resources as they work at computers. These findings highlight barriers impacting inexperienced users and illustrate that ICT tutorial materials often fail users who have little to no experience using ICTs. Technical communication scholars should work to make instructions more meaningful, and future research should investigate the rhetorical features of novice-focused instructions and engage in community-based scholarship to reach more underrepresented users in order to combat digital divides.

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Chapter 1: Introduction and Justification

In today's world, not having broadband Internet access can be severely limiting. Many different types of barriers prevent people from accessing broadband Internet from home. According to Aaron Smith (2013), a senior researcher at the Pew Research Center's Internet Project, a lack of perceived relevancy of online content prevents some from going on the Internet, though lack of knowledge of how to go online, age, physical barriers, and financial resources are also obstacles. Perhaps due to these obstacles, as of 2013, only 70% of U.S. Americans had home broadband Internet access, and for those lacking it, 10% owned a smartphone and 3% of the population went online via dial up (Zickuhr, 2013). Not having home broadband access means seeking out other options, which requires creativity, time, and patience. It means relying on shared computers at work or school, and so some have to be willing to accept the loss of privacy that accompanies gain of access. Others sacrifice time to find transportation to a public site, wait in line, and work within a limited amount of time or invest in a mobile device. Simply put, accessing broadband without home access can be quite inconvenient.

But even after gaining access to a physical computer with a broadband Internet connection, challenges do not end for inexperienced computer users. For some, even manipulating the mouse or navigating interfaces are obstacles. Many in the U.S. are left behind in the wake and unable to compete with those with better skills, faster service, and bigger wallets, further increasing social inequalities. Therefore, computer courses offered at public access sites like community technology centers (CTCs) and assistance provided

by CTC tutors are essential¹. My research examines the ways in which technical information is engaged at an urban CTC. In taking an ethnographic approach to studying this site, I gained unique insights from underrepresented participants through observation and qualitative interviews. These observations and accounts supply needed empirical research for the field of technical communication to make user experience scholarship more inclusive.

While there is an abundance of information surrounding how people are using the latest technologies and innovations for communication in the field of technical communication, there is far less written about inexperienced users or non-users of a technology, particularly those who are older and Black, like the participants in my research. There is little research exploring why some people may not adapt a particular technology or why people outside of a workplace setting are interested in using computers and other information communication technologies (ICTs). Much of the research in technical communication focuses on how those with regular access use technologies. One exception is John Carroll, who wrote about minimalism in the 1980s as an approach to helping inexperienced users learn to use new computer applications (van der Meij & Carroll, 1998). While minimalism may be a productive approach for constructing manuals for word processors or other applications, this study focuses on key information and physical skills users often lack when they first begin using a computer, information and skills that would aid them in using manuals in the first place (e.g., how to operate a mouse).

¹ For this study, CTCs refer to public computer labs where visitors can access computers and the Internet for free.

Of the 30% of U.S. American adults who do not use the Internet, about one-third cite Internet usability issues as a deterrent (Smith, 2013). Technical communication scholars, with their expertise on communicating complex technical communication intended for action, *must* lead the way for overcoming this social problem. I am not arguing for a severe directional change in the focus of research taking place in technical communication, but in response to Gilbert (2010), I am advocating that the field of technical communication needs to address more complex understandings of engagement with ICTs. Much research has already examined inequalities experienced by those who do not have access to or knowledge of how to use ICTs.

What is missing from the literature is more detail on how underrepresented users are taking action to develop their digital literacies, despite the obstacles in their way, and how they are engaging with technical information. With that knowledge and insight, technical communication scholars can begin to work toward eliminating usability problems associated with ICT access.

In addition, my research complements technical communication scholarship in two other relevant ways. First, my work extends Selfe and Selfe's (1996) proclamation that teachers and students of nonacademic writing, or technical communication, have responsibilities to, "work actively in both local and global arenas to challenge inequities based on oppression, and a civic obligation to enact positive social and political change" (p. 326). Walton and Jones (2013) align with this sentiment arguing that, "Technical communicators must be focused on and dedicated to promoting social justice in our communities, both local and at large" (p. 33-34). The mere existence of CTCs in U.S.

society reveals the digital inequality that persists, even in 2017, and my work is actively situated in a setting that strives to enact positive social change. I draw inspiration from the work both Cushman (1996) and Grabill (1998) have conducted in closely related fields as they, too, promote civic engagement.

Second, this work contributes to technical communication scholarship focused on nonacademic writing that was initiated more than 30 years ago (Duin & Hansen, 1996). As I look at the nonacademic writing present in an urban CTC, I extend this line of research. Similarly, my research responds to Whitburn's (2000) call for scholars to take up active involvement in professional and public settings and Grabill's (1998) concern for more research that looks at how computers are used for writing in public and civic contexts.

Before examining CTCs more in depth, I will first provide broader, social context that helps to situate the existence of CTCs and the work they do. Then, I will outline the networked nature of our society and van Dijk's (2006) argument specifically about the network society. Next, I will discuss social inequalities persisting based, in part, on digital inequalities. Finally, I describe how this research fits into technical communication scholarship and conclude with a preview of the rest of this dissertation.

Connections and Networks

Despite transitioning to the network society and the considerable attention given to proliferating digital networks today, van Dijk (2006) reminds us that "Social networks are as old as humanity" (p. 21). People have been communicating with some more than others since humans lived in bands and tribes (van Dijk, 2006). In citing the McNeills'

(2003) historical book on how humans have constructed webs over time, van Dijk (2006) relays that the very first worldwide web consisted of hunters and gathers as they traded ideas, music, dance, technologies, as well as genes. Centuries later, networks have continued to grow and develop to the point that, as van Dijk (2006) notes, “Practically no human society exists in isolation any more” (p. 23). Although the ways in which networks are constructed has changed, the notion of social networking has existed long before the network society.

In van Dijk’s (2006) second edition of “The Network Society,” he argues that a mass society no longer exists and instead we have advanced to a network society. Conversely, the mass society that preceded the network society was built with an infrastructure consisting of masses of people that constructed the “mode of organization at all levels” (p. 20). The network society is a “social formation” (p. 20) and diverges from a mass society in one key way: the infrastructure for our network society is built with “social and media networks enabling its prime mode of organization at all levels (individual, group/organizational and societal)” (van Dijk, 2006, p. 20). Social and media networks are at the crux of the way society is organized. For the network society, then, van Dijk argues large groups of people no longer do the organizing. Rather, social and media networks, now especially digital networks, connect all units of organization ranging from the individual to the organizational level. Overall, the network society is considered distinct from how societal networks were configured previously, and there are important implications for people who are well connected in digital networks and those who are not as tightly connected. Those with better digital skills, for example, have more

opportunities to avoid structural inequality. As van Dijk (2006) argues, not engaging in the network society could result in fewer employment and education opportunities, less access to social networks and cultural resources, and reduced chances to take part in political and civic affairs.

Despite the prevalence of digital networks, much is still unknown about how people are impacted when they are not fully integrated into digital networks. The network society introduces new opportunities and challenges for humanity (van Dijk, 2006). This realization is not new, however. In 2006, van Dijk was already describing how social inequality may be influenced by the use of technology. He stated, “Technology allows for a better distribution of knowledge. Its complexity and costs, however, may serve to intensify existing social inequalities” (p. 3). Because of increased connectivity afforded by the Internet, van Dijk (2006) outlined that democracy, safety, social relationships, and the human brain would likely be impacted by such societal changes. Since that time, scholars have documented inequalities related to the Internet (Gilbert, 2010; Robinson et al., 2015), the types and uses of support for going online (Helsper & van Deursen, 2017), the types of access people have (such as home broadband Internet connections or smartphone access) (Horrigan & Duggan, 2015), and types of Internet use engaged (Hargittai, 2010). However, more work is still needed in order to continue uncovering why digital inequities exist and how they matter. With new and emerging ways to connect, there are several unanswered questions regarding how people are impacted.

Traditional forms of inequality explored in the social sciences, namely race, class, and gender, once dominated the literature, but they are no longer alone (Robinson et al.,

2015). One new form of inequality now accompanying these traditional forms is digital inequality (Robinson et al., 2015). Although social inequality has always been a component of social networks, media networks introduce a different form of inequality (van Dijk, 2006). Robinson et al. (2015) importantly argue that, today, the way individuals engage in digital environments factor into many facets of life such as academic performance, how successful one is in the workforce, whether or not an individual becomes an entrepreneur, and how one accesses health services. They state, “Those who function better in the digital realm and participate more fully in digitally mediated social life enjoy advantages over their digitally disadvantaged counterparts— a key linkage which social science is only beginning to grasp” (Robinson et al., 2015, p. 570). As Gilbert (2010) argues digital inequality is multifaceted, leaving unique imprints on the lives who experience it. In fact, Robinson et al. (2015) contend that it is impossible to fully understand the scene of the 21st century without understanding digital inequality.

Prior investigations have looked at how people with little digital network connectivity or Internet access are impacted in society. The frequently cited term used to capture how some people experience unequal access to information communication technologies (ICTs) is known as the digital divide. Gilbert (2010) states that the digital divide is often the term applied to “unequal access to and use of ICTs” (p. 1002). Despite the proliferation of this research, Gilbert (2010) critiques scholarship on the digital divide because much of it is limited to broad, descriptive level findings regarding access and ICT use. She acknowledges that she is one of many scholars criticizing the surface level findings of this research, which neglects nuanced and richer understandings of access and

engagement with ICTs. For instance, we have yet to more thoroughly understand how neighborhoods influence ICT experiences or how education, family structure and interest influence use (Gilbert, 2010). In essence, more scholarship is needed to understand “how and why different groups have different levels of access and usage” (Gilbert, 2010, p. 1002). My research offers one response to these concerns and is one of the first to address how people are gaining access to computers and the Internet and learning how to use them at CTCs.

Gender and ICT use. Differences in ICT use have been studied extensively (Robinson et al., 2015), and there appear to be different types of activities men and women engage in online. For example, Wasserman and Richmond-Abbott (2005) found that women use the Internet less than men. Ihm and Hseih (2015) also found that social goals prompted more women than men to use the Internet, and Karavidas, Lim, and Katsikas (2005) contend that the older women participants in their study were mostly using the Internet for staying in contact with family as well as seeking information either pertaining to their health or hobbies. Engagement with ICTs varied by age for women too as Ihm and Hseih (2015) found that older women were more likely to follow social norms for interacting with others via ICTs. For some women, ICT access at a CTC is a matter of finding time away from participating in mandated programs (e.g., welfare) and raising children (Gilbert & Masucci, 2004). There are also documented differences in how women perceive their Internet skills where they cite low proficiency despite having similar skill level to men (Hargittai & Shafer, 2006). Overlaps in ICT use and gender are central to understanding inequality in general, but additional scholarship examining the

intersections of race and ethnicity and ICTs help construct a more complete picture as well.

Race and ethnicity and ICT use. For migrants and ethnic minorities, van Dijk (2006) contends that not speaking English fluently and not having digital skills are two severe disadvantages in the network society because both technical and communication skills are essential for this type of environment. What is even more troubling is that ethnic and racial minorities usually are found to use the Internet less than racial majority groups (Robinson et al., 2015). For example, according to the Pew Research Center (Perrin & Duggan, 2015), African-American and Hispanic users fall behind white and English-speaking Asian-American users for Internet use. One exception Schradie (2012 as cited in Robinson et al., 2015) points out is that African-Americans engage in more online content creation than whites.

Age and ICT use. To date, contradictory findings exist on the relationship between older adults and ICT use. For instance, Selwyn (2004) critically argues that older adults' ICT use may be more complex than perceived at first glance. Selwyn (2004) argues that

there are a number of unanswered questions regarding older adults' use of ICT. We know little about the reasons and motivations underlying older adults' adoption or nonadoption of ICTs. We know little about the nature of this use and the support that older adults draw upon when making use of ICTs. Finally, and perhaps most importantly, we know little about the outcomes of older adults' (non)use of ICTs. (p. 370)

There has also been more recent scholarship about the effects of computer use. Some scholars argue that ICT use is tied to overall well-being in older adults. Hogeboom, McDermott, Perrin, Osman, and Bell-Ellison (2010) found that Internet use positively corresponded to how frequently white users of at least 50 years in age contacted friends and family members, and Karavidas et al. (2005) found that the older adults in their study were “more satisfied with their life” (p. 708) when they had more knowledge of computers. Robinson et al. (2015) have also identified some of these generational benefits for those using technology. For example, those in the “sandwich” (p. 572) generation, adults who are caregivers for both elderly parents and their own children, who use digital means of communication, can ease the strain of staying in contact with family members. Elderly or retired adults can also benefit from “digital engagements” (p. 572). Not surprisingly, these benefits often elude older, less educated, and less financially secure adults (Robinson et al. 2015). Similar results have been found internationally (Casado-Muñoz, Lezcano, & Rodríguez-Conde, 2015) where older adults’ amount of computer use declined as age increased.

Other scholars have focused on the causal relationships behind ICT use. Ihm and Hsieh (2015) found household income to be the strongest factor predicting ICT access for older adults who were 60-86 years old. Older adults may experience additional challenges that younger generation are able to avoid as well. For example, younger people may have more flexibility in combatting digital inequalities by purchasing less expensive devices, such as mobile instead of computers (Smith, 2013 as cited in Ihm & Hsieh, 2015). Ihm and Hsieh (2015) call for scholarship that approaches this under

theorized population qualitatively to advance a more comprehensive understanding of the issues surrounding older adults and ICT use and social lives.

Community Technology Centers as Scenes of Technical Communication

The Pew Internet report on “Library services in the digital age” indicates that libraries are considered “very important” (p. 36) for free computer and Internet access by 77% of survey respondents (16 and over) (Zickuhr, Rainie, & Purcell, 2013). However, maybe due to lack of privacy, public access sites like libraries (one form of community technology centers (Davies, Pinkett, Servon, & Wiley-Schwartz, 2003)) are still commonly less desirable when compared to other alternatives (e.g., home, work, or school access; using friends’ or family service) as Dixon, Correa, Straubhaar, Covarrubias, Graber, and Spence (2014) have found. Although they might not be a first choice, libraries are still valuable to patrons, as demonstrated in the Pew Internet library report.

Pew’s library report also presents data on the types of activities patrons engage in while using the computers and the Internet at the library. The list below shows the activities patrons say they engage in while at the library (Zickuhr et al., 2013, p. 34-35). Survey respondents included those who had used library computers and those who connected to the library’s WiFi connection on a different device. Zickuhr et al. (2013) state, “We asked those who had visited libraries in the past 12 months if they used the computers and the internet at the library...Some 26% of those ages 16 and older had

connected to the internet at the library” (p. 34). Here are the activities resulting from their question about “Use of computers and the internet at libraries” (p. 34-35):²

- “There are some notable demographic differences in the answers to this question. 66% of those who used the internet at a library in the past 12 months **did research for school or work**. Hispanics, rural residents, and people ages 16-49 are especially likely to say they did this activity.
- 63% say they **browsed the internet for fun or to pass the time**. African-Americans and Hispanics are more likely than whites to report this internet use, as are those ages 18-29.
- 54% say they **used email**. Women are more likely than men to say this, as are those ages 18-49.
- 47% say they **got health information**.
- 41% say they **visited government websites or got information about government services**. People living in households earning less than \$30,000 are especially likely to report this use.
- 36% say they **looked for jobs or applied for jobs online**. African-Americans are the most likely to report this activity. In addition, those ages 18-49, those who live in cities, high school graduates, and those in households earning less than \$50,000 are also more likely than others to use library computers this way.

² Bolded text original to Zickuhr et al. (2013).

- 35% say they **visited social networking sites**. Those ages 16-29 are especially likely to report this use.
- 26% say they **downloaded or watched online video**. Suburban residents are more likely than others to report this.
- 16% say they **bought a product online**.
- 16% say they **paid bills or did online banking**.
- 16% say they **took an online class or completed an online certification program.**”

When considering the Pew library data on how patrons use computers and the internet at libraries, this is a rich area for technical communication scholars. Rude (2009) has posed an overarching research question, or “central question” (p. 181), that summarizes technical communication research and asks, “*How do texts (print, digital, multimedia; visual, verbal) and related communication practices mediate knowledge, values, and action in a variety of social and professional contexts*” (p. 176)? The sheer number of activities related to texts and related communication practices pertaining to social and professional contexts present at libraries is notable. For example, patrons are conducting research for work and school. They are also seeking out and applying for jobs online. Thus, libraries are key places for technical communication research.

Application to Technical Communication

My work contributes to and extends the long line of research focused on nonacademic writing (Duin & Hansen, 1996). The vein of this research I examine

includes texts and communication practices within a technical communication setting, a public, urban, Southeastern U.S. CTC. It also serves as a response to Whitburn's (2000) more recent critique and call for scholars to take up active involvement in professional and public settings.

Because CTCs are uncommon technical communication research sites, my dissertation also expands the scope of technical communication scholarship. My study responds to a concern voiced in the field about the boundaries of technical communication. Rude (2009) reported that Whitburn (2000), who wrote about the field of technical communication and its parameters, expressed frustration about the "narrowness of scope in the field" (Rude, 2009, p. 191). Whitburn (2000) argues that professors need to avoid solely working in isolation by "...telling their texts and instruments in ivory towers..." and instead "...must become actively involved in professional and public affairs. Only through such involvement can they familiarize themselves with the problem contexts of civilization..." (p. 233). My study addresses Whitburn's concern because I am stepping outside of a university setting by examining a site in the public sphere. By volunteering, I gain access to the research site and learn about daily events and ritualized norms. By conducting participant observation in CTC computer courses and tutoring sessions, I have had the chance to learn directly from patrons and staff about why people choose to attend this CTC and how they work there. I am taking on Whitburn's call directly because I am engaging actively in the public affairs there, which is critically important. These are activities that lead me out of the university setting and into a community's where I get to see first-hand how patrons are building their professional and

digital literacy skills. For my research, I am learning about the public affairs and problems of a community site by going to that public, community site, and this meets Whitburn's call head on. In addition, Altheide (2013), argues that doing field observations and holding interviews is "quite complex" (p. 3). Altheide's (2013) advice for these types of qualitative data collection methods is "...for the researcher to be as close as possible to the setting and its activities under investigation. Learn the language, perspectives, routines, and practical considerations to determine 'how' people do things and 'what' they actually do" (p. 3). As I visit, observe, and interview at the CTC, I take up this call of exiting academia and entering a community site.

Beyond expanding the scope of research in technical communication, my dissertation can also serve as a response to a prior call to research. Grabill (1998) made a call directed to scholars from a closely related field, computers and writing, stating that:

because of social, technological, intellectual, and work changes, it is useful to think more broadly in terms of computers and *writing*. When considering computers and writing, we are necessarily forced to consider the public and civic uses of computers for writing. Such a consideration demands we look at work, at civic life, and at the variety of literate practices in community settings and the ways those practices are (or may become) computer mediated. Such a consideration takes us out of a school or university as an *exclusive* domain of concern and into other public and private institutions... Computers and writing specialists have lots to offer and learn. (p. 311)

My research directly responds to this call because I am examining a site outside of academia and within a community setting, a CTC. In 2003, Grabill continued to encourage scholars to shed light on issues and people whose stories are not typically told in research. This study is a gesture toward Whitburn's and Grabill's concerns.

My dissertation also addresses a recent research question Walton and Jones (2013) posed when projecting the direction of future technical communication scholarship, which asked, "How can technical communication scholars navigate increasingly cross-cultural, cross-disciplinary, and cross-organizational contexts to support social justice through better communication?" (p. 31). Walton and Jones (2013) predicted that technical communication scholars would be grappling with such issues in the next 5-10 years, and my research offers one response to this question. In doing so, I draw inspiration from Sun's (2006; 2012) work on better understanding user experiences from the user's themselves and in their own cultural contexts, which is critical for creating culturally meaningful and useful forms of technical communication.

My research provides a crucial addition to current technical communication scholarship in that it offers the field a needed example of a study conducted in a nonacademic setting. While this research will provide an avenue to expand the purview of technical communication, it also has ties to research calls from technical communication scholars. Furthermore, my overarching question is associated with the "social change" (Rude, 2009, p. 176) types of research questions that Rude explains.

Questions that are known as "social change" questions (Rude, 2009, p. 176) ask, "How do texts function as agents of knowledge making, action, and change" (Rude,

2009, p. 176)? Rude contends that, “These questions take us beyond the boundaries of our own courses, history, and practices to social, cultural, and political issues and to the nature of knowledge and meaning” (p. 202). They can probe important issues that help us understand knowledge and meaning making better. In the CTC for this research, knowledge is being constructed as patrons work to develop their abilities to use computers and the internet. The types of knowledge being developed are influenced by social, cultural, and political forces.

The construction of this knowledge is facilitated at the CTC by the texts present there. Rude (2009) contends, “The need for knowledge and informed action in a variety of contexts becomes a reason for texts” (p. 191). The texts consist of printed ones (e.g., curriculum booklets and a handout with information on additional community resources), multimedia (e.g., computer application interfaces and what the instructor displays on the projector screen during class), and verbal (e.g., what the instructor talks about while teaching patrons). Although some of these texts may not have been created by a technical communication professional, Rude (2009) states that, “The field’s contexts are broader than the workplaces where technical communicators are employed. They also include social contexts in which texts are used as a means of developing and circulating knowledge and enabling action” (p. 182). Therefore, Rude (2009) would argue these texts matter and are vehicles for patrons to build their understanding of computers and the Internet. Though not a typical professional technical communication research setting, technical communication takes place at the CTC both within computer courses and outside of courses in the fleeting interactions librarians and volunteers have with patrons

at their computers. Overall, the various texts at the CTC play a central role in assisting this knowledge development as well.

These texts support important knowledge and workforce skill development at the CTC I examined. Some patrons use the CTC as a means to learn how to use computers. Some did not receive training in school, which, according to Grabill (1998), is not unheard of for public literacy sites similar to this. The courses offer professional development opportunities as patrons gain knowledge about how to use new or unfamiliar technologies, namely, a desktop computer, computer applications, and the Internet. Skills learned in class are sought after to secure employment, gain needed support in current jobs, and reach entrepreneurial goals, among others. There is one computer with 16 desktops and an area on the main floor that holds eight workforce computers. There are two more placed around the library. These workforce computers serve as stations that patrons can use to work on school or job related activities (e.g., homework or completing job applications). Grabill (1998) cited a 1995 National Telecommunications and Information Administration (NTIA) report that stated "...computers and advanced telecommunications are now essential tools in the workplace..." (Grabill, 1998, p. 311), and 20 years later, these skills remain essential and are still sought after. Each Thursday evening, the computer lab shuts down at 3:30 p.m. and all patrons using computers have to leave. By 4 p.m., the class usually starts. Patrons and instructors bring their life experiences and technological knowledge into the lab to develop new forms of knowledge and skills, and efforts are made to reduce the existing digital divide.

Therefore, it is problematic that technical communication scholars have left digital divide efforts pertaining to CTCs nearly unexamined. Past technical communication research has brought to light implications for the digital divide regarding electronic literacy (Selfe & Hawisher, 2002), what role ITexts may have in the digital divide (IText Workgroup, Geisler, Bazerman, Doheny-Farina, Gurak, Haas, Johnson-Eilola, Kaufer, Lunsford, Miller, Winsor, & Yates, 2001), examples of the divide and its relationship to both gender (Royal, 2005) and age (Crow, 2002), software access as being a dimension of the divide (St. Amant & Ballentine, 2011), and how media experience can be a factor influencing the digital divide in a workplace setting such as an organization (Ishii, 2005). Yet, the question of how community members engage with technical information in a CTC setting is too often left unexamined.

In addition to CTCs, there are numerous initiatives (e.g., CTCs, online digital literacy certifications) to intervene in the digital divide taking shape across the U.S. (e.g., Smart Chicago, Northstar Digital Literacy Project) as are global efforts to promote “digital inclusion” (Mervyn, Simon, & Allen, 2014, p. 1087). For example, with advancements like Google Fiber influencing the landscape of high Internet speed access for those not used to high speeds, there are significant opportunities becoming more readily available for technical communicators. Google Fiber reserved installation for people’s homes instead of businesses for its initial roll out. Therefore, for working residents who have Fiber, they can work from home more efficiently due to their faster connections, and a city administrator for Kansas City, MO notes that Fiber also has important implications for disabled populations with more viable options for remote and

more stable working now available (McGee, 2015). Faster home Internet speeds are altering the way employees get work done. These are advancements technical communication scholars should find compelling. They should be at the forefront of digital divide intervention efforts. Instead, they are lagging.

Whitburn's (2000) critique of technical communication research is one I address in my dissertation research. I am also responding to past calls Grabill (1998; 2003) has made regarding investigating scenes of writing outside of college composition classrooms and telling stories that are not often told. My work also addresses a research question Walton and Jones (2013) believe technical communication scholars will be working to address in the near future and connects to the important cultural issues that are involved in the work of technical communication scholars and practitioners, as Sun (2006; 2012) highlights. Thus far, I have also introduced motivations for visiting the particular CTC for this study and explained why technical communication scholars must be leading research efforts on digital divides.

Definition of Terms

For my research, I utilized two theoretical constructs as lenses: networked learning and multimodality. Networked learning refers to the connections made by learners in a learning environment (Goodyear, Banks, Hodgson, & McConnell, 2004). Multimodality is understood as utilizing multiple modes for communication (e.g., images, alphabetic, etc.). Using these lenses and exploring their intersections offered interesting insight into the texts and communication practices found at Urban CTC. Unfortunately, CTCs like this are too often overlooked as a site for technical communication research.

Not only are CTCs important for patrons, but technical communication scholars and professionals can make significant contributions to these sites, and employers can gain insight on technology training for their employees (e.g., in-house systems).

CTCs are important resources but little is known about the CTC user experience, especially older users, at the CTC. The overarching question this study addresses is, in what ways are networked learning and multimodality taking place at CTCs? These constructs and their intersections illuminate the research question for this studyⁱ.

Dissertation Overview

Within my dissertation, I will outline and defend my theoretical framework in chapter two. This framework is comprised of two theoretical constructs: networked learning and multimodality. I explain how these seemingly disparate theories form a critical perspective that accounts for how people at CTCs are engaging with technical information, other people, and resources while they participate in computer classes and tutoring sessions. Although these theories are rooted in disciplines outside of technical communication, they provide needed and useful perspectives from which to make sense of the way technical information is engaged at CTCs. Advancing the disciplinary knowledge regarding how novice ICT users are accessing ICTs is necessary for the field of technical communication. Without such engaged empirical work that incorporates the perspectives of users and CTC tutors (e.g., staff members), or without knowing the inexperienced ICT user audience, little can be done by technical communication scholars to improve ICT access and engagement.

For my third chapter, I describe my ethnographic approach to data collection and analyses. In examining the CTC, I gathered data through numerous means to help construct the best picture of the setting as possible. My collection methods included participant observation, qualitative interviews, field notes, and memos. I took a grounded theory approach (Charmaz, 2006; Glaser & Strauss 1999/67; Strauss & Corbin, 1990) for my data analyses. For chapters four and five, I report my results for Phases 1 and 2 of my project. In chapter six I discuss the implications of my research and offer suggestions for future research directions.

My dissertation research extends technical communication scholarship by shedding light on underrepresented users. Listening to their stories and observing the texts and communication practices in a non-traditional user experience setting over time has allowed me an opportunity to witness the crucial technical communication work being done to combat digital inequalities. The scholarship in the field thus far extensively documents the ways in which new technologies are used by individuals and organizations. I seek to supplement the current imbalance of literature to represent those who lack representation: inexperienced ICT users. By offering rich, situated accounts of CTC patrons and staff, my research also provides severely needed insight into Internet usability issues that continue to prevent certain segments of people in the U.S. from accessing the Internet. There are numerous factors influencing Internet and ICT access. As one example, as of June, 2015, just over half (58%) of senior citizens in the U.S. reported that they use the Internet (Perrin & Duggan, 2015). Descriptive statistics like this only get us so far, and unanswered questions about the nature of that use and the

nature of the non-use for senior citizens remains unclear. Technical communication scholars should be using their skills and rhetorical training, their power, to solve this problem impacting users with less privileged ICT access. My research offers one response and thus one step toward addressing this civically-centered problem by looking at the user experiences of underrepresented and inexperienced users in an urban CTC.

Chapter 2: Literature Review

As mentioned in the previous chapter, my research focuses on how ICT users develop their digital literacies in an urban CTC and how CTC tutors provide guidance in doing so. There are different types of CTCs, and in this chapter I begin by outlining these and discussing the CTC I observed for my research. I will also describe the framework of networked learning and multimodality I used to explore the texts and communication practices at the CTC. Although these theoretical constructs stem from different disciplines, together, they form a critical perspective that accounts for the ways patrons at the CTC are connecting with people and resources and the modes of communication present in the CTC during computer classes. I argue that these two lenses expose critical insight into the little explored scenes of CTCs where patrons across the U.S. go to gain access to computers and the Internet. As important sites for bridging multiple digital divides, CTCs offer their communities needed resources.

Unfortunately, despite the prevalence of CTCs, not much is known about how patrons and staff members engage with the technical information being shared in these spaces. CTCs are constructed and run for various reasons and fulfill vital roles. They are venues for computer and Internet access and serve as important fixtures within the communities they are situated. While their worth has been explored to an extent, Hayden and Ball-Rokeach (2007) argue that CTCs “represent a new phase of technological integration into urban communities” (p. 236) calling for additional research on how “technology is becoming integral to everyday practices of communication” (p. 236). In the following section, I will describe various types of CTCs, the motivations for their

existence, specific roles they play in their communities, and I will outline some of the features of the CTC for this dissertation based on the framework I have constructed.

Types of CTCs

Community technology centers (CTCs) have been scenes for combatting the digital divide (Davies et al., 2003; Salovey, Williams-Piehot, Mowad, Moret, Edlund, & Anderson, 2009). In this study, CTCs refer to public computer labs made available so community members can access computer applications and the Internet for free. Davies et al. (2003) reported that CTCs are often non-profits and thought of as being “located in disadvantaged neighborhoods with rapidly changing demographics” and that they “act as key public spaces in areas where there is a dearth of such community places” (p. 4). Work by Tibben (2012) has shown that individual uses for CTCs have been diverse including distribution of a community newspaper, utilizing email, word processing, photography applications, social networking sites, writing an autobiography, recording family history, and online business development. Other CTCs will offer curriculums for using applications or assisting with resume development. Tibben (2012) acknowledges that the term, “*community technology center or CTC*” (p. 3583) is not a universal term and CTC can refer to a number of technology spaces such as telecenters, telecottages, teleservice centres, or Internet cafes. Other CTCs will offer curriculums for using applications or assisting with resume development.

There are three different versions of CTCs, according to Davies et al. (2003). One type is a **stand-alone center** that offers IT help to users. A second type is located under the umbrella of another organization, known as a **multi-service agency**, where additional

programming for the public is offered, including places like a public library, YWCA, or other community-focused organization. Another version of a CTC is located within a **larger network** of other CTCs. One example is Austin FreeNet where 34 other centers are connected. Target audiences for CTCs vary as well, focusing on youth or catering to the unemployed, underemployed, or even other needs specific to a center's neighborhood.

Motivations for CTCs. As previously mentioned, CTCs can be organized in a number of different ways and the goals of the center can vary. Davies et al. (2003) state that as public spaces, CTCs offer positive outcomes, which include the following:

- Contributing to the local economy (through workforce development, e.g.)
- Helping to create community identity
- Promoting a range of social interactions
- Involving a diverse population
- Improving accessibility
- Increasing participants' involvement in civil society
- Fostering community activism. (p. 11)

Throughout the report to the Ford Foundation, Davies et al. (2003) argue that CTCs can act as agents of change within communities. They view CTCs as conducting community building work that has commonly been done by community development centers (CDCs). CTC users have been found to share new skills and community information with other people in their networks such as family or community members (Salovey et al., 2009; Tibben, 2012) demonstrating that the point of attending a CTC is not always to learn a new skill for the sole benefit of the CTC user.

Other roles CTCs fulfill for communities. Beyond contributing to communities in the ways Davies et al. (2003) have described, Hayden and Ball-Rokeach (2007) have argued that CTCs fulfill critical communication infrastructure roles for communities and are critical pillars. For example, in examining CTCs in Los Angeles, California, Hayden and Ball-Rokeach (2007) state that, “Overall, 46.4 percent of the Los Angeles CTCs studied viewed their self-described mission as ‘enhancing communication with the client home country’” (p. 249). Having interviewed 28 Los Angeles CTC directors, Hayden and Ball-Rokeach (2007) identified several contributions CTCs are viewed as making to their communities.

For instance, one particular CTC focuses on teaching clients basic technology skills because most clients are immigrants and have little experience using technology. Other CTCs were described as viewing their contribution to their communities as empowerment for both individuals who visited them as well as the communities. Hayden & Ball-Rokeach (2007) quoted one CTC director contending that CTCs are unique because they are stationed in communities rather than other institutionalized settings, “You don’t get this stuff in community colleges or formal, for-profit ventures... because these [CTCs] are community centers ... They come in thinking in terms of other people who live in their neighborhood, in terms of cultural connections as well” (Hayden & Ball-Rokeach, 2007, p. 249). Therefore, CTC patrons may expect to see other patrons that resemble themselves in some way. Overall, Hayden and Ball-Rokeach (2007) shed light on some of the communicative roles CTCs have in their communities.

A CTC through two lenses. The CTC I have observed is located within a public library and is one of 20 library branches. It is housed within an urban public library system in the Southeastern United States. This library branch houses several desktop computers patrons can use for free. There are also designated workforce computers reserved for those working on securing employment. The branch offers computer courses available to the public. Courses offered have included computer and Internet basics, Microsoft Office programs (e.g., Excel and Word), and GCF Learn Free, an online tutorial site. Classes are two hours long, offered once per week, and typically capped at around 10 individuals. The curriculum for the courses is established by an individual or group of individuals employed within the larger library system and is communicated to librarians through a downloadable booklet, then given to students as a hard copy when they attend class. All branches are required to adhere to the booklet content.

To analyze the texts and related communication practices at this CTC, the two lenses I have proposed are especially apt: networked learning and multimodality. First, I will introduce networked learning discussing the learning theory of connectivism. While connectivism is not a focal point for this study, this is a useful starting point because it helps give context to networked learning. Networked learning fits under the umbrella of connectivism as a learning theory that theorizes technology and the evolving learning landscape occurring in our twenty-first century. After describing connectivism, I will discuss networked learning and multimodality. For each of these constructs, I will provide a brief historical summary followed by an overview of general scholarship that has been conducted. After introducing each construct in this way, I will elaborate on the

aspects of each body of research that most closely pertain to my dissertation research. It should be noted that these constructs constitute major areas of the fields in which they are situated, so my goal is only to provide adequate historical background and a sampling of the way each theory has been researched generally. Finally, I will outline how I am weaving together a theoretical framework consisting of networked learning and multimodality. Together, this constructs a unique perspective for understanding the texts and communication practices pertaining to technical communication occurring at a CTC.

Connectivism

According to Siemens (2004), prior theories of learning are insufficient for today's modern environment. These theories have included behaviourism, cognitivism, and constructivism, all of which, according to Siemens (2004), fail to account for how technology shapes learning. Therefore, connectivism serves to capture and explain learning practices that are occurring today as digital technologies and tools rapidly develop and get used by people all over the world. In defending a move to connectivist learning, Siemens (2004) writes that personally experiencing is insufficient for learning. Instead, the act of making connections is where learning develops. Downes (2006) agrees and argues that knowledge within connectivism is made up of the connections developed through experiencing and interacting within a community, and furthermore, the learner is different: the "thinking is centered around the new, and the newly empowered, learner, the member of the net generation, who is thinking and interacting in new ways" (Downes, 2006, para. 1).

Within our current digital environment, Siemens (2004) argues that a theory to describe the changes associated with recent technological shifts is needed. He put forth the following principles for connectivism:

- Learning and knowledge rests in diversity of opinions.
- Learning is a process of connecting specialized nodes or information sources.
- Learning may reside in non-human appliances.
- Capacity to know more is more critical than what is currently known
- Nurturing and maintaining connections is needed to facilitate continual learning.
- Ability to see connections between fields, ideas, and concepts is a core skill.
- Currency (accurate, up-to-date knowledge) is the intent of all connectivist learning activities.
- Decision-making is itself a learning process. Choosing what to learn and the meaning of incoming information is seen through the lenses of a shifting reality.

While there is a right answer now, it may be wrong tomorrow due to alterations in the information climate affecting the decision. (Siemens, 2004, para. 23)

In addition to these principles for connectivism, several expectations for learning within a connectivist approach have been expressed. Thota (2015) succinctly summarizes the expectations for the connectivist learner, explaining that they are “seen as nurturing and maintaining connections” (p. 86) to foster their ongoing learning and are able to “synthesize and recognize connections among fields, ideas, and concepts” (p. 86). The

connectivist learner is also able to critique sources and discern what it is they need to learn (Thota, 2015). Kop and Hill (2008) concur, arguing that knowing how to locate current and relevant information is central to knowledge development within a connectivist approach. Although Kop and Hill are skeptical that connectivism can stand alone as a new theory of learning, they do contend that it prompts ideas for new pedagogies taking shape that emphasize a more self-directed learner.

Based on the principles of connectivism (Siemens, 2004), networked learning fits under a connectivist approach due to its emphasis on connections. In this digital age, as Siemens (2004) states, the ability to make connections between information is essential for learning in “our knowledge economy” (para. 17). Networked learning is all about connections, to other people and resources, and offers a key lens for viewing the ways in which connections occur at CTCs.

Networked Learning

Early networked learning research. In the 1990s, the study of networked learning began in the United Kingdom (Goodyear, Jones, Asensio, Hodgson, & Steeples, 2005). Shortly thereafter, in the late 1990s, the definition often cited by networked learning scholars today was constructed by Goodyear et al. (Dirckinck-Holmfeld & Jones, 2009). This definition states that networked learning is “learning in which information and communications technology (ICT) is used to promote connections: between one learner and other learners; between learners and tutors; between a learning community and its learning resources” (Goodyear et al., 2004, p. 1). Scholars were initially interested in researching and describing “innovative courses” (Goodyear et al.,

2005, p. 474) such as those that used computer mediated communication systems, also known as open learning (Hodgson & McConnell, 1992). Eventually, researchers began exploring transcripts of computer conferences with goals of learning best practices for online tutoring and how students could effectively engage in networked learning (Goodyear et al., 2005). This early networked learning research was “oriented towards understanding why computer conferences failed to generate the levels of student involvement tutors expected. Simply put, many students failed to engage” (Goodyear et al., 2005, p. 475). The concept of networked learning continued to evolve, with Goodyear et al. (2004) distinguishing networked learning, which has focused on learners interacting with online resources and computer-mediated communication, from e-learning, Web-based learning, and online learning. This theory continues to be used in contemporary scholarship as a way to better understand how people network in educational settings.

Although the values and beliefs associated with networked learning have changed through the years, the roots of this theory remain embedded in both critical and humanistic traditions, drawing inspiration from Dewey, Freire, and Mead (Hodgson, de Laat, McConnell, & Ryberg, 2014). Today, much of the body of scholarship is set in formal educational contexts such as higher education. For example, networked learning scholarship has included looking at distance education (Goodyear et al., 2005), high school UK student perceptions on networked learning (Goodyear et al., 2005), high school students’ use of networked learning with a focus on how to balance teacher control and student autonomy (Drexler, 2010), student discourse and identity management tools students used on social networking sites designed for online learning (Koole &

Parchoma, 2012), and a comparative analysis of how two different teachers experienced networked learning in their classrooms (De Laat, Lally, Lipponen, & Simons, 2006).

In addition, the newest edited collection on networked learning (Hodgson et al., 2014), which showcased scholarship from the biennial International Networked Learning Conference, addressed the following themes: networked learning in terms of spaces and context, networked learning in practice, and informal networked learning in practice. In this collection, Dohn (2014) proposed expanding the definition of networked learning, and Glerup, Heilesen, Helms, and Mogenson (2014) and Hannon (2014) looked at different ways teachers have constructed networked learning experiences and environments for students. Perriton and Reynolds (2014) examined group issues in small group settings, and Nicolajsen (2014) analyzed blog use in higher education. Hodgson et al. (2014) concluded their book with research detailing how networked learning is taking place in informal settings, which will be examined more in depth shortly as these studies speak to how networked learning has occurred outside of formal, higher education contexts. Given the limited terrain networked learning scholars have covered thus far, it is clear that there is immense room for more research in the area of networked learning, especially in informal settings.

Networked learning and informal settings. Overwhelmingly, the networked learning scholarship pertains to higher education and formal education settings. More recently, attention has been given to less formal educational contexts, which is crucial to further mapping how and where networked learning occurs. Informal settings have been characterized by Wright and Parchoma (2014) as “Learning that occurs naturally,

incidentally, situatedly and pervasively” (p. 243). These, too, are locations for networking and learning. Early on, Fox (2001) connected the work of scholars who theorized and researched learning outside of formal settings. Fox writes that these scholars all agreed that learning can take place outside of formal contexts and that this type of learning is worth researching.

Like Fox (2001), my work is meant to add to the existing networked learning research that emphasizes advancing learning experiences taking place in more formal online settings. When arguing for less formal and more situated research, Fox (2001) leans on Lave and Wenger's (1991) pivotal work regarding socially situated learning. Situated learning theory is “understand[ing] learning in context, in situ, in practice, in activity” (Fox, 2001, p. 82). Wielding this theory, Fox (2001) argues that a narrow, stereotypical conception of networked learning, one that constrains its object of study to online and formal educational settings, can miss valuable information. Fox (2001) states that,

If NL were simply to focus on educationalised learning processes through cyberspace, it would miss all the natural, informal and situated learning which occurs, through the internet as well as through other social networks and spaces, outside of deliberately designed educational activities. (p. 78)

My dissertation directly responds to the types of learning that can be missed if networked learning scholarship continues to produce narrowly focused research on formal learning. There is very little research in the way of informal settings such as CTCs and *how* people learn to use computers and the Internet there.

Fox's work importantly highlights how investigating alternative contexts for learning is valuable. I align with Fox's thinking on this and argue for more empirical research on informal networked learning contexts. When scholars report on these informal learning contexts, the literature on learning importantly expands and a better sense of the diverse and unique individuals and learning processes can be illuminated. As Rosenberg (2015) reasons while studying adult literacy learners, such underrepresented perspectives of learners may not be widely understood if not written about. Informal learning examples such as Rosenberg's helps inform scholars and teachers about diverse learning experiences and motivations.

Siemens (2004) also contends that informal learning is a big part of learning and that education through formal methods is no longer the norm. Instead, "Learning now occurs in a variety of ways – through communities of practice, personal networks, and through completion of work-related tasks" (Siemens, 2004, para. 3). While this is not to say that informal learning has not existed previously, Siemens underscores the significance of learning experiences occurring outside of formal contexts. While limited, research on networked learning in informal settings has started to appear recently.

For example, Wright and Parchoma (2014) studied the use of iPhones within two beer breweries by tracking how participants used their smartphones throughout their brewing process. They found that one of their two participants would watch YouTube videos about brewing while the other participant would download and listen to podcasts by expert brewers. Both participants also posted, read, and exchanged information online. Specifically, they "post[ed] regular accounts of their broader practices using the Internet

to post images of ingredients, equipment and processes and exchange[d] text accounts of recipes and evaluations of processes and products such as tasting evaluations on Twitter and the brewing forum” (Wright & Parchoma, 2014, p. 255). These scholars importantly point out that in this informal learning context, one outside of a higher education context and involving individual learners instead of a class, participants engaged in networked learning. Wright and Parchoma (2014) state, “Participants’ informal learning practices include sharing resources, undertaking self-directed study and engaging in collaborative knowledge construction supported by expert direction and peer review” (p. 258). This study pushes the bounds of networked learning, an activity Fox (2001) strongly advocates.

A second place networked learning has been examined outside of a formal educational setting is in the context of a group of teachers. In analyzing the professional development of teachers, Schreurs (2014) constructed a social network analysis so that teachers could visualize their networks for professional development. Then, Schreurs (2014) conducted interviews and a content analysis to uncover what teachers were learning and talking about as they talked to other teachers. Holmes and Sime (2014) similarly examined teacher professional development and looked at how teachers learned in an informal setting with fellow teachers in an online learning community they were already using (eTwinning). Both of these studies offer key examples of how networked learning can be utilized as a lens for making sense of learning contexts outside of stereotypical formal higher education settings for students while also emphasizing the relationships or connectedness of fellow teachers.

Another informal context that has been explored are networks constructed by youth. Ünlüsoy, de Haan, and Leander (2014) conducted networked learning research in a unique setting, networking platforms among Dutch youth ages 12 to 18. Ünlüsoy et al. (2014) found that motivations for youth to engage in social networking platforms were predominantly for social reasons. They also argue that it is not just engagement but more frequent interactions in networking platforms that can lead youth to uncovering new information.

Finally, another non-conventional networked learning setting that has been examined includes personal learning networks (PLNs), or personal learning environments (PLEs), and globally networked learning environments (GLNEs). PLNs and GLNEs tow the line between informal and formal educational contexts and are hybrid contexts situated between formal and informal learning. These are still relevant as these networks are inherently constructed for learning. Specifically, Rajagopal, Joosten-ten Brinke, Van Bruggen, and Sloep (2012) state that a PLN is constructed when “An individual can therefore create and orchestrate ties to effectively support learning needs and potentially use technology to support this network” (p. 2). Kop and Fournier (2013) argue that personal learning environments (PLEs) are places “...where people direct their own learning, instigate communication, and organize and structure their learning activities” (p. 4-5). Because the learner is in control of his/her learning, and not an educational institution, the shape, plan, and development of each PLE will be different (Kop & Fournier, 2013). Therefore, a PLN may be more closely related to an informal setting because of the control placed in the learner's hands, even though educational institutions

may be part of the network. In a similar way, GLNEs can be initiated in formal education settings but may evolve into less formal contexts. Starke-Meyerring (2010) defines GLNEs as “learning environments that systematically address globalization issues by integrating experiential learning opportunities for cross-boundary knowledge making” (p. 261). These networks are intended to help link students to other people (e.g., peers, instructors, or experts) with different backgrounds. However, based on the development and evolution of the network, a GLNE could exist as a blend of formal and informal contexts.

As much of the research reviewed here has shown, and as Fox (2001) and Wright and Parchoma (2014) have asserted, networked learning scholarship is often focused on formal, online educational settings. I agree that a conventional understanding of networked learning is limited, and instead, the boundaries of this construct should be tested and pushed. Therefore, I argue that adding to extant literature on formal settings is important, especially the empirical work that my dissertation offers.

In addition, rarely are technical communication and networked learning scholars looking at how adult learners, who are inexperienced ICT users, are building their digital literacies. In other words, learners who are in-progress to be able to utilize ICTs are underrepresented. Depictions of networked learning in both formal and informal settings convey participants as having knowledge and skills for operating ICTs, and we lack representations of networked learning in contexts where users lack skills and experiences that make them more critical users. Inexperienced ICT users are often overlooked, and we know very little about their networking and communication practices and their diverse

and contemporary motivations for attending computer classes. It is not enough to open the aperture of networked learning to informal, situated settings. Rather, scholars should be motivated to seek out how people *without* privileged access to ICTs have worked to develop their ICT skills, as this too is part of the learning process. And as Cushman (1996) so critically reminds us, we can be agents of change. Stepping into the nearby communities where our academic institutions are situated can be a meaningful way to do so. Cushman (1996) suggests the work of “empower[ing] people in our communities, establish[ing] networks of reciprocity with them, and create[ing] solidarity with them” (p. 7). If we take a moment to pause and look around the communities where our academic institutions are, chances are we will not have to look far for instances of unequal ICT access and underrepresented perspectives that we need in our literature.

The setting for this research is less formal than an online higher education setting, located outside of academia in a public CTC. Although learners meet face to face for classes on specific topics pertaining to computers and the Internet, it is not a formal educational setting as classes take place in the library branch's computer lab, and instructors are library staff members, and in my case, a volunteer. The work occurring at the CTC is unique from other networked learning studies because it involves people taking classes to learn how to use computers and the Internet. Research focusing on inexperienced computer users is not as prominent in contemporary scholarship as it once was, and little empirical evidence is available for how networked learning may be occurring in community settings such as a CTC, where learners have one foot offline and one foot on, and where the computer lessons are the impetus for the gathering.

Because CTCs are a place for community members to gather, networked learning is especially fitting. The values of community (Hodgson, McConnell, & Dirckinck-Holmfeld, 2012), connections, and relationships (C. Jones, 2012) embedded in networked learning make it especially pertinent to the context of CTCs. For Hodgson et al. (2012), networked learning is a co-created experience where the perspectives of others are essential for learning to take place, where “no one individual is responsible for knowing everything. The community often works towards shared understandings” (p. 295). This type of lens can serve to highlight how patrons and tutors are engaging with and sharing technical information and can highlight the texts and communication practices of that setting. Understanding the texts and related communication practices can reveal the valued rules and norms of the CTC. Networked learning offers one approach for interpreting interactions and network connections between learners, the tutors, and resources made available to the learning community.

In the context of my study, inexperienced ICT users lack some of the foundational skills and knowledge that more experienced users found in networked learning studies possess. Some learners have major obstacles to navigate such as learning to use the hardware, navigating interfaces, and critically examining how messages are constructed and transported online. But these inexperienced user perspectives situated in face to face and informal learning contexts are needed because they can help to make networked learning and technical communication scholarship more inclusive. In order to develop a more complete picture of user experiences at Urban CTC, however, a lens of

multimodality paired with networked learning means that a more detailed and nuanced understanding of texts and their engagement at CTC can be constructed.

Multimodality

Combining networked learning and multimodality as a construct for my research means that I have been able to focus on networked connections of learners and the technical communication resources they are engaging to advance their digital literacies. These theoretical lenses are tools for building an understanding of the “texts and related communication practices” (Rude, 2009, p. 176) present at Urban CTC, core elements of technical communication scholarship.

Background and history. Multimodality refers to messages that contain multiple modes. According to Kress (2010), a mode is a “socially shaped and culturally given semiotic resource for making meaning. *Image, writing, layout, music, gesture, speech, moving image, soundtrack and 3D objects* are examples of modes used in representation and communication” (p. 79). Modes are selected based on their potential or rhetorical impact for communication (Kress, 2010). Jewitt (2014) states that multimodality is “something more than language” (p. 1), a point expanded upon by Takayoshi and Selfe (2007) and Palmeri (2012), who argued that multimodal compositions reach beyond alphabetic means for constructing meaning. Jewitt (2014) outlines four main theoretical assumptions that go along with multimodality research, which include: a) language is included in “multimodal ensemble[s]” (p. 15); b) each mode in an ensemble does “different communicative work” (p. 16); c) meaning is constructed based on the selection and arrangement of modes; and d) multimodal resources are social, meaning that “they

are shaped by the norms and rules operating at the moment of sign-making influenced by the motivations and interests of sign-maker in a specific social context” (p. 17). From here, Jewitt makes it clear that language is one of many modes contributing to making meaning. Furthermore, meaning relies on which modes are chosen, how they are deployed, and what the social context says about how they should be interpreted.

Multimodality has been studied for decades, and the collaboration of scholars known as the New London Group brought the study of different modes to the forefront for compositionists interested in pedagogy research. In the mid-1990s, this group of ten scholars gathered to discuss two important issues they identified, which included expanding the scope of literacy pedagogy to encompass “our culturally and linguistically diverse and increasingly globalized societies” and “that literacy pedagogy now must account for the burgeoning variety of text forms associated with information and multimedia technologies” (New London Group, 1996, p. 61). This group was comprised of scholars from across the world including the United States, Australia, England, and South Africa (Gee, 2015). One of the features that characterized the New London Group’s thinking was that they viewed people as “active designers” (Gee, 2015, p. 56). When creating meaning through oral or written means or media, they viewed the process as akin to designing, and they encouraged people to think like active designers when contemplating messages they received (Gee, 2015). In the New London Group’s publication, “A Pedagogy of Multiliteracies: Designing Social Futures,” they argue for a new approach to literacy pedagogy not “restricted to formalised, monolingual, monocultural, and rule-governed forms of language” (p. 9) as prior approaches had been.

A multiliteracies approach includes having a broader scope of what literacy entails and acknowledges the multitude of cultures and languages that influence texts while recognizing the wide variety and increasingly large amounts of texts being produced today due to information and technological capabilities.

With the New London Group collaborating in the 1990s, Selber's (2004) *Multiliteracies for a Digital Age*, and Kress (2010) publishing *Multimodality: A Social Semiotic Approach to Contemporary Communication*, substantial work has been done to theorize multiliteracies and multimodality. The New London Group (2000) argued that massive changes are occurring for people in terms of their work lives, public lives, and personal lives. Selber (2004) also attended to literacy issues facing those who are using computers because merely knowing the "mechanics of computing" (Selber, 2004, p. 2) is insufficient for students and teachers working in the twenty-first century. Thus, Selber (2004) advocated a multiliterate approach where teachers underscore and offer sufficient exposure to three different types of computer literacies, functional, critical, and rhetorical, so that they can move back and forth among all three. More recently, Kress (2010) highlighted how the major transitions occurring for communication in our world are tied up in a "web of intertwined social, economic, cultural and technological changes" (p. 5). Recognizing and understanding these interconnected and influential factors is paramount if we are to understand communication. Multimodality and multiliteracies have been analyzed and framed as critical paths for contending with these changes. As a result, research involving multimodality and pedagogy has become a fixture in the field of composition and rhetoric.

Multimodality research in composition and rhetoric. While recently there has been a resurgence in interest in multimodality for those in composition studies, Palmeri (2012) cautions compositionists who subscribe to this narrative and reminds them that scholars have been arguing that alphabetic forms of writing *are* multimodal since as early as the 1960s. Even critiques of alphabetic text dominance have been made for years, as Palmeri (2012) writes:

In our headlong rush to embrace multimodality as a radically 'new' phenomenon, we've forgotten for example about the many multimedia textbooks of the early 1970s...we've forgotten about Ann Berthoff's exploration of the similarities between alphabetic and visual composing; we've forgotten about Geneva Smitherman's powerful critique of conventional privileging of print forms of knowledge in the academy; we've forgotten about Donald Murray's fascination with the intersections between photography and writing. (p. 5)

As Palmeri illustrates, composition scholars have grappled with multimodality for years.

Much of the scholarship on multimodality has taken place within the field of composition and rhetoric and has been pedagogically focused. One recurrent theme compositionists cite is that dependence on written or alphabetic texts is unreasonable today. More recently, Takayoshi and Selfe (2007) have noted that composition instructors are recognizing reliance on the alphabetic semiotic channel is insufficient as communication is becoming more cross cultural and digital. Shipka (2011) has also argued for a “richer, more comprehensive theory of composing—one that still includes *but is not necessarily limited to* writing or the production of written texts” (p. 132).

Significant efforts to theorize multimodality in classrooms have been undertaken, including an edited collection by Bowen and Whithaus (2013) that provides examples of different ways multimodal projects have been engaged. To help students improve their abilities of working across different modes of communication, Bowen and Whithaus call teachers to help students do this.

It is undeniable that in our current moment in time, multimodality in composition and rhetoric is booming. Kress (2010) has recognized an “explosive interest” (p. 5), and Lutkewitte (2014) has also observed an increased presence of multimodality scholarship within the field. Lutkewitte (2014) attributes part of this surge to instructor and student realizations that “old and new technologies have enabled, and even demanded, the use of more than one mode to communicate, entertain, solve problems, and engage in deliberation” (p. 5). In her edited collection, Lutkewitte (2014) provides several examples of what composing with multiple modes looks like. In the past 20 years, a substantial amount of work has been conducted by composition and literacy scholars that continue to influence and shape the pedagogical landscape. This sustained interest in multimodality speaks to the seriousness that scholars are taking the global and digital shifts to our communication practices. This is not to say that we have never experienced such a shift. The printing press is an example of how a technological innovation altered lives dramatically, but it is the digital nature of what we have been observing in the past 20 years or more that continues to inspire scholars to engage the implications of such shifts.

While much of the literature on multimodality stems from composition and rhetoric, there are scholars conducting research outside of pedagogy as well. Scholars

have investigated multimodality in online contexts, within different cultures, and on how multimodality can influence overall well-being with ICT use. R. H. Jones (2014) analyzed a website's interface featuring profiles in its “personals' section” (p. 143) for a “multimodal display of the body” (p. 144), which included examining usernames, icons, written text (e.g., personal information), and photos. Leander and Vasudevan (2014) also explored multimodality and mobility as they looked at the ways in which multimodality happens, shapes culture, and where it occurs. In a cross-generational study, Chan (2015) analyzed ICT use and multimodal communication and connectedness in Hong Kong to see how ICT use relates to quality of life.

Despite the extensive research on multimodality, there is still ample room to explore who engages multimodality and how, especially within the field of technical communication. While it appears as though scholars in technical communication have not analyzed multimodality to the extent that compositionists have, there are some scholars who have investigated the intersections of technical communication and multimodality.

Multimodality and technical communication. The understanding that nonacademic writing, or technical writing, and non-alphabetic modes are intertwined is not new for technical communicators (Ackerman & Oates, 1996). Although Ackerman and Oates (1996) do not specifically use the term multimodality, they write about the ways in which some nonacademic writers draw upon multiple modes to convey meaning. In particular, they describe the workplace writing of architects and their reliance on multiple modes to convey arguments and ideas for various audiences. Rather than solely looking to alphabetic modes, they argue that, “The cultural tools in architectural design

are ones that include a necessary mix of image and print: a vacant lot, a barrio, a brick wall, 80 years of row houses, a steel beam, glass walls, printed instructions, building codes, schematics, and contract law” (p. 85). This serves as an example of how technical communicators have engaged with multimodality and how they have conceptualized the various dimensions of nonacademic writing.

Researchers in technical communication who have studied its intersections with multimodality have, for example, explored the role of visual rhetoric in business communication courses for helping students understand composing with different modes (Brumberger, 2007), accessibility issues for students in online technical communication courses (Oswal & Meloncon, 2014), and the roles of writing when communicating technical information within a physics dissertation (Wickman, 2015).

A study by Fraiberg (2013) offers key insights for analyzing different modes and interactions being presented in a workplace setting. After gathering data via ethnographic methods at a Web 2.0 startup company in Israel, Fraiberg (2013) argues that paying attention to all of the different ways practitioners engage in “knotworking” (p. 23) can illuminate the variety of activities writers take part in while working. Knotworking includes “tying and untying texts, tools, actors, and objects” (p. 23) and can reveal how networks are formed when signs and symbols are chosen. Likewise, knotworking practices may be present at the CTC for my research. Because patrons are working to learn new information about computers and the Internet, they may tie and untie texts as they read or work in their curriculum booklets. Patrons may see connections from the texts they are reading to the different tools they are using such as typing or using the

mouse. In some classes, they are asked to do individual, short writing activities to complete in-class exercises. In addition to building social networks with peers and instructors in classes, patrons may be building networks of knowledge in the CTC via knotworking. This notion of knotworking may bring to light how patrons are reading and using modes for their learning.

Furthermore, Fraiberg (2013) calls for technical communication scholars to take a more “fine-grained” look at multimodal and multilingual forms of communication and the less formal communication interactions taking place in workplace settings. Doing so, Fraiberg (2013) argues, especially in a multilingual workplace setting, can offer insight for what students will need to know and understand in global workplaces. Therefore, the learning and multimodal forms of communication occurring in the CTC may have significance relevant to technical communication teachers as well.

As many of the aforementioned scholars in this review of literature have asserted, the ways in which people are learning, seeking out knowledge, and communicating are changing. The New London Group and others have cautioned that work and personal lives are also in flux due to digital technologies. Therefore, Fraiberg’s timely advice to pay attention to how knotworking takes place is critical because these details can aid in uncovering how people are engaging with technology and constructing networks in a non-academic setting such as a CTC.

Multimodality and CTCs. Very few scholars have analyzed the intersections of multimodality and CTCs. In examining practices at an urban CTC, Hull and Nelson (2005) focused on one of the videos constructed by a CTC participant. After analyzing

this multimodal construction, they argued that multimodality offers a critical “democratizing force” (p. 226) due to the opportunity to communicate using various modes and a chance to “enrich” (p. 226) meaning making. They contend that when using such a lens, “...an opening up of what counts as valued communication” (p. 253) can occur. CTCs are rich sites for multimodality, and one of the goals of my research is to expand our understanding of the presence of modes and the ways in which CTC participants engage with technical information regarding Internet and computer use.

An understanding of multimodality is critical to this research because modes of communication are important for recognizing how users are engaging with technical information. This complements networked learning, which underscores resources accessed (both human and non-human) for networking. Multimodality is an important lens that permits a detailed view of both linguistic and non-linguistic means of communication. Jewitt (2014) extends this line of thinking and importantly asserts that multimodality:

helps to make explicit the modal resources and multimodal practices that are available in a site, the ways that these are used, and how participants articulate meaning and relationships through these. One role of multimodality is to make the invisible visible and to name processes that may have previously not been attended to: that is to seek out, interrogate and re-evaluate what may often be considered the mundane and marginalised aspects of communication. (p. 455)

This practice of making the invisible visible is paramount. Not only does a multimodal lens shed light on various forms of communication, but it also serves this project well

because it highlights the sometimes-invisible literacy work taking places in community sites such as CTCs.

In conclusion, pairing multimodality with networked learning can importantly highlight the unique and local ways for how technical information is engaged at the CTC. In addition, applying this multimodal lens extends the literature on multimodality because much of the research has focused on college composition classrooms (Palmeri, 2012; Shipka, 2011; Takyoshi & Selfe, 2007). While writing is a crucial skill for individual development, research on multimodal practices outside of college composition classrooms is sparse, let alone in CTCs. This research can expand the literature and application of this theory outside of college composition classroom settings.

Changes in society due to technological innovations have prompted the development of both networked learning and multimodality. Scholars interested in these constructs have been striving to develop methods for contending with issues pertaining to an increasingly digitally connected world. Both lenses, together, permit a view of the tools and types of connections as well as the modes present within a CTC. In other words, these lenses allow me to look at the context in which ICTs are being utilized. As Duin and Hansen (1996) have outlined, social context is tied to the way a technology is utilized and that social context and technology influence how nonacademic writing occurs. Therefore, networked learning and multimodality provide technical communication scholars with useful perspectives to better understand underrepresented and inexperienced ICT user experiences and how they engage with unfamiliar technical information. Such knowledge

is crucial for constructing more inclusive approaches to designing user experiences and making progress toward bridging debilitating digital divides.

Research Questions

The research questions for my study allow me to illuminate the ways in which learners at Urban CTC are making use of technical communication texts and practices as they learn to use computers and the Internet. The overarching question that frames my research asks, in what ways are networked learning and multimodality taking place at community technology centers? To look at this question in greater depth, I pose three research questions which serve as routes to better understanding the technical communication texts and practices at Urban CTC. Research questions one and two pertain to human interactions, and research question three addresses connections to texts at Urban CTC. In particular, research question one asks, *in what ways are learners connecting with other learners at Urban CTC?* Research question two asks, *in what ways are learners connecting to tutors at Urban CTC?*

In addition, learner interactions with other available resources at the CTC are important for analyzing how users engage with multimodal resources and texts in the CTC. Therefore, research question three seeks to provide an opportunity to uncover multimodal resources accessed by learners and asks, *in what ways is multimodality present in learner connections to other available resources at Urban CTC?* The responses to this research question can highlight the variety of tools inexperienced users utilize to develop their digital literacies and can shed light on the user localization practices taking place at Urban CTC. Analyzing the connections learners are making to a variety of

resources, both human and non-human, provides needed insight into how underrepresented users are developing their digital literacies and how tutors serve as local technical communication experts for tutors.

Chapter 3: Ethnographic Study of a Community Technology Center

This chapter provides detail on the design and methodology used in this study. First I describe a general overview of my CTC observation, my ethnographic approach, and some of the ethical challenges facing researchers. I then describe the CTC site selection and details regarding the site, the two data collection phases of my work that resulted from the computer lab undergoing a renovation, my positionality at the CTC, lessons learned from the pilot study I conducted, my data collection methods, and the grounded theory procedures I deployed for my analysis. These different aspects provide insight into the steps and decision making for my research. Smagorinsky (2008) advises writing scholars to incorporate detail on various aspects of the research process, which I present in this chapter. Such detail includes: description of research setting (Urban CTC setting), role of researcher and relationship to participants at field site (my researcher positionality), data collection, study limitations (ethical challenges and researcher positionality), data reduction and naming codes (data analysis).

As I learned throughout my fieldwork, there is much to observe and unravel in a community space where people gather to work. One of the library staff members, Jacora, succinctly described libraries as sometimes unsuspecting places for action. She stated, “when I thought about the library before, you think of a boring place, so quiet, fall asleep in. And it’s so not that. It’s quiet in here, but...it’s a lot of noise, too” (Lines 162-163). In that spirit, I open this chapter with illustrating how I sought to capture the “noise” and activity of a CTC that was being utilized to advance digital literacies. In this chapter, I

detail how I accessed and analyzed the technical communication texts and communication practices at an urban CTC.

First, I will briefly point out notable markers and a timeline in order to establish the chronological landscape for this project. Over the course of 10.5 months, from August 2014 to June 2015, I served as a volunteer at a Southeastern urban CTC within the Metro Library³ system⁴. This CTC was located within one of the 20 library branches of Metro, known as Urban Library⁵. Urban Library shared a building with the police department.

I rotated through my volunteering tasks during this time based on what was needed at the CTC. I started by helping patrons in the computer lab and at the workforce computers during the day and assisting in teaching computer classes during the evenings, typically in two-hour shifts. At Urban CTC, computers were located in a computer lab and outside of the lab at the workforce computer station. The computer lab held 16 desktops. Patrons could use the lab computers daily for up to two one-hour sessions. The main workforce computer station had eight desktops situated in the center of the library, and there were two other individual workforce computers located at their own built-in desks away from the main workforce area. For these computers, patrons could use them for up to one three-hour session daily, however, they had to be working on workforce-related tasks such as searching for jobs, writing a resume, or completing homework. Spending time checking or organizing personal email accounts was not allowed.

³ Pseudonym

⁴ I received IRB approval May 2014: The IRB: Human Subjects Committee determined that the referenced study is exempt from review under federal guidelines 45 CFR Part 46.101(b) category #2 SURVEYS/INTERVIEWS; STANDARDIZED EDUCATIONAL TESTS; OBSERVATION OF PUBLIC BEHAVIOR. **Study Number:** 1404E50001. **Principal Investigator:** Rachel Tofteland-Trampe

⁵ Pseudonym

In December 2014, I began teaching computer courses. At the end of the following spring, the computer lab closed for renovations, and in the interim, I volunteered in the computer lab and at the workforce computers. I also conducted one-on-one computer tutoring sessions. The lab reopened at the beginning of Summer 2015, and I was able to attend the first computer class before ending my time at the CTC in June. Because the lab renovation period changed who was coming into the CTC and when, this prompted me to adapt my approach for data collection. Therefore, I present my data collection stages in two phases in order to differentiate between the participants I was observing and interviewing before and those I observed during the renovation. Phase 1 includes data collected before the renovation, the 8.5 to 9 months at the CTC from August 2014 to the end of April 2015. Phase 2 includes data collected during a roughly two-month period, from the end of April 2015 to the beginning of June 2015, when the computer lab was closed. Both phases include patrons and library staff as participants. Over the course of my time at Urban CTC, I observed patrons fighting to overcome obstacles preventing them from utilizing ICTs while I worked to develop relationships and establish trust. Before discussing these nuances of the CTC and my data collection, I will first establish my reasoning for deploying an ethnographic approach for my research.

Research Design and Methodology

My goal is to explore and better understand the texts and communication practices at the CTC as they pertain to technical communication, and my overarching question asks: in what ways are networked learning and multimodality taking place at community technology centers? To address this question, I take an ethnographic approach, which

allows the use of a variety of qualitative data collection methods. In particular, I utilize participant observation, fieldnotes, memos, interviews, and documents to learn more about the texts and communication practices present at the CTC.

Approach and rationale. An ethnography is a tool that offers a useful window to observe another world (Charmaz, 2006). It is also a tool for studying “human action in the field and in documents” (Altheide, 1996, p. 10). The approach I take to this ethnography is inspired by Charmaz’s (2006) ethnography depiction:

Ethnography means recording the life of a particular group and thus entails sustained participation and observation in their milieu, community, or social world. It means more than participant observation alone because an ethnographic study covers the round of life occurring within the given milieu(x) and often includes supplementary data from documents, diagrams, maps, photographs, and occasionally, formal interviews and questionnaires.” (p. 21)

Conducting fieldwork has allowed me to visit and observe the life that occurs within the context of the CTC. In essence, I have chosen an ethnographic approach to understand the ways in which networked learning and multimodality are present within this CTC. By being able to observe, participate, review technical documents used by patrons, and talk to participants, I can construct well-rounded depictions of the texts and communication practices used at the CTC.

The particular data collection methods used for this research provide me with specific angles from which to view the research site. Each offers critical insight into the everyday practices at the CTC. More specifically, participant observation allows me to

gain unique insight into the activities of a community as they are involved with particular practices. While my exploration of such everyday occurrences sheds light on the particular cultural context and values of this community, Marcus and Fischer (1986) point out that the goal of ethnography is not simply to report such values but that “the empirical exploration of the historical and cultural conditions for the articulation and implementation of different values is” (p. 167) what matters. Therefore, my work as a researcher involved spending time in this field site to learn about the daily practices and to cultivate an understanding of how those daily conditions shaped the values and perspectives stemming from the cultural context of Urban CTC. As a participant observer, I was able to get a close up view of everyday practices over time.

My role as a participant observer changed throughout my time at the CTC. I first began by assisting patrons who needed help while working at workforce computers and the lab computers. Another way I engaged in participant observation was by volunteering weekly within computer classes working as an assistant to the instructor. Later, I began teaching PowerPoint and Excel classes and tutoring patrons for the one-on-one sessions during the lab renovation. These participant observation activities served three main functions. First, I was able to offer a service to the community where I was volunteering. Second, participating at the CTC offered a very valuable opportunity for observing communication practices. By helping patrons, I was better able to notice student interactions with peers, tutors, and staff. The interactions taking place in the CTC are situated, spontaneous, and fleeting, and engaging in participant observation allowed me

the opportunity to observe such interactions. Finally, volunteering at the CTC regularly allowed me the ability to build trust with participants and to become a familiar face.

Ethical challenges for ethnographers. Taking an ethnographic approach is not without challenges, and these challenges are well documented. In particular, unequal balances of power between researcher and participants exist (Stinnett, 2012), researchers must carefully consider how they present participants (Goodall, 2000; Madison, 2000; Stinnett, 2012), and should avoid reinforcing colonial practices (Goodall, 2000; Stinnett, 2012). I elaborate on these challenges next and will then describe how I am positioning myself within this research in order to convey how I am considering identity, power, and ethics as I conducted my research.

When doing ethnographic work, researchers will always encounter a power differential that exists between researcher and participant. Stinnett (2012) states that such a dynamic is inevitable in interactions. Although I made every effort to reduce the power differential between myself and my participants, it was still present, and unavoidable. I recognize the existence of this differential and acknowledge that it may have played a role in my data collection. However, given the non-threatening nature of the interview questions and CTC setting, I believe this impact is minimal.

Ethnographers must also carefully consider the ways in which they represent their participants in scholarly outlets (Goodall, 2000; Stinnett, 2012). Goodall (2000) strongly urges researchers to consider what it would be like to have someone who was educated differently watching and interpreting everything they do. Scholars must seek to recognize the discomfort participants may feel as they are observed and questioned (Goodall, 2000).

In addition, Goodall (2000) states, “Our collective challenge has always been one of adapting a message to a particular, intended audience. Remember that. And live with the difficult questions of legitimacy and representation” (p. 11). Madison (2005) argues that even with good intentions and careful writing, representing other people will be inherently challenging and complex. Bearing these wise words in mind, I did my best to represent my participants with respect. Goodall and Madison offer important reminders that transcend data collection and carry over to analysis and writing results.

A third ethical challenge is the risk of reinforcing colonial practices. Ethnographies have been criticized for their similarities to colonialization (Goodall, 2000; Stinnett, 2012). Goodall (2000) writes that watching others is to “*colonize* them” (p. 110) and when scholars write about their ethnographic experiences and publish accounts from their fieldwork, they are “*us[ing]*” (p. 110) the participants. One method for countering this is to give something in return to the participants who are giving much to the researcher (Goodall, 2000). Stinnett (2012) also contends that there are concerns that ethnographers reinforce colonial practices as they write about the population they study, or the “Other.” He writes that it is critical to combat these types of moves and advocates solutions include taking a critical approach to ethnography (Stinnett, 2012).

As mentioned above, these are some of the challenges ethnographers face when they go into a site, observe, and write about what they interpreted for their audience. I keep these important challenges in mind as I approach this research. To address such challenges, Goodall (2000) and Stinnett (2012) both advocate self-reflexivity when constructing an ethnography. Stinnett (2012) importantly points out the tensions an

ethnographer faces when entering a community and the task of representing the people there. Stinnett (2012) also credits other scholars (e.g., Hammersley, Atkinson) for arguing that researchers should remain self-reflexive and open to changes and adaptations throughout the research. In a similar vein, Charmaz (2006) argues that researchers should stay “open to the setting and the actions and people in it” (p. 21). I, too, embrace self-reflexivity as I write my memos throughout this project, and I have embraced flexibility, most prominently when the renovation occurred at the CTC. In volunteering at the CTC, I hope to have given back in some way to the participants who helped me with this research.

In this dissertation, I endeavor to illustrate the scene at the Southeastern CTC fairly as I observed it from August 2014 to June 2015. As I recruited and interviewed participants, it became evident almost immediately that patrons were kindly setting aside time during their evenings or days to talk with me. They had busy lives, and I learned that bus schedules, work commitments, childcare duties, or other community programs offered at the library were additional factors they were juggling outside of their time at the CTC. Because several of my interviews took place after a CTC class, I am extremely grateful to patrons who set aside time to share their stories. Stinnett’s (2012) words resonate strongly with me, “Researchers often ask participants to risk themselves—whether this means risking their time in their busy schedules, risking their place within their community by serving as informants, or in myriad other ways” (p. 141). In addition, the staff members I interviewed were setting aside time for me during work hours or

during their break time, and I appreciate their willingness to share and risk their time as well.

Site selection. The CTC site for this research is located in a large Southeastern urban area. Its website indicates that this branch is close to very old areas of town that are some of the most diverse parts of the city. Having previously observed a CTC in another large urban area for my pilot study, I was interested in locating a site with similar classes and number of computers because that type of setting seemed to most closely match with the descriptions of CTCs I had been reading about in the literature. I was approaching my site selection with a community-based research approach in mind, meaning that I wanted to be able to contribute to the site and its patrons while I engaged in my research. In other words, I wanted to be able to establish a mutually beneficial working relationship with the site. I felt that Urban offered the best opportunity for this research based on number of computers present within the branch and the fact that this branch offered computer classes starting in the fall. Therefore, I selected Urban as it seemed like the best site for pursuing this research and began by volunteering at the site to get to know my community partners, staff and patrons, and the setting.

Urban Library is considered a medium-sized library across the system as it is not as large as a regional (*term participants used*) or as small as a neighborhood branch (*term participants used*). The branch has a library space and a second space known as the community room. During my time volunteering, the CTC underwent a renovation for expansion and houses 15 desktop computers available for patrons in the lab, two new big screen TVs, and 12 new desktop computers outside the lab, including one 15-minute

express computer. There are still 10 workforce computers, and eight of them were relocated within the library.

Staff members were enthusiastic about the new lab coming to fruition. Jacora, one of the staff members, was looking forward to the new lab opening. She stated, “Oh my god, I’m so excited...we all are looking forward to being able to offer more computer services, more workforce computers able to conduct training courses while others are on their computers still, you know. So, the end result is looking good, so that’s what we’re keeping our eye on right now” (Lines 57; 63-65). Jacora also expressed the positive ramifications of this lab for the community, capturing the excitement and understanding of what this renovation offers patrons:

I mean I just think back before they even started thinking about doin’ the renovation, we have patrons that would come in and they were so down because they couldn’t find a job and the fact that we helped them complete an application, or build their resume and then to come in and say they got the job, you know. So I think that us expanding it, we’re allowing more people to find jobs, build their resume, get things done, you know what I mean? Even if it’s a computer for personal use, you know somebody can still go into that lab and do things they need to do for a job or to better their lives in some way. (Lines 119-123)

Staff members at Urban CTC are very aware of the importance of this new lab space and how it is viewed as a resource for job preparation and a space for enriching lives.

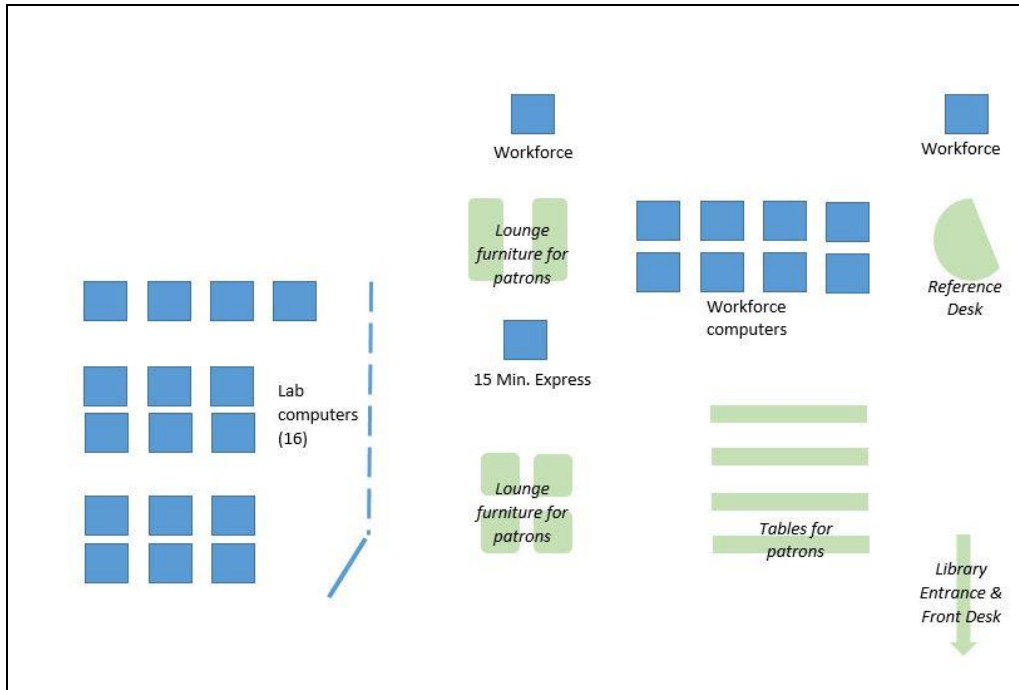


Figure 1. Urban CTC prior to renovation



Figure 2. Inside the computer lab before the renovation (photo taken with my back to the door of lab)

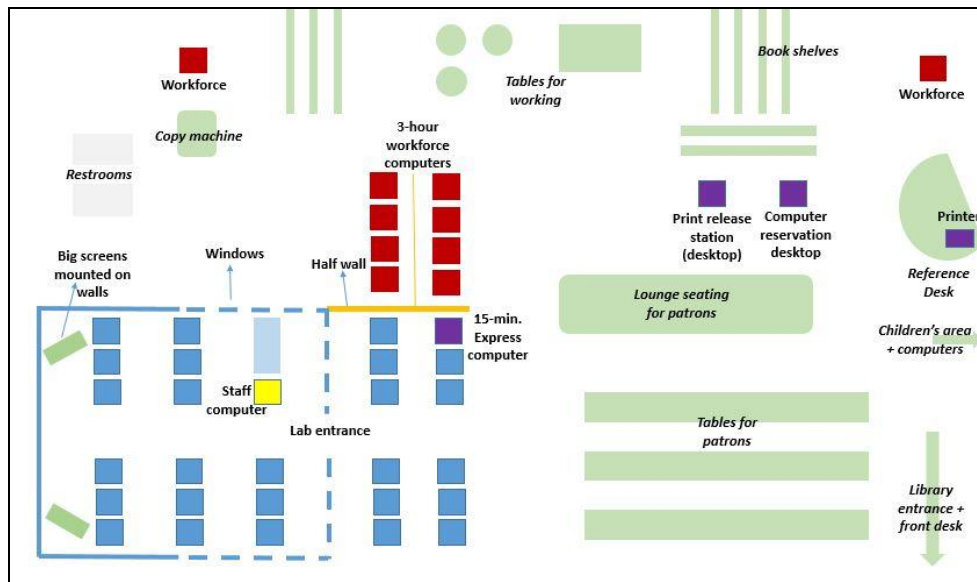


Figure 3. Computer lab and library main area post-renovation



Figure 4. Inside the new computer lab after the renovation (photo taken with my back to where the old lab door used to be)

Phase 1: The Southeastern CTC pre-renovation (August– April). As

previously mentioned, due to the lab renovation, I conducted my data collection in two

phases. Because the lab was open during Phase 1, the interview participants for this phase included the CTC patrons who voluntarily signed up and attended computer classes held in the CTC. These were all adult learners, and several appeared to be at least in their 50s and 60s. Each week, I also made an announcement at the beginning and end of class that I was interested in talking to patrons about their experiences using computers and writing. I would ask eligible patrons after class if they were willing to be interviewed and sometimes they would approach me.

My staff participants for this phase included two people who were helping teach the computer classes. The first participant had worked at the library for 10 years. The other one had only began working at the library that fall. The CTC had been offering computer classes like the ones I had attended for at least the previous eight years. One of my main contacts, the main teacher in the CTC, said that she had been teaching these courses for several years and prior to that, an IT staff member taught courses. When staffing needs changed, she began teaching more frequently.

Phase 2: The Southeastern CTC during renovation (April– June). For this phase of data collection, which occurred while the lab was closed for renovation, the interview participants included library patrons who signed up for one-on-one computer tutoring sessions and one patron who attended the first summer computer class. Participants also included library staff members who help patrons at computers daily. I also conducted follow up interviews with two staff members.

For fieldwork, I engaged in participant observation work through the one-on-one tutoring sessions and floating by the workforce computers (the lab was closed during this

phase). The one-on-one sessions took place in three different areas of the library, based on where the patron wanted to be located. These sessions were held in the table area of the library, at high top tables, and at a workforce station for a single desktop computer. I took fieldnotes during the first class that was held in the newly renovated CTC, but otherwise, I composed my memos retrospectively. I took several pictures during this phase of the renovation as well.

Researcher positionality. Addressing my positionality in this research is important because it allows me to reflect upon my status, character, and power within the CTC and to consider the ways in which my position influenced the people with whom I was interacting. Positionality refers to the sources of power, privilege, and biases we carry with us (Madison, 2005). Madison (2005) argues for self-reflexivity and that in order to represent other people and the worlds they live in for “*just purposes*” (p. 14), researchers must reflect upon and acknowledge their positionality within the research setting. Heuman (2015) also advocates a self-reflexive praxis for ethnography and describes the process as a “turning back on oneself” (p. 196) to gain insight into one’s “identity, values, and assumptions” (p. 196). Such taken-for-granted notions should be brought to light for an ethnographer in order to better gather and interpret data.

My position at the CTC can be characterized in light of Fine’s (1994 as cited in Madison, 2005) three positions for qualitative research, the stance I most closely align with is the one where the subjects are the focus and their perspectives or “voices” (p. 6) share “indigenous meanings and experiences that are in opposition to dominant discourses and practices” (p. 6). For this stance, the ethnographer’s position is somewhat

present but not directly stated (Fine, 1994 as cited in Madison, 2005). What I seek to do in this research is to share the perspectives of the participants but without pushing a predetermined agenda on the study. Due to the grounded theory nature approach I take to this project, I relay common themes that emerge from coding the data.

To elaborate more on my position in this CTC, I will offer a brief discussion of how I was an outsider to this place. Having not stepped foot into this library before interviewing, I was new to the staff and patrons. Besides that, I sounded like an outsider. Lacking a southern accent, my style of speaking was a marker that I may have grown up elsewhere. One of the librarians asked me where I was from because I did not sound like I was from the South. In addition, I was a White person in a predominantly Black community space, and in computer courses, I was usually viewed as more of an expert on ICTs because I was viewed as younger and more adept at using technology. As an outsider, I tried to observe intently in order to learn the norms and rules of this space. My first point of contact, the woman who interviewed me to volunteer, knew a little about me and ran a background check, but she did not know a lot. She “hired” me and thereafter eased my transition and oriented me to the library, staff, and rules for the setting all of which were helpful in establishing an identity in that space and for developing relationships with patrons and staff.

The more I volunteered at the library, the more I became familiar with the patrons and staff. I rotated between different roles depending on if there was a class being offered on that particular day or not. As a volunteer, I was considered a technology tutor. This role morphed throughout my time at the CTC, but I had three main tasks: I was at the

reference desk, assisted or taught classes, and conducted one-on-one computer sessions. When I first started in the summer of 2014, computer classes were on break until the fall, so I floated between the computer lab and the workforce computers helping people as they needed it. When I was in this role, I stood at the reference desk where I waited for questions, and there was always a staff member ready to help patrons as well. Some days were busier than others, but when people did ask for help, they mainly asked questions pertaining to creating or moving documents (e.g., how to attach a resume to an email, save a Word document to a USB drive, or how to print). I was also asked to help with job application sites. When patrons were not needing assistance, I would help the children's librarian or talk to the librarian at the reference desk.

My third task consisted of helping with the one-on-one computer tutoring session. When I found out the lab would be closing in the spring for renovations, I offered to tutor interested patrons for these sessions. In working with my two main contacts at the library, we established a schedule and sign up for patrons. These sessions took place while the lab was under construction. These sessions were to be 30 minutes long, but I usually ended up spending anywhere from 45 minutes to an hour and half with each patron. On the days when I had time in between patron appointments, I would float between the workforce computers (the only available computers during the renovation) and the children's area.

I volunteered at the branch nearly weekly for 10.5 months, and although my frequency of volunteering each week varied from one to three times per week, I believe this consistent schedule allowed me to get to know the staff and patrons. Getting to participate in a variety of ways during my volunteer time also offered me unique

opportunities to learn about how and why patrons wanted to learn how to use computers. I gained insight into how and why staff help patrons with computers as well. Despite beginning my time as an outsider to the branch, over time, I truly got to know some of my participants, and I felt that I knew the staff members when I left.

Pilot study: A Midwestern CTC. Over the course of seven weeks during Spring 2014, I observed a CTC located in a large Midwestern city to gain insight into what types of courses were offered, who was visiting such a site and why, and how the staff worked with patrons to help them gain access to ICTs. I observed an Internet safety course and introductory Excel and Internet courses, helped patrons during classes, and informally interviewed staff members. This was valuable preparation for observing, working with patrons, and building trust with community partners at Urban CTC. My data included retrospective memos I had written detailing the events of classes. During June of 2014, I conducted a qualitative interview with one of the patrons who had attended a class. I analyzed one of the observation memos by looking for evidence of networked learning, multimodality, and acculturation. I conducted Charmaz's (2006) line-by-line coding scheme to begin forming preliminary codes for the interview I had transcribed.

From the pilot, I gained several key insights. One important insight that resulted from the interview was that the participant indicated her motivations for attending the lab. She wanted to gain access to knowledge and to network and form friendships with others. Learning was important to her but so were social connections. Because I gathered interesting data about why she took the time to visit the CTC, I included a question for patrons at the Southeastern CTC that pertained to their motivations as well. Conducting

this interview provided critical experience constructing and utilizing an interview guide, and I was better prepared for interviews at the Southeastern CTC because of it. I adapted my approach to be more open and flexible when talking to patrons. Because of my experience at the pilot CTC, the gender differences I observed at the Southeastern CTC became an initial point of interest. Most of the teachers at the pilot site were men, and at the Southeastern site, a majority of the teachers were women, and female patrons frequently outnumbered males in CTC courses. The pilot CTC provided handouts to students regarding the course content, which prompted me to look for such technical, extant documents at the Southeastern CTC as well. The pilot offered a critical start to my ethnographic and grounded research approach. Because I was interested in better understanding the texts and communication practices at Urban CTC, this pilot aided in my preparation to recruit and interview participations as well as pay attention to the texts and interactions at work within the CTC.

Grounded Theory

I take an approach to grounded theory rooted in Charmaz's (2006) work. She contends that grounded theory offers a route toward understanding the different scenes scholars study and offers a way to construct theories to understand these scenes. Following in the footsteps of Glaser and Strauss (1999/1967), Charmaz (2006) offers a modern take on the analytic methods involved in analyzing qualitative data. She describes her work as returning "to the classic statements of the past century and reexam[in]g them through a methodological lens of the present century" (Charmaz, 2006, p. xi). More specifically, grounded theory methods are those that are "systematic,

yet flexible guidelines” (Charmaz, 2006, p. 2) that guide the collection and analysis of data. Using these practices, the researcher is able to build theories that are grounded in the data that they stem from. Charmaz (2006) echoes the work of Glaser and Strauss (1999/1967), who argued that this was one of the main benefits of a grounded theory approach. Glaser and Strauss (1999/1967) state that grounded theory “...is a way of arriving at theory suited to its supposed uses” (p. 3).

Charmaz (2006) also argues that grounded theory “prompts taking a fresh look and creating novel categories and concepts” (p. 23). The act of moving between data and analysis is part of the process for developing grounded theory. The advice Charmaz (2006) offers for conducting coding for grounded theory, her “code for coding” (p. 49), is to “remain open, stay close to the data, keep your codes simple and precise, construct short codes, preserve actions, compare data with data, move quickly through the data” (p. 49). Keeping her words in mind, I moved toward coding my own data.

The goal of my overarching study, to better understand the technical communication texts and communication practices present at a CTC, is inspired by the central research question Rude (2009) describes as a common thread for the field of technical communication, which is, “*How do texts (print, digital, multimedia; visual, verbal) and related communication practices mediate knowledge, values, and action in a variety of social and professional contexts*” (p. 176). As previously introduced at the beginning of this chapter, I will provide more detail on the parameters of my participant observation, Urban CTC setting itself, the participants, and my data collection and analysis methods.

Participant Observation

My research questions led me to collect data through participant observation, among other methods. I wanted to learn from the perspectives of learners and tutors and wanted to better understand the resources drawn upon within the CTC. Some of the field examples I present in this study are from my own experiences serving as a volunteer tutor and interacting with learners at Urban CTC. To do so, I served as a participant-observer for 10.5 months. As a participant-observer, I served as a tutor by answering patron questions while standing by the information desk, teaching computer classes, and tutoring individuals one-on-one for computer help.

Urban CTC

The setting for my data collection is an urban Southeastern U.S. library branch, known by the pseudonym, Urban CTC. As previously mentioned, a computer lab housed 16 desktop computers which patrons were allowed to use for two, one-hour sessions per day. Patrons were mostly free to use the web and other applications on these computers. The CTC also contained several workforce computers which were not located in a lab. These included eight desktops located in the central, main area of the library, and two more by the outside edge of the library away from the more public main area. Patrons were allowed one, three-hour session on workforce computers each day, but their activities were restricted to job- and school-related tasks such as resume writing and homework. This library branch was notable in its system due to the high number of available computers for patrons.

Participants

The scope of my study is on the CTC patrons that voluntarily attend CTC computer classes, patrons that sign up for and attend one-on-one computer tutorial sessions, patrons who use the lab and workforce computers, and the library staff members who assist all patrons at computers. While I did not approach patrons in the lab or at the workforce computers for an interview, providing they were not taking a computer class, I still consider them participants as I observed them while helping out at the computers.

Overall, I interviewed 19 participants, interviewing some of the library staff members more than once. In all, I conducted 21 interviews. For one of the interviews, I talked with two patrons. I also conducted three interviews with one of my main staff contact participants, Susan, and two interviews with another staff participant, Jen. I interviewed 11 Black adult learners in their 50s to 80s. Ten of those learners were women and one was a man. I also interviewed eight of the twelve staff members. The staff members included seven Black women and one White woman. On average, each interview was 20.6 minutes in length. I predominantly interviewed learners after classes or tutoring sessions because I usually would not see them in the library at other times. I found that scheduling became challenging when participants needed to get home, catch a bus, or attend another library program following the computer course in which I volunteered.

I conducted interviews in five different places at Urban CTC, depending on what space was available at the time. A majority of the interviews (13) took place in the room known as the “community room.” This was located outside of the library itself, located a

short distance away from the entrance of Urban, across a small entry way for the building. It was a large room that could be divided by a partition. Programming for community members of all ages (e.g., movies for kids or interviewing classes for adults) took place here. If the community room was in use, Susan's office was another location, and I conducted one interview with her in there and conducted interviews with two other patrons in her office.

Two other interviews were held at one of the workforce computer stations located at the perimeter library, which was less private than the other two settings and seemed to pressure both me and the participant to talk quieter. I also interviewed two staff members in the staff breakroom. For each of the interviews in there, we were interrupted by another staff member who either momentarily stopped in to get something or to talk to the participant being interviewed. I also conducted one interview with Susan in the old computer lab because she needed to set up for the class that was to follow the interview.

Each of these five places functioned well for conducting interviews, but the community room and office offered a quieter setting. It is possible that leaving the library to walk over to the community room may have made the CTC patrons more uncomfortable. They may have felt more put on the spot than if had I conducted the interview within the library at a workforce station, even though that location was not perfect either. Because the room was large and seemed set off from the main library, patrons may have felt less certain of the setting. For library staff, however, the room could have been a welcome setting away from staff and patrons as it was more private than the workforce station and the breakroom.

Data Collection

Fieldnotes and memos. To record fieldnotes, I wrote down my observations by hand in a notebook, on scrap pieces of paper, and on the course curriculum booklets. Following each of my volunteer sessions, I typed up memos that included all of my notes from observing. While I composed a memo about each class I assisted or taught, I reserved two classes for taking notes throughout the two-hour class period using Altheide (1996) as a guide. The fieldnotes I recorded were written down during two particular CTC computer courses, with one set being composed during Phase 1 and the other during Phase 2. I limited the number of class periods that I reserved specifically for fieldnotes based on Altheide's (1996) philosophy. He contends it is better to be able to observe the various social actions taking place during an observation rather than to have a running record of events that showcase some events and not others. Instead, taking brief notes with key words to prompt the reader for composing notes later is superior, which is how I constructed a majority of the retrospective memos mentioned previously.

When coordinating which classes to take record fieldnotes in, I made sure I had the chance to ask the instructor ahead of time for permission, and I made sure I was not scheduled to teach class. When I was writing fieldnotes during Phase 1, I chose to sit at a desktop located in the corner of the room, a vantage point where the projector screen was not visible. Because this seat was out of the way and patrons avoided it, I chose to record there. When writing fieldnotes during Phase 2, I chose a seat in the back of the renovated lab, so as to avoid being a distraction to the patrons. I kept a curriculum book beside me to follow along and took handwritten notes in a notebook.

In describing fieldnotes, Altheide (1996) emphasizes that the researcher should, “Learn the language, perspectives, routines, and practical considerations to determine ‘how’ people do things and ‘what’ they actually do” (p. 3). Altheide (1996) argues that the most useful notes “...are descriptions and very rich in detail” (p. 3). He offers particular topics that researchers should consider when writing their notes, which include: a) contexts, history, physical setting, and environment; b) number of participants, key individuals; c) activities; schedules, temporal order; division of labor, hierarchies; routines and variations; significant events, origins and consequences; members’ perspectives and meanings; social rules and basic patterns of order (Altheide, 1996). When composing my fieldnotes, I used these topic areas as a guide for their structure. These notes are useful for building contextual information about the CTC and the texts and communication practices there.

I also constructed several memos throughout my fieldwork. Memos are written descriptions the researcher records to later recall important events, interactions, or thoughts regarding the research process. These are central to constructing grounded theory. One important type of memo I composed was a retrospective memo. Sometimes I was able to take brief notes while observing. Other times, I was unable to take notes, which occasionally occurred when I helped in the lab, at the workforce computers, or in a one-on-one session because there was not an opportunity to pause from my interaction with the patron to record any notes. Overall, for retrospective memos, some of the content was recorded at the CTC while other retrospective memos were constructed completely after leaving. There were several occasions where I would take photos of the

site or draw maps, and I would later insert these images into my memo to support the written text I was composing. For example, I included photos of the lab before the renovation, during, and after.

A second type of memo was methodological because I was recording my thoughts on the progress I was making with the research and some ideas about how to adapt and remain open to the site as I continued visiting the CTC. These were also constructed away from the CTC in moments when I wanted to keep track of how I was making decisions and the reasons behind those decisions. Finally, the third type of memo used was a reflective memo. Although all memos are arguably reflective, these were less focused on detailing my entire experience during a CTC visit and more centered on exploring an idea or two. For example, instead of accounting for the events that occurred during a two-hour computer class, my reflective memos were opportunities for me to begin thinking about implications of one or two observations or how current events, such as the release of Google Fiber in this city, might impact what I was observing in the CTC.

Qualitative interviews. Each week, I recruited patrons from either computer courses or one-on-one sessions, creating a convenience sampling approach. For classes, I was usually given an introduction by the staff member that was teaching the class before it started. After that, I was able to offer an overview of what I was interested in talking about with learners. Learners who were willing to be interviewed would come up to me at the end of class, but in some instances, I also approached eligible learners. For interviewing staff members, I would ask them if they were interested in being interviewed in person at some point during my volunteer shift. I constructed interview

guides (Weiss, 1994) that I used during each interview and adapted them over time as I collected data based on if I was interviewing a learner or a staff member. I asked learners about why they wanted to attend CTC courses and what their experiences were like (e.g., their goals for learning to use computers, and how they made use of the curriculum resources in classes). When interviewing staff members, I asked them about their experiences helping patrons at the computers in their library (e.g., frequency at which they helped patrons, frequently asked questions, and types of help extended). I recorded my interviews on two different recording devices, and I utilized both for replaying the audio as I transcribed. One was an audio recorder and the other was my iPhone. I found this approach very useful because sometimes it was challenging to make out the speech on one of the devices, and I was able to understand it better on the other one due to the clarity of the recording or because I could slow down the speaking rate.

Extant documents. The documents I collected during my time at the CTC were curriculum booklets for each of the computer classes, evaluations sheets (from one of the classes I taught), and informational handouts that provided patrons with information for locating other technology resources in the community. Charmaz (2014) would characterize these types of artifacts as extant documents. In other words, these documents were not constructed or influenced by the researcher. Instead, they were put together by staff within the library system. I was told by two different staff members that a group of people at Central Library⁶ create these for the rest of the library system to use at their branches. Extant documents are useful for researchers because they can provide written and visual messages and offer a look into the world where they exist (Charmaz, 2006).

⁶ Pseudonym for the largest library within the Metro Library system.

According to Charmaz (2006, p. 46), when going beyond a content analysis of documents, studies could reveal the purposes of the documents, how they were constructed, the impact of the document or who it affects, how they are interpreted, and the level of engagement audiences of documents have with them.

Yet, Charmaz (2006) cautions researchers to recognize that documents do not always accurately reflect reality as composers of these documents may use rhetorical strategies to influence audience members and may even omit information. For my research, collected documents are meant to add additional contextual data, which complements my other fieldwork. Evaluation sheets reflect the common practice of reviewing the computer courses and instructors after each course, and handouts with additional resources convey efforts to connect learners with more resources outside of the library system they can access. Each curriculum booklet reflects the curriculum for any given computer class offered at branches throughout the Metro Library system. Staff are required to teach from these booklets, and all students get one when they take the class. These booklets are especially interesting for this study as they are technical documents used repeatedly by both patrons and staff. Some patrons reported in interviews that they use these documents to review and practice at home.

Data Analysis

Earlier I introduced grounded theory as an analytical approach to data analysis to illustrate why it was a fitting way to approach my data. Next I will describe how I conducted my grounded theory analysis to demonstrate how I analyzed my data. In taking a grounded theory approach (Charmaz, 2006; Glaser & Strauss 1999/67; Strauss &

Corbin, 1990), I constantly compared my data and established codes and categories inductively. Data analysis was an ongoing process. I started when I first began collecting data and recorded what was initially interesting at my field site. I did this periodically as I continued collecting data and conducted more intensive coding and writing sessions after data collection had ended.

I began **open coding** for my intensive coding sessions to get a sense of what was present in my data and what was important from my field site. This initial coding, Charmaz (2006) argues, is important for making sure that the researcher is working toward a grounded theory that both fits the data and is relevant to the data being coded. When I conducted open coding, I kept Charmaz's advice in mind about "being open" (p. 3) to the people, places, and events being examined. Charmaz also contends that coding helps the researcher to start sorting sections of data.

I began open coding interview transcripts by conducting line-by-line coding (Charmaz, 2006). Line-by-line coding refers to the process of labeling each line of a written form of data, while incident to incident coding involves comparing one incident with another (Table 1).

Table 1. Sample open coding for interview

Transcript line number	Line of transcript	Codes
12	to use the computer as much, um, I didn't pursue upgrading my skills quickly enough, and now that I'm back out here in the job	She believes she didn't update her computer skills soon enough
13	market, I'm seeing those skills I shoulda went straight in and- and found me some classes or something. I just needed to get myself	She sees skills she has missed
14	um, "reinvented"..um..as some of the workshops are saying. I didn't do that quickly enough. So I am having some minor challenges	She believes she needs to be "reinvented"
15	on going into the fields I would like to go into. So I'm- that's why these workshops are superb for me. And the workshops we have at	Is running into barrier to get into fields she wants to be in; "workshops are superb for me"

I began by conducting incident-by-incident coding (Charmaz, 2006) when open coding for memos and fieldnotes. I chose incident-by-incident for the memos and fieldnotes because Charmaz (2006) contends that it typically works better than other coding methods when coding observational data because the notes already contain the researcher's words. Furthermore, using line-by-line coding for observational data may not be as likely to prompt new ideas about the data.

When working to distinguish incident from incident, I deemed an incident to be a discussion of an entire idea or event. For example, because I was coding memos and fieldnotes, these data documents were often fairly well organized because my interpretations were already embedded into the document. In other words, one level of interpretation had already occurred. Sometimes incidents were not always neatly

contained to a single paragraph. For example, when a paragraph in my notes described two different subjects, I coded the paragraph as two incidents instead of one. Examples of open codes in a memo are below (Table 2).

Table 2. Sample of open coding incident-to-incident

Memo	Sample incidents from memo	Open code
P-O 6, 3.19.15	MA asks if students get it/see it and waits for their responses of 'yes' or 'no.' She does this throughout class. MA shows them Spell Check, and purposely misspells a word to show them how the function works.	MA continually checks in with learners during class
P-O 6, 3.19.15	At one point, MA was going through a page that had all different sorts of functions on it, and she commented that she thought she got to everything on that page and that it was time to move on. Except at this point, one of the learners, a woman who has been to perhaps one or two classes before, said that actually, we didn't go over the ruler yet. This was surprising because learners only occasionally point out to the instructor if something was missed, and this was one of those rare moments. It was also significant because I think her comment demonstrated a desire to make sure she was learning everything that was to be presented in class.	Norm violation, student interjected
P-O 6, 3.19.15	This part of 'Save As' always gives us trouble. Students are often directed to click on 'Computer' or double click 'Computer' as sometimes a window pops up that shows the jump drive. Because some students are unable to consistently double click (rapidly), this is a sticking point for them. Clicking 'Browse' usually means that students have to navigate through the folder organization system on the computer, which is not familiar to them yet. After that, there are usually varying directions or preferences, based on the teacher, for whether to click the 'link' looking icon on the left of the window or the icon for the jump drive located on the right in the window: [Two screen shots included in memo to display "Save As" visuals]	Getting stuck on "Save As," students physically have a hard time double clicking, next challenge is having learners browse to save

Open coding resulted in many codes for the data I collected during Phase 1 (Chp. 4). When I later went through my Phase 2 data, I began by color coding data in sections

pertaining to computers and writing at the CTC (e.g., forms of multimodal writing, how staff members and patrons interact with ICTs) due to my interest in the texts and communication practices at the CTC. I also color coded incidents that were library branch related (e.g., staffing changes, lab renovation such as decreased patron foot traffic and physical noise) because the second phase of my data collection began after the lab closed for construction.

With so many open codes that resulted from my analyses of Phase 1 and Phase 2, I began what Strauss and Corbin (1990) call “*categorizing*” (p. 65) the codes to get a sense of which codes in my data were similar and could be grouped together into provisional categories. For Phase 1 (Chp. 4), I focused on the codes that pertained to how tutors were helping learners, due to their theoretical importance (Glaser & Strauss, 1999/67) for my overarching study.

Because I was noticing so many, and a variety of different ways that tutors helped learners, I decided to direct my attention to those particular places in my data. For Phase 2 (Chp. 5), I was already looking at open codes that related to computers and writing at the CTC and data points that were related to the library branch such as the renovation. As I conducted open coding, some codes started becoming repetitive, and I began categorizing these into specific provisional categories: 1) how I/staff members were helping patrons at workforce computers and laptops, 2) changes in the CTC due to lab renovation, and 3) religious references. At this point, I was still also keeping track of other interesting codes that did not fit in with these three codes.

After having developed initial categories that emerged from open coding, I conducted **focused coding**. According to Charmaz (2006), “Focused coding means using the most significant and/or frequent earlier codes to sift through large amounts of data. One goal is to determine the adequacy of those codes” (p. 57). Charmaz advises choosing codes that “best represent what you see happening in your data” (p. 91). By comparing data to other data, focused codes emerge, and grounded theorists then compare data to these newly developed codes, which aids in their development (Charmaz, 2006).

For Chapter 4, I conducted focused coding to further develop this category of ‘how tutors help learners’ by going back to my data and comparing instances of how this was happening. More specifically, I looked for how tutors were helping learners. Such examples included: helping learners figure out that they needed to reset their password to log into their email accounts on the CTC computer (many forgot passwords since they were accustomed to opening emails, unprompted, on their smartphones), pointing out where the navigation menu is in Google Chrome, helping them to utilize jump drives and saving their documents there, and helping with printing. Looking across these examples gave me an opportunity to notice all of the variety of ways that tutors extended help to learners. I also noticed that tutors were routinely helping learners with visual cues such as identifying which browser a learner was in and with physically using the mouse by showing them how to rest their hand and where to put their fingers. As I wrote about these instances of how tutors were helping learners, I categorized them as examples for how tutors served as technical communication experts at Urban CTC. I discuss two of the

properties for this category in Chapter 4, namely, how tutors utilize visual and audible representations and how tutors raise learner awareness for visual cues.

For Chp. 5 (Phase 2), I began focused coding with the three repetitive and theoretically relevant provisional categories that had emerged. Due to their frequency and theoretical relevance, I decided to then focus more specifically on the codes being categorized as 'how I/staff members were helping patrons at computers.' Table 3 below shows examples of these types of codes from memos and transcripts that I categorized under this helping category.

Table 3. Sample codes: How tutors help learners

Memo/ Transcript	Sample incident or transcript line	Code
P-O 12, 4.28.15	Another woman needed help with printing a PDF. She was getting some sort of error message on all of her pages. This appeared to be because she had tried to print from a preview of her document instead of downloading and printing it from Adobe. I helped her with that, and she was able to finish printing those new documents. She also thanked me on her way out.	Printing help – didn't understand preview
P-O 12, 4.28.15	When it was time to print, she asked me if she needed to close out of the files she had opened before getting her files. I said it didn't matter but that maybe as long as she was comfortable with it, she could leave them up just to make sure she sent all of the files to the printer. If she hadn't, then it would be quick and easy to go back to her computer, find the file and send it again (instead of downloading again).	Printing help – doesn't understand computer-printer communication (hardware comm)
Summer, 4.28.15	L72: "gentleman who was his brother had him write a letter verifying it. He was trying to find the format for it, so I helped him with that."	Assisting with format for letter
P-O 13, 4.30.15	One of the staff members, Linda, brought out crayons and a sheet of paper for him to color on. After about 5 minutes of that working, the little kiddo started tapping his crayon on the desk surface, which made just about the same amount of commotion.	Assist with child management
Tina, 5.6.15	L26: almost givin' them that remedial course. Um, 'what did it tell you, what did it sound like it said to you?' You know, the directions. You	Provide remedial help
Tina, 5.6.15	L63: 'cause you're trying to sell yourself, and I think once they get that in mind, it's not just 'I pull, I shelve, I stock,' you know, I, I, I, things	Teaching to recognize genre conventions
Lorraine, 5.7.15	L122: wanna make sure that you're presentin' it in the way that's gonna draw some attention to the people who you're applying for, you	Explains that you want to draw attention of audience
Carla, 5.7.15	L13: could be listed at the bottom or at the top if they don't see it. Um I guess how to navigate that website, questions, yeah, things that	Help with navigating website (e.g., finding job section)
Linda, 5.14.15	L7: get to a website like some people still have issues with just using the physical computer, the keyboard, the mouse, that kind of thing.	Getting to website, using physical computer hardware

Before conducting focused coding to search for additional examples of ‘how I/staff members were helping patrons at computers’, I began identifying properties for the codes and then looking for outliers (Farkas & Haas, 2012) in order to reduce the types of data I was looking for and to further develop categories that seemed more theoretically relevant. As I did this, I noticed that some of the codes could be grouped together, and I decided to rename the overarching category to ‘types of helping.’ I ended up with eight unique sub-categories or properties for the category of ‘types of help’: providing password help, providing navigation help, assisting with distracting children (e.g., crayons and paper) so parents could work, providing what one tutor called a remedial assistance, conducting audience analysis (for patron’s audiences), facilitating patron networking, offering encouragement, and participating in professional development to stay up to date so tutors can help patrons. This was a major refining process because I had started with over 60 codes from open coding. Two of these properties or sub-categories were particularly rich with multiple subcategories and example data points, which were “navigation” and “audience analysis.” I reviewed the properties again and decided that “navigation” and “audience analysis” were two outliers I could use to continue focused coding for the rest of my data. I was able to locate several additional examples of the types of hardware and software navigation types of questions learners ask tutors. In terms of audience analysis, I came across two examples that did not fit the current category and one that did. After completing focused coding, I began writing up the ways in which I saw navigation and audience analysis operating at the CTC.

Overall, I analyzed data from Phase 1 first and then followed by analyzing data collected during Phase 2 of my project. Because the data sources were different for each of these phases, I found it useful to look at the data from each of these phases separately. For instance, because data collected during Phase 1 included interviews with computer course participants and library staff members who taught computer courses, I wanted to focus on what emerged from that particular lab setting where learners and tutors gathered each week to teach and learn. Because my data sources shifted during Phase 2 when the lab was closed for renovation, I collected more observations from the workforce computers, one-on-one tutoring, and interviews with patrons who sought out one-on-one tutoring. I also extended my recruitment of library staff members to those who helped patrons at computers daily instead of only reserving interviews for those who taught computer courses. In the end, I gathered observations from computer courses, workforce computers, and one-on-one tutoring sessions. I also interviewed learners taking computer courses, learners attending tutoring sessions, and library staff members who taught computer courses and who helped patrons at computers daily. These data sources shed critical light on underrepresented perspectives and the initiatives taken by learners and tutors to combat digital divides. Insight into networked learning practices and multimodal tools utilized to engage with technical communication is gained through these sources, and stories about what it means to be working toward developing digital literacies are shared.

Coding allowed me to interpret the large amount of data I had collected. When looking across my codes and categories, a variety of technical communication texts and

communication practices present at Urban CTC were illuminated. In the next chapter, I will discuss the ways in which I observed learners connecting with other learners, tutors, and multimodal resources as they learned to use ICTs during Phase 1 of my data collection. In chapter five, I discuss the ways in which CTC tutors were guiding learners during Phase 2 of data collection.

Chapter 4: Results, Phase 1

This chapter focuses on the numerous ways learners at the urban Southeastern U.S. CTC connect with critical digital literacy resources, both human (e.g., fellow learners, tutors) and technological (e.g., software such as email interfaces and GCF Learn Free). Learners are motivated to develop their digital literacies to enrich their lives in some way. They want to know how to send an email, how to apply for jobs, how to download needed tax documents, and how to ensure they avoid jeopardizing their privacy or financial information. Despite inexperienced users' lack of agility for navigating interfaces and browsers, they understand the gravity of knowing how to use computers and the Internet. They hear how much the world revolves around going online and often feel an urgency to understand what they read in the news and hear about through their networks. But less experienced users often lack resources that would allow them to adopt technologies and advance their digital literacies such as time, money, or people who can answer their questions.

First, I address research question one by outlining how learners connect with other learners at the CTC (both in and out of classes). Then, I will illustrate how learners connect to the tutors at Urban CTC in order to respond to research question two. One key and central theme to findings for research questions one and two is that these narratives from the field that I share are predominantly examples of learners developing what Selber (2004) calls functional literacies. Here and there, tutors incorporate lessons to help learners become more critical technology users, but for the most part, learners are novices. Urban CTC offers a safe and comfortable setting to learn while offering

motivation and patience, critical resources that often go unnoticed. With these learners and tutors in mind, I begin my response to research question one by describing the ways in which learners connect with other learners at the CTC.

Research Question One

Research question one asked, *in what ways are learners connecting with other learners at Urban CTC?* To address this question, I draw from ethnographic observations based on my time as a participant-observer at my field site and qualitative interviews. For this phase of my data collection (Phase 1), I interviewed nine participants, including seven patrons and two staff members who teach classes at the CTC. I will report on the ways I observed and heard about how learners connect with other learners at the CTC as well as the various ways that learners connected with tutors. Finally, I offer detail on the ways in which learners connected to other available resources at the CTC.

Before I begin answering this research question, I want to say a word about the distinction I make between learners and tutors. I reserve “learner” to represent the community patrons that visit the Urban Library CTC both for computer classes and for using the computers outside of classes. I designate tutor for the staff members and myself (as a volunteer staff member) at the library branch. In the examples I provide in this chapter, patrons are taking a learning role when attending classes and asking the tutors questions. The terms learner and tutor stem from the definition of networked learning provided by Goodyear et al. (2004). This does not mean that I only consider learners to stay in their learner-role, unable to teach or influence another learner or tutor. For the purposes of this study, I make a distinction due to the language I am drawing from

Goodyear et al.'s (2004) definition. However, both learners and tutors served as excellent teachers for me at the Urban Library, and by sharing their experiences and stories, they are all tutors.

Learners Connecting with Other Learners

I observed learners connecting with other learners during classes and occasionally outside of classes. In class, I saw them asking and answering questions and pointing to one another's screen to help another learner find something. They also would laugh and share enthusiasm with each other when they successfully reached a goal. I begin addressing this question in a more focused way by articulating the ways learners connected with other learners at the CTC in computer classes. Then, I describe learner to learner connections outside of class.

Learners Connecting During Classes and Helping One Another

The number of learners at each class varies, but class sizes are limited to 10 learners. Based on my observations, the interactions between learners are influenced by where learners sit in the lab, the type of class (e.g., in the GCF Learn Free class, students are working independently while completing online tutorials), the tutor (some tutors encourage collaboration throughout class more than others), how well the learners know one another, and the learner's own goals for the class. It is typical for learners to talk with one another before classes begin and again on their way out of class. They also help each other during classes, but they stay seated at their computers and are more likely to interact with those sitting next to them.

I asked learners in qualitative interviews about whether or not they communicated with other people in class, and if so, who? Many learners responded that they communicated with fellow learners sitting nearby along with the staff members teaching and assisting in classes. In an interview with Martin and Ethel (my only interview with two participants), Martin said that he communicated with the classmate that he sat next to in class, Ethel. They helped out one another (Line 164). He also agreed that he notices other people in the lab communicating during classes (Line 170). Macy told me that she talked to “a preacher” that she knows in classes (Line 77) and other students who sit near her (Line 85). In an interview with a learner named Roxanne, she said that she has helped another learner in class and that she would accept help offered by a classmate. She stated,

the students...if they need my help, I will help them...Cuz even like, when you walked away, she didn't know, the girl next to me, and I told her, you know where it was at, cuz I know. If she could help me, I would accept it. (Lines 128-130)

In a similar vein, Ethel told me that she feels an obligation to help those by her, even when they do not ask for it (ME, 75). She said she extends help to people when they look like they need it, “Like I’m always glad even to help people, even when they don’t ask me. I have to look up, you know, and tell them what I know” (Lines 75-75). As these learners have demonstrated, they are interacting with their peers sitting nearby in the CTC classes. When they do, they talk about how they are helping one another.

Not all learners interact with those around them, however. Sarah told me that she needs to pay attention to what she is looking for on her screen and so stays focused on her

work without looking at other people. As a teacher who works in a school nearby, Sarah rushes to get to the late afternoon classes at Urban CTC and has already put in a full day of work before she arrives. In addition to teaching, she takes online classes. Her interactions with other learners and tutors is likely influenced by her busy schedule.

When I interviewed two staff members who taught, they offered additional insights for how they observe learners connecting to other learners.

When speaking with one of the staff members, Susan, she said that she has also noticed students helping one another in class and that she observes them talking to each other before and after class. She said that learners talk to one another and then they talk to staff when they need assistance. Amy also said that she “absolutely” (Line 18) observes students helping one another. She also observed their conversations about class merging into other topics of discussion (Lines 93-94). In particular, she said she notices them frequently talking while they wait in line to register for next week’s classes (Line 99). The aforementioned observations and interview data demonstrate that learners are connecting with other learners before, during, and after classes.

Despite the presence of learner to learner interactions during classes, most learners appear to engage in learner to tutor interactions. One possible explanation for the lack of learner to learner interactions during classes could be the influence of the lab’s layout and the ratio of learners to tutors. The layout of the lab during Phase 1 of my data collection included four rows with three desktop computers per row and a fifth row had four desktops. Depending on the week, there could be anywhere from three learners to seven or eight. Beyond the main staff member leading class, there was always one or two

additional staff members serving as assistants and sometimes three. I suspect that the sheer number of tutors present during classes may have influenced who the learners went to for questions and help. Perhaps because learners knew that others taking the class had a similar level of knowledge, they were more comfortable reaching out to a tutor because one was usually always close by in the lab. As an example, for class days when there were two staff assisting, each would stand at the end of a row where learners were sitting. This made it easy for tutors to periodically check in with them. Sometimes the main tutor teaching class would also leave her post to walk down each row to see how learners were doing. Learners seemed more likely to reach out to one another for help when staff members were busy helping other learners.

A second explanation seems to stem from a learner's comfort level in class and his/her desire to learn more information. In other words, some patrons felt welcome to ask questions of the tutors. As a learner, Olivia felt as though she was put to ease for asking questions during class. She said, the presenters and assistants make "us feel...comfortable in asking our questions" (Lines 69-70), and she continued to explain that this degree of comfort during classes may contribute to why so many people do ask questions. Other learners have mentioned their desire to ask questions and their lack of fear to do so in the CTC. These experiences of learners in class paired with the low ratio of tutors to learners appear to influence the number of learner to learner interactions that occur in the CTC while a class is in session.

Learners Connecting to Learners Outside of Classes

I observed learners connecting with other learners outside of classes on rare occasions. Most often this would look like one learner working with another learner on the same computer mostly on workforce computers but sometimes in the lab. Based on my observations, learners predominantly interacted with tutors if and when they had a question when working on the computers at the CTC. When I asked Amy about whether or not she sees patrons communicating when class is not in session, she said she does not observe people communicating in the lab when it is not class time because they usually have head phones in and are more engaged with what they are doing (Lines 103-105).

To summarize research question one, CTC learners interact with fellow classmate peers before, during, and after classes. During classes, their interactions revolve around talk associated with giving or receiving help in classes when a tutor is unavailable. It is important to note how most learners appear to prefer and demonstrate comfort with reaching out to tutors for guidance. Learners have mentioned that the staff members are open to questions from learners, which is one way these individuals construct a welcoming environment for learners and establish ethos-building rapport with learners.

Learner to learner interactions occur at all CTC classes, even when some patrons express a desire to stay focused on working on their own, like Sarah. However, these interactions reveal that advancing one's digital literacies is a collaborative process at this CTC. Reviewing the various learner to learner interactions reveals the import of these communicative moments. As Roxanne pointed out, when one of the tutors walked away from where she and a fellow learner were sitting, she was able to help the learner next to

her. The learners step in for one another as advocates and tutors in this CTC, providing support. Learner to learner interactions are less common outside of classes when patrons are working independently. They are often using headphones and focused on their task instead of interacting with others. From time to time, they will work with someone else, but that person is usually a friend or family member. Behind the learner to learner interactions I have observed at the Urban CTC, people are helping one another. These peer to peer interactions serve as needed support to those working to advance their digital literacies.

Research Question Two

To address research question two, I will discuss how learners were connecting to tutors at Urban CTC. Tutors are important local technical communication experts who rhetorically use a variety of methods to assist learners with engaging technical information, and these interactions highlight the crucial role of tutors in this setting. Research question two asked, *in what ways are learners connecting to tutors at Urban CTC?*

Learners Connecting with Tutors

I have identified four methods that tutors utilize when interacting with learners regarding something they do not understand. Tutors: a.) serve as visual cue experts; b.) utilize representations; c.) make use of metaphor; and d.) personalize class. I also identified how some learners will get the attention of tutors when they need help with a question during class, by raising their hand.

Tutors as Visual Cue Experts

Tutors at the CTC serve as visual cue experts who teach learners how to interpret visual messages on the user's monitor screen associated with using a desktop computer. This attention to visual cues matters to inexperienced users because they are often unaware of such meaningful features integrated across interfaces. A user must know how to activate a text box by clicking a mouse, highlight text in order to change its font style or color, how to hover over buttons to see if they offer hints as to what their functions are, and how to save files based on the computer's organizational system or interface. Without this knowledge, inexperienced users are incapable of taking full advantage of the resources and opportunities ICTs offer. In other words, learners are unable to compose their own documents for job applications, send and receive emails, or search for economic or health related resources online. This inability to read visual cues excludes them from the advantages so many experienced users often take for granted, and it underscores the importance and value of Urban CTC tutors.

These small, hard-to-notice visual nuances are challenging for inexperienced users to recognize on screen at first and require practice because visual cues are so neatly woven into the fabric of a computer program's interface. In classes, tutors are often asked by learners, "Click here?" Based on their experiences helping learners, Urban CTC staff members are skilled at teaching visual features to these learners. They understand what cues are challenging across interfaces and find ways to orient local users to these different systems of meaning. Selfe and Selfe (1994) have written about politics woven into interfaces and the cultural systems produced in these environments. They have

argued that select computer users are reflected in computer technologies, and because of this, other users are marginalized and may have difficulty learning the organizational structures of the programmed interface. Selfe and Selfe (1994) state that essentially, “interfaces are cultural maps of computer systems, and as Denis Wood points out, such maps are never ideologically innocent or inert” (p. 485). Therefore, learning to use a computer requires knowledge of the cultural system in place that organizes the computer. At the Urban CTC, staff members are brokers who aid in bridging knowledge gaps of the Windows interface for new computer users. The population of learners present at Urban CTC were not considered the central audience for developers of Microsoft Office. The Office suite is not designed for those who have never touched a keyboard before or for those who struggle financially. The population of users present during CTC classes find the tutors as a helpful resource for assisting with the organizational schemes and visual cues associated with using a computer. Thus, the work that CTC tutors do provides significant contributions where well-intended tutorial authors fail.

Without knowledge of the visual cues and file structure on the machines that CTC staff members provide, inexperienced users would experience further alienation from modern computer technologies. Next, I will present the 10 different methods tutors have utilized to make visual cues more visible to the CTC learners. Each of these methods demonstrate how tutors serve as local experts who are skilled at finding ways to teach inexperienced ICT users about digital literacies.

Tutors have assisted learners with visual features of interfaces in a variety of ways. In particular, tutors have assisted learners with understanding how to tell one’s

location online, visually. The following two examples reveal how tutors have explained this to learners. The first example illustrates how Susan, one of the CTC tutors, described what to look for to tell which browser a learner was using. The second example describes how I assisted a learner with determining her location online by referencing her web address.

As a participant-observer in an Internet Basics course at Urban CTC, I observed one of the learners asked the lead instructor, Susan, how to tell which browser one was in. The curriculum booklet that was being used for class introduced different browsers, which prompted the question. Both Internet Explorer and Chrome had been talked about in class because they were available on the library computers. Susan offered visual details to differentiate between the two browsers and said to try and find a “blue E” that represented Internet Explorer. Susan used color and a description of the Internet Explorer logo to help the learner when going online in the future. By pointing out these visual features, Susan demonstrates that she is both aware of the visual rhetoric that browser interfaces are constructed with, and she assists the learner with identifying characteristics of the browser that would aid in discerning browsers in the future. In these ways, Susan serves as a technical communication expert that teaches the learner about the visual rhetoric, or the visual features of the browser icons and interfaces, of two different browsers.

As a second example, I also helped a learner with determining her location online. When taking fieldnotes during a class I was observing, the learner sitting next to me in class asked if she was on the same page that the staff member leading class wanted all

learners to be on because her screen appeared different from other learners' screens in class. Preceding this question were instructions from the tutor who wanted learners to have the experience of opening a web browser and going to a website. This involved opening a web browser from the desktop, clicking and accepting the library's privacy agreement, and then waiting for instructions from the tutor from there. Once learners accepted the privacy agreement, they were automatically directed to Metro Library's homepage. This particular learner had gone through all of the steps to reach the Metro homepage, which is where she was when I looked over at her screen. I realized that this learner was confused by the rotating pictures on the homepage because she was unaware of how slideshows operated online.

Even though the learner's web address had not changed, she was questioning whether or not she was on the right page within the browser due to her lack of familiarity with online animations. In this instance, I extended local knowledge of the library's homepage to this patron. By showing her the web address, she could see how her location online had not changed as she looked across her fellow classmates' screens, even though the imagery on that site changed because there were rotating photos in a slideshow. Having tutors identify such features is useful for furthering their knowledge of how to operate ICTs. This second example further demonstrates how inexperienced ICT users come to these classes lacking functional literacies Selber (2004) associated with the visual rhetoric of computers and the Internet. They develop these literacies through interacting with the software and their local technical communication experts, the CTC tutors.

Susan also informed learners about visual cues to look for online to build learner's knowledge of online security. In providing an example of online bill payment, she conveyed to learners that a lock icon and "https" instead of "http" in the address bar are two ways to identify a secure site. Susan went to Amazon.com and went through the steps of purchasing a product. She also explained that even when being cautious, hackers are skillful, and there is still risk when paying online. By going to Amazon.com and showing learners the lock and "https," Susan was teaching her students how to pay attention to visual cues to ensure safety so that they would be able to protect themselves in the future. Susan was helping these users avoid vulnerability online by showing the students the steps for purchasing on Amazon (without actually purchasing). She acted on her knowledge of users and chose to show them the steps on the large projector screen for determining if a website is secure or not.

Because tutors understand that learners in their computer classes lack the shared background knowledge and language used to refer to different features of computers and going online, tutors find it rhetorically effective to show their learners different components of using computers. If a tutor were to simply verbally explain that learners should look for "https" in the web address area, this would not be effective for most users in the class. Thus, projecting an open webpage serves as a way to anchor learners' attention to the tutor's message. That way, tutors can point out the address bar, where the "https" is located, and how "https" replaces "http" on secure sites. The projector screen offers both a method for showing learners how browser features appear online and it is an efficient way to teach visual cues.

Another lesson staff members seek to teach learners is how to identify Internet domains and how to type in a web address into the address bar. Because domains carry with them a set of expectations for the type of content on a site and the funding source(s), explaining these conventions is important for learners. During a class, Susan directed the learners to the curriculum booklet, which offered a list of web addresses and a brief description of what they contained. Learners were to practice typing in the addresses into their address bar. Susan gave specific instructions on how to type the addresses in the booklet. YouTube was one of them:

www.youtube.com: A popular site for viewing videos

Susan applied her localized knowledge from years of experience teaching inexperienced users at Urban CTC. She knew they would be tempted to type the colon key at the end of the URL, but she told them that they should not do this. Susan understood her audience and knew her learners needed to identify the conventions for web addresses. Without knowledge of web address conventions, finding resources online is that much more difficult. Therefore, Susan's oral instructions clarified the steps for learners. This is information some of the learners could have missed had they not been in a class with a tutor who could provide additional contextual information tailored to their knowledge and experience level. Susan had localized knowledge from her prior years teaching these classes and could share it with learners to help them be successful as they first started learning the conventions and how to type in a complete web address.

To differentiate between keys on the keyboard, tutors also highlight the functions of keys for learners. While teaching, Amy introduced the difference between the "Delete"

and “Backspace” keys. She asked learners to type several letter “h’s” in a row in a blank Microsoft Word document, then asked them to notice the difference between which direction the “Delete” and “Backspace” keys erased the letters. Some learners had a hard time seeing which direction the cursor was moving, and then Susan asked learners to type their name and then practice using each of these keys. Susan knew that having different letters next to one another would make the deletion directions more visible and accessible to the learners, allowing them the ability to choose their keys with skill the next time they needed to use them. This seemingly simple exercise draws attention to the frequently encountered digital literacies of computer course participants that tutors encounter. Often, patrons lack knowledge of how all of the keys on the keyboard operate. Pointing out the difference between the “Backspace” and “Delete” key, while not entirely crucial for operating a computer, demonstrates that tutors recognize the types of knowledge learners lack when they show up for a computer course. Tutors know they need to pause and provide basic, foundational information to help learners develop their digital literacies. These tutors practice place-taking as they envision what the obstacles are for inexperienced users, either informational or physical. Teaching classes and helping patrons on computers outside of class allow computer course staff members to gauge what prompts a barrier for learners and how to help them.

As a participant-observer of classes, I have noticed that learners are often unaware that application windows and text boxes have to be clicked on in order to use them. Tutors continue to educate learners on visual cues when reminding them that they need to click on application windows to be able to use that particular application. For example,

learners in a Microsoft Word Basics class were learning about the horizontal and vertical scroll bars. When Word was not activated, learners could not see the scroll bars and had no way of manipulating them because they are not visible when the application is not activated. The title of a Word document and the icons for changing the window size are also displayed in gray, muted and difficult to see. For an inexperienced computer user, these features are not obvious, and so during classes, tutors must inform and remind students to click on the program or activate the text box so they can work in a program or edit their document. Figure 5 below notes the features of an inactivated window.

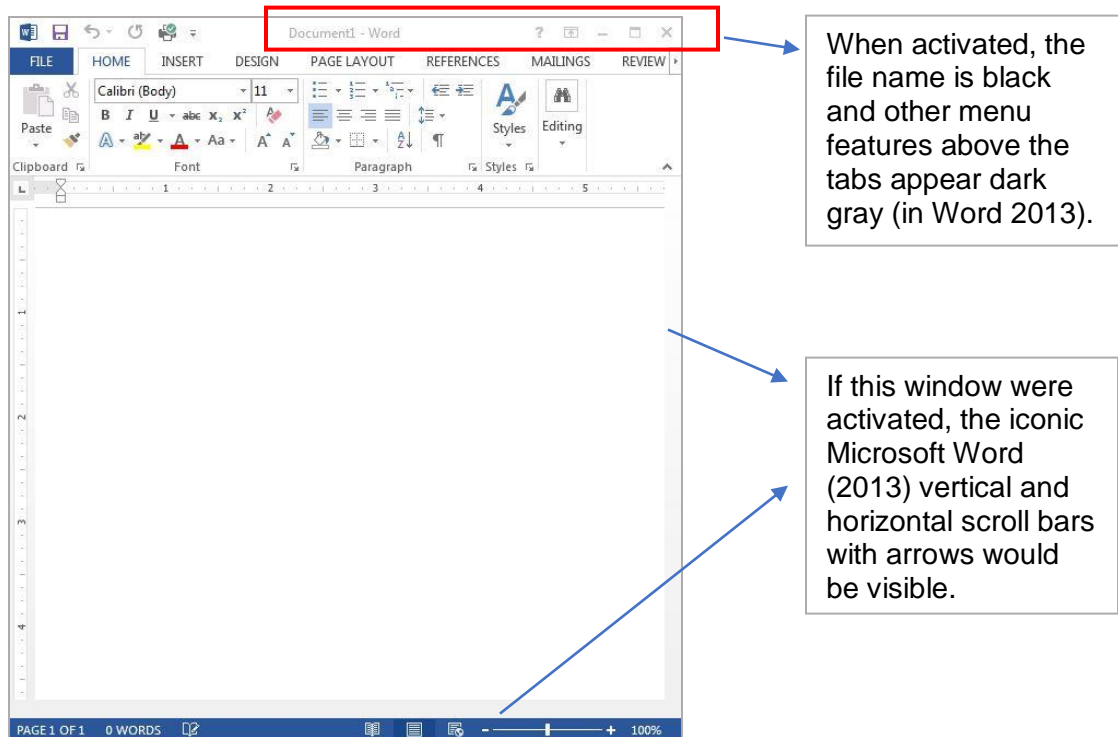


Figure 5. An inactivated Microsoft Word 2013 window

During the CTC classes, Susan would remind learners that they needed to highlight the text in order to change the font size or color. By doing so, Susan was illuminating the interface structures present and the necessary procedures needed to

manipulate text. When I was teaching one of the PowerPoint courses, I spent time describing how to select or click on a text box to activate it, showing learners on the projector screen that an activated text box has dotted lines around the area for typing and additional white squares for adjusting the size or angle of the text box (see Figure 6).

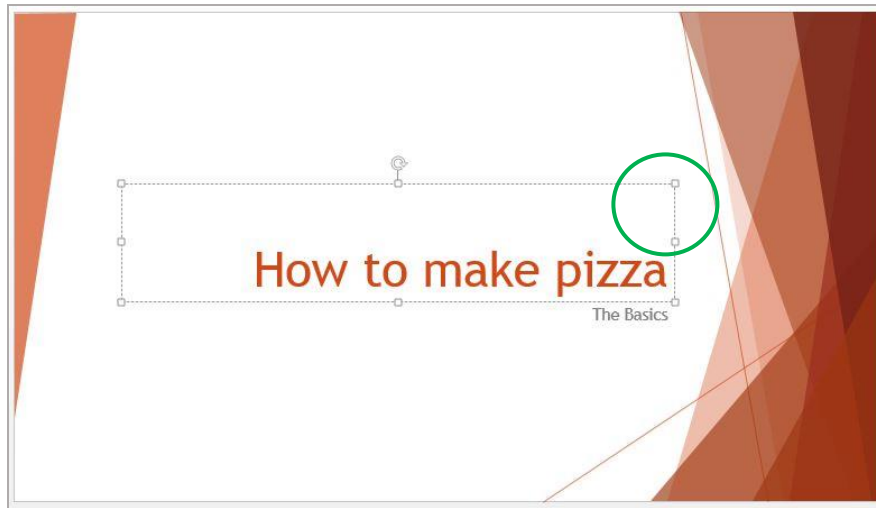


Figure 6. Activated text box in Microsoft PowerPoint 2013

By helping learners to see that they need to click on windows and text boxes, tutors serve as experts of the visual rhetorical features present on many computer interfaces. Understanding that one has to activate a text box and highlight text to even make that happen is important functional information that inexperienced users need. In the CTC computer classes, this is another key way that staff members intervene into the technical communication learning process, offering key functional literacy lessons regarding interfaces that will establish an important ICT foundation to assist learners with grasping key basic rules and skills to operate various computer interfaces.

Another example for extending key technical information about using ICTs stems from when I was helping a couple at a workforce computer. They were middle-aged and

asked me about the green line that was under the password they had typed into an online interface. I told them that it was the company's way of telling the user that the password was a good one and that it was considered strong. The woman typing on the computer explained that she had tried multiple times to create a password until she eventually decided to type in the password displayed at the top of the website, the example password offered by Fidelity. I advised changing the password to something else due to security reasons, and this experience highlighted how inexperienced users, like this couple, are susceptible to fraudulent activity if they do not understand visual cues associated with online security. This particular interface did not appear to pair image with alphabetic text that displayed the word "strong" to inform users that the green line represented a strong password, which may have helped this couple. Our interaction provided an opportunity for me to explain the color coding system used to symbolize strong passwords. I also pointed out selecting a different password beyond the sample provided by the organization. Today, it is common to have programmed prompts that require users to create a password with numerous characters and numbers, in order to divert attempts to break in to someone's account. Tutors at Urban CTC can offer valuable tips for staying safe online, which may be one of the only ways some learners receive this information.

While volunteering at the workforce computers, I helped a twenty-something woman with printing a PDF. She did not know how many pages the document she wanted to print contained, so I showed her how to locate this information in the interface. To do so, I walked her through where to find the number of pages and copies located in the window that opens when you choose the print function within the Adobe interface.

She also wanted to print the document but was unsure of how the interface was conceptualizing copies. She asked me that if she clicked “print”, would the printer print one copy of each of the four pages or four copies of the document. After explaining how the system worked, she was able to print her desired number of pages. Sometimes learners are knowledgeable of operating some aspects of interfaces but unable to find other things in them. In this circumstance, I extended guidance for how she could locate the copy information, and I translated how the computer and printer communicated about number of copies, which is especially important because patrons are charged to print each page at this CTC.

One day a man in his 50s or 60s asked me about Adobe Acrobat Reader. He had a web page up on his laptop and told me that he had read some online instructions about needing to have Adobe Acrobat installed on his laptop to open a document related to a loan. He was able to open the ‘Start’ menu but could not identify the icon for Adobe Acrobat. With the ‘Start’ menu open, I could see the icon for Adobe Acrobat and explained that he was looking for a red icon with the words, “Adobe Acrobat 9.” After finding it, he then asked me how he was supposed to view the file that was online. On the website he was at, there was a button to the right of the file name that said, “PDF,” which I told him to click, and the file opened. For this particular patron, he only needed help determining if he had this program installed and how to then open the file with this program. Not being familiar with the Adobe logo, he was unsure what to look for, and I was able to help him identify the visual cues he needed help deciphering.

A final example of how tutors teach learners how to interpret visual messages on desktops is to modify the terminology from the technical language to more lay language. For example, to help a learner with highlighting a web address in order to type in a new one, Susan told learners to get the “address in blue.” Using the term, “highlighting” was not familiar for the learner, but Susan found a way to make the task more understandable that would allow learners to complete the task. In a follow up interview, Susan explained that she provides laymen’s terms to describe an unfamiliar feature of using a computer or the Internet and then pairs that term with the computer jargon term. This is a local approach she has developed to help patrons understand what it is that they are looking for and then follows it up with the jargon term to help patrons solidify the graphic symbol with the verbal.

Across these 10 examples of the various ways Urban CTC staff members assist learners at the CTC outside of classes, it is clear that staff members serve as local technical communication experts who can who can help inexperienced users learn to use computers and understand the visual nuances of computer interfaces. Equipped with this knowledge, they teach learners how to interpret these multimodal messages in localized and effective ways. Subtle visual cues and nuances across interfaces are often overlooked as obstacles for inexperienced users, but the staff members at Urban CTC have experience working with learners, making them important technical communication experts and resources for their patrons, especially when these interactions with tutors may be the only place some of the learners are getting this information.

Tutors Utilize Visual and Audible Representations

Next, I will outline how CTC tutors utilize two types of representations to further shed light on visual cues on-screen *and* to assist inexperienced users with physically manipulating computer hardware. The first type is a visual representation. Visual representations are when tutors provide an image or example in person and not on-screen for users. For example, I observed a staff member put his hand on the mouse to show a learner where palm and fingers are to go. The learner intently observed and then tried out what the tutor had showed him. Tutors will also occasionally show learners where each individual finger should rest as well. A visual representation offered the learner mentioned previously a brief tutorial that was not based on the computer's monitor screen. Rather, the learner could observe off-screen and then mimic the tutor afterward. This was useful as it offered an opportunity for immediate feedback from the tutor as well.

In another class, a tutor mimicked the visual change of a mouse arrow to a cursor using her hand. Because the learner was not aware that the mouse arrow would switch to a cursor, from an arrow, when the mouse was moved over an area on the webpage where text could be entered (e.g., the web address bar), the tutor provided a visual representation of what to look for. She held out her hand, to serve as the arrow, and stuck her thumb out away from her hand as she pierced her other four fingers together. Although it was not a replica of the arrow icon on-screen, it was helpful and served as a quick example that the learner could then look for. It may also have been easier to see this representation in front of her, instead of looking for it on-screen. For some users,

particularly older users, eye sight can be a barrier to noticing such subtle nuances. The physical example the staff member offered allowed her to show the learner, on a *larger scale*, what to expect when moving the mouse around the screen. This is another example of how tutors provide knowledge about computers that inexperienced users may not have had access to prior to visiting the CTC. Representations, in particular, are off-screen examples that help to illustrate ICT concepts not always easily identifiable for inexperienced users.

A second example of a visual representation stems from working with a learner who was struggling to place her fingers on the keyboard and her right hand on the mouse. While working on a typing tutorial at the GCF Learn Free (www.gcflearnfree.org) tutorial site, the tutorial signaled which letter to type by lighting up a letter in a specific color. The program also indicated which finger a user was supposed to use to type that letter. This was hard for the learner because her fingers were not accustomed to resting on the keyboard yet and her fingers did not have the muscle memory to rest only on specific keys, the “asdf; jkl;” of the home row. She let me show her, and I put my hands on her keyboard. I tried to demonstrate how I was only pressing one key with one finger at a time to show her what the program wanted. I exaggerated my key strokes so she could see which fingers were doing what. By making finger placement of keys for the learner to see explicit, this served as a visual representation. But learning how to place one fingers, thumbs, and hands are not the only physical skills inexperienced users must develop. Learners also have to be able to effectively double click on the mouse.

An audible representation is another form of representations that Urban CTC utilize. This type of representation includes tutors representing the sound of a mouse double-clicking. For inexperienced users learning to double click the left button of a standard, two-button, hand-held mouse can be a challenge. It is difficult because learners have to make sure each finger is in the right place, that they click at the right rate, and that they avoid rapidly moving the mouse around when they click. By saying “click-click” quickly, tutors indicate to learners how fast they need to click the left button. For inexperienced learners, it is not uncommon for there to be a pause between both clicks. This means when learners do not click quickly enough, an effective, rapid double click does not happen. Audible representations are tools that tutors can use to mimic the sound of the mouse so learners can understand how to physically operate the mouse. This is a way of transferring taken-for-granted and embodied knowledge that tutors have developed over time, and it is also presented in a way that does not require the tutor to take control of the mouse to explain the concept. Both visual and audible representations are methods that Urban CTC tutors utilize to convey information without having to direct users to a screen. Frequently, tutors teach learners to recognize imagery such as icons on screen, which is not always the most accessible method. Visual and audible representations developed by the tutors offer an alternative for providing knowledge about visual cues and operating hardware without relying on the screen.

Tutors Make use of Metaphor

Another strategy I have observed one tutor using for illustrating unfamiliar concepts is the use of metaphor. Some learners at the CTC are still figuring out how

browser windows and tabs operate. When a learner asked Susan in class how to tell when there is more than one browser window open, she utilized a metaphor to help illustrate what this looks like on their screen. She said to look at the Google Chrome icon and then look for something that looks like a *shadow* behind the Chrome logo to indicate that more than one browser is open. And when helping students learn about a computer's hardware, Susan described the tower portion of the machine as being like the *brains* of the computer. Use of metaphor for teaching dates back to antiquity as a useful strategy for speakers. As Longo (2010) states:

As long ago as the fourth century SC, Aristotle (1991) taught that 'all people carry on their conversations with metaphors; if one composes well, there will be an unfamiliar quality and it escapes notice and will be clear' (*Rhet.* III.2.6). If we use apt metaphors to describe unfamiliar concepts, the hearer or reader will not even notice that the concept is unfamiliar because it will be so easily understood through a metaphor. Thus, 'Metaphor most brings about learning' (*Rhet.* III.10.2). By helping people to understand new things in terms of things that are already known, metaphors serve as bridges from the known to the unknown. (p. 164)

As tutors assist learners at the CTC, metaphors are a strategy to help learners connect familiar ideas with those that are unfamiliar.

Tutors Personalize Classes

Another way learners and tutors connected in class was through a tutor's efforts to personalize the class sessions. Susan personalized class by getting to know students and personal narratives to make learners comfortable in class. When she is teaching a class,

Susan stated, “I have to be a clown, because I am a quiet person. I’m an introvert. I don’t act like it, but I am” (Line 20). This would likely come as a surprise to her students as she greets them when they walk in, gets them set up at their computer, and makes small talk. She mentioned that she tries to make the classes “personal” (Line 13) because she works on “learning their names and callin’ them and talkin’ to them, so they can feel comfortable, and it makes me feel more comfortable” (Lines 13-14). I believe she succeeds in making both herself and the students more comfortable in these classes.

When Susan began teaching at this library, her nervousness was so severe she would not want to go into work on the days she had to teach computer classes. She stated:

So, public speaking, talking in front of people, I hated it. When I first had to teach these classes, it was like, Wednesday class? I didn’t even want to go to work. But, I’ve done it so long, it’s something I have to do, so I just clown and make people feel comfortable, and I think they learn better that way. (Lines 20-23)

What started as a way to calm her own nerves eventually translated into a method for personalizing class for learners.

In addition, Susan would often tell stories to her students of past experiences when she learned something new about using a computer and how she updated her knowledge as interfaces changed. When she was introducing YouTube, she told a story of how she found a video to help her with jumping her car battery. She also told learners about the YouTube videos she used to help her start her home fireplace. In an interview with her, Susan expanded on her teaching approach by telling a story a story about how she wanted to teach like one of her graduate professors.

Susan described her experience as a graduate student in this professor's class this way:

and it's like I told you before, I wanna teach like that...graduate professor taught me. I didn't know anything about emails, and he just took me next door and set me up with email and showed me how to use it. That's how I want to teach. I want someone to get something and know that I don't think they're stupid because they don't know" (Lines 186-188)

With her students now, she emulates that professor's approach by taking care to support her students. Susan tells this same story to her computer learners in class. She reassures them that she, too, has had the experience of learning unfamiliar technology and has had someone help her in the past.

By personalizing class through getting to know learners and sharing personal narratives, Susan establishes a supportive tone for the adult-learner population attending the CTC computer classes. She reminds them that they should expect to learn and that this takes time. Her mantra is, "we're gonna learn. We just gonna keep learning. Come back as often as you want. Study, we're gonna learn, you have to learn this" (Lines 190-191). Showing students she cares and understands their perspectives is one more way learners and tutors connect at the CTC.

To conclude my response to research question two, I present findings from three interviews with learners on how they seek help from tutors during class.

Asking for Help in Classes

At the CTC, learners often feel comfortable asking tutors for assistance when they have a question. Next, I describe the ways in which some of the learners are approaching asking for help during class in order to demonstrate how this connection works in this setting. Within classes, learners are seeking advice from tutors regularly. Drawing from my qualitative interviews, some learners feel comfortable getting the attention of tutors by raising their hands and asking their questions. For example, Roxanne is willing to ask tutors questions in class, “Yeah, I raise my hand, and yeah, if I don’t know, I wanna know. I’m not ashamed to say, you know, I don’t know” (Line 119). She also stated that, “I feel peaceful to be able to learn and ask questions. ‘Cuz if you don’t ask questions, how you gonna know?” (Line 123-124).

Olivia also asks questions and said, “I would just raise my hand and call one of the, um, assistants or presenters over and ask my question. I am not intimidated in asking questions as you can see (*laughs*)” (Lines 57-58). She relayed that she believes the classes being offered are there to help the public:

And if I don’t know what I don’t know, I’m going to ask about it, you know. Even if it seems very simple to someone else, I know what I’m seeking, um, to get from these different classes. So I’m very open as far as asking questions of what I’m seeking. (Lines 60-62)

When Sarah is in class, she said she talks to the instructors but not typically with other students because they are all busy focusing and learning. She explains that, “we’re so busy trying to learn that we don’t- you know, we’re not talkin’ to each other because

we're tryin' to read and then reference, and then try to apply it" (Lines 97-98). Sarah's in-class experience consists predominantly of interactions with the instructors as she focuses on what needs to get done in the allotted time. She stated she likes coming to the classes because she can "have a person there I can reference if I have a question" (Lines 54-55). She went on to say, "I like that. It's a security thing" (Line 59). Sarah thought that "being older...I really prefer a classroom and a person" (Lines 61). Sarah went on to say, "But then that's just the generation I'm from" (Lines 61-62) and that younger people "with the online...that's all they know" (Line 62).

The ways learners connect with tutors varies at the CTC, but this is a popular connection across all networked learning dimensions. Learners are comfortable talking with tutors, and tutors present several strategies that are rhetorically effective for teaching learners topics ranging from the basics of visual cues across interfaces to how to hold a mouse and highlight text. Next, I present findings that pertain to research question three, which inquires about how multimodality is present when learners connect with other available resources at Urban CTC.

Research Question Three

Research question three focuses on the texts and multimodal resources that learners are accessing as they work in Urban CTC. It is meant to address the ways in which learners are fulfilling the third dimension of networked learning, or how learners are connecting to other available resources, and how they utilized various multimodal resources at Urban CTC. This research question asked, *in what ways is multimodality present in learner connections to other available resources at Urban CTC?* Throughout

these types of networked learning connections, learners are accessing multiple important resources that serve to help them learn to use computers and the Internet. These connections also reveal how users are localizing or making use of such resources in their own particular cultural contexts.

Learners Connecting with Other Available Resources

At Urban CTC, learners connect with a variety of available resources. Learners are weaving or “knotworking” (Engeström, Engeström, & Vähääho, 1999 as cited in Fraiberg, 2013) resources and constructing “‘invisible’ innovations” (Spinuzzi as cited in Longo, 2010, p. 159) that are both human (e.g., tutors) and non-human (e.g., jump drives and smartphones), in their own ways to achieve their technological goals. This information contributes valuable information for technical communication scholars interested in usability studies and other professionals interested in creating online resources for inexperienced ICT users.

In this next section, I address research question three and describe the diversity of ways in which learners connect with available resources at the CTC. This ethnographic data offers an inside look at how learners at the CTC use their available resources and for what purposes. I present findings regarding how learners connect with resources when they are within one of the classes at the CTC as well as outside the CTC courses. My findings are based on my observational data from volunteering in the computer classes and volunteering at the lab and workforce computers during Phase 1 of data collection. The examples I provide from my observational data offer my perspective of the resources these learners were drawing upon during my interactions with them or what they told me

during an interview. Despite this limited insight into their activities, I can still provide detail on how they were utilizing their resources and working toward their goals.

Weaving Resources: GCF Learn Free

Each class at Urban CTC presents a different combination of modes for learners. In any given computer class, learners are given a variety of documents when they walk in the door, and throughout class, they move between those documents and the ones they create. Learners are given a curriculum booklet, a handout with local resources for where they can go to take additional computer classes, and a course evaluation sheet when they arrive. During classes, learners will read instructions on screen, type short sentences or enter numbers, watch videos, and/or take hand written notes that they record on their curriculum booklet page margins or in a personal notebook.

I interviewed Olivia one evening after a GCF Learn Free class. During our interview, she shared a story about how she stumbled across tutorial videos on the GCF site. After listening to her describe her excitement for finding these videos and how she talked about the resources she was using to learn during that night of class, I realized that her process involved numerous tools, including her own handwritten notes. The narrative I present next offers Olivia's unique way of making use of the variety of resources available to her during this class at the CTC.

Olivia informed me about how excited she was to have found the videos on GCF because she had been doing a lot of reading on the site during class. She stated,

what was exciting to me is to find...those videos at the end of that GCF Learn! I was just clicking and clicking...the original website had a lot- one little video but

a lot, a lot a lot of reading, and then I was clicking, clicking, and clicking and I found a site that had my processing of computer basics in videos! (Lines 91 – 93)

She told me that she took notes during the videos and planned to revisit the alphabetic text portion of the tutorial later. She explained,

So I was able to go through that and take my little notes, and then later on, I'll go back and read ummm go to the sites that had most of the reading part to see- to make sure I'm clear on what my videos were sharing with me. (Lines 93-95)

When I thought about how Olivia was gathering information and what tools she was using, I visualized a timeline that depicts the sequence in which she used each resource. A rough diagram of her process (see Figure 7) points out which multimodal resources she used, the order in which she used them, and which ones she used and created simultaneously. For example, her second stage included accessing videos and then creating a written record of the important ideas to her in her notes. This diagram in Figure 7 (moving left to right) presents a snapshot of the resources this learner connected to at the CTC:

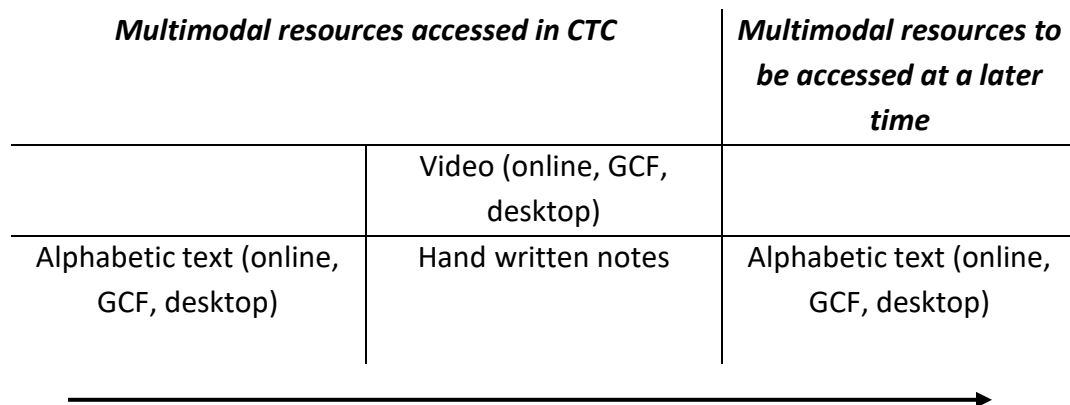


Figure 7. Olivia's Resources

Olivia's narrative informs me that this is one way she utilized the resources made available to her at the CTC. It also reveals that she began creating her own resource to be used later when she went back to GCF. Her handwritten notes would serve her again when she went online to check her understanding using the alphabetic text online. Mapping Olivia's sequence of resources also offers a look into what resources were valuable to her. Her example displays how some learners are connecting to other resources while at the CTC.

Weaving Resources: Practicing English

One of the patrons I worked with during a GCF class asked me for help with switching tutorials on GCF. Because English was not her first language, this took a little time on my end to decipher. To clarify her message, she recruited another learner sitting at the computer next to her to translate. That woman told me that she wanted to find reading programs on GCF. We found some, and we went through a few different exercises until she found one she wanted. She said she wanted to read and then answer. We located an activity similar to a standardized test reading comprehension question where she was to read through a passage and then select an answer. Based on her request for this type of GCF activity, it appeared as though she was using GCF as a tool to further her English.

To sketch out how this learner connected with resources, she began by accessing the GCF tutorial site. She called me over for assistance and then asked the learner sitting next to her to help translate her question so I could help her find a new tutorial. After I learned that she wanted to practice her English, and we found a new GCF tutorial where

she could practice reading in English. The diagram below (Figure 8) provides an illustration of how this learner went about selecting her resources and which ones were important for her to access:

Multimodal resources accessed in CTC

GCF tutorial (desktop)	Tutor (asked for help)	Learner (recruited for translation)	GCF website (desktop)	New GCF tutorial (desktop)
		Tutor (listened to question)	Tutor (looking for new tutorial)	




Figure 8. Resources accessed for learner in GCF Learn Free class

This patron’s experience demonstrates, again, the unique way that learners connect to other available resources in class. Her example also reveals what was valuable to her during that GCF session. And in a class that is often pitched as a technology class, this learner chose to diverge from the stereotypical path of a learner in GCF. She decided to work on practicing English. Spinuzzi (2003) cites Nardi and Engeström (1999) and Suchman (1995) for describing such practices as “‘invisible’ innovations” (p. 2), which Spinuzzi characterizes as a utilization of resources as invisible innovations or strategies people use to make the existing technology work for them. This learner could have used GCF to practice technology-related skills throughout the entire class, but at one point, she

decided that she wanted to try out other tutorials and use the class period as a way to improve her English. Such strategies of invisible innovations reveal the ingenuity and creativity of the learners at work in the CTC.

This particular patron's work at the CTC also reveals how important tutors are to assisting learners with using online tutorial resources meant for beginners. Like many learners taking classes at the CTC, they have little computer experience, so even attempting to go online would be impossible without tutors nearby to help them with using their mouse and typing in a web address. Even when well-intentioned tutorial authors construct computer-help resources, they fail to consider inexperienced ICT users, such as those at the Urban Library CTC, who have never gone on the Internet before and who do not know how to open a browser. The alphabetic print resources at the Urban CTC, online tutorial at GCF Learn Free, and free tutorials on YouTube are useless and inaccessible to users who do not know the very basic, foundational skills needed to operate a computer. Therefore, tutors are integral resources at the CTC as they guide learners to learn the visual cues on screen and help them gradually build their digital literacies.

Weaving Resources: Tutorials for a Tablet

I observed a learner inquire about how to use his Polaroid tablet during a GCF Learn Free class. As is typical for GCF classes, the instructor and assistants help learners through the GCF site so they can find all of the technology offerings. Sometimes this will include the staff member asking what the learner wants to learn that evening, and then

she helps the learner find a tutorial devoted to that topic. Once each patron began a tutorial they were interested in, they were set to work independently for a while.

There was one learner who wanted help learning how to use his Polaroid tablet that he brought in with him. At first, he wanted to use the Polaroid tablet itself to learn how to use it. Summer was helping him and explained that instead of using GCF on his tablet, he could use the library's desktop computer so he would avoid using all the data on his tablet to go online. He was hesitant to use the desktop, but after they discovered the battery was nearly dead, he was receptive to using it.

Summer found a tutorial on GCF to help him, but it was not extensive. I Googled "polaroid tablet tutorial," and two YouTube videos came up first in the results and each one was about 7-9 minutes long. I went over to the learner's computer and explained that he could find tutorial videos online through a Google search. He had told me before class he really did not know how to use a computer, so I guided him through the steps of conducting a Google search. As I did this, he wrote down notes in his notebook that he had with him. He asked me how to spell "Polaroid" and "tutorial" as he wrote out, "Polaroid tablet tutorial." Once he had typed in his search, I said he could click on either of the videos because they were videos that were teaching people how to use the device.

Each patron was given headphones for this class, so he put his headphones on. I told him to click the "Play" button again to get the video started, since it had been paused. After he did not respond with a click on the YouTube "Play" button, which is the red arrow pointing right, I pointed to it and said, "Click here, on Play." He then said something about not knowing that the button meant "play." For this patron, and likely

others in his position, the “Play,” “Pause,” and “Stop” buttons used for audio and video were new images and concepts for him. Some people have very little experience with technology when they arrive at our classes. After he started the video and heard the audio through in his headphones, immediately a smile spread across his face, and he locked into the video.

The multimodal resources I observed this patron working with are provided below. He first began by asking a tutor about using his own personal Polaroid tablet. After she located a tutorial on GCF, he went through that. Because not much information was provided, I went over to introduce him to doing a Google search. I explained what to type in and he took handwritten notes in his notebook. After that, he was able to view the tutorial videos and learn how to use his tablet. The sequence of which resources he accessed are displayed below in Figure 9.

Multimodal resources accessed in CTC

Tutor I	GCF online tutorial (desktop)	Tutor II	Google search (desktop)	YouTube videos + headphones (desktop)
Polaroid tablet			Handwritten notes in notebook	




Figure 9. Resources patron accessed for tutorial during GCF Learn Free class

To reach his technological goal, this learner relied on tutors and online tutorials for gathering information. He then went to his own notebook to record the important ideas. Weaving a variety of human and non-human resources, this tutor used his time at the CTC to learn how to use a new, mobile device.

The previous examples I have described took place in the CTC during a computer class. When interviewing learners, I also learned about how they connect to resources that they picked up at the CTC when they are at home. The next example shows how some learners make use of the curriculum booklet outside of class.

Notes in Class and Reviewing Curriculum Booklet at Home

Two other learners, Pearl and Sarah, commented on how they take notes in class, and they both review the curriculum booklet text at home. In my interview with Pearl, she showed me the booklet she received during the previous week's class and said she brought it because she got stuck on one of the exercises and wanted to ask for help at the class held immediately following our interview. I asked her to tell me more about how she was using the booklet. She said that she goes back through it at home: "Yup, I have to go back. I go back, and I go over it all over it again" (Line 81). Like Pearl, Sarah discussed the ways she used the curriculum booklet, too.

When I asked Sarah about how she uses the curriculum booklet or what it means to her, she said that she likes having it as a reference so she can go back and look at what was covered,

When I have to go back and go through some of the functions, then I have the book I can reference. And I like a reference...I have to have the ability to go back

and do the one, two, three, four, five. I like that to try to get through it, because if I don't have anyone at home it can help me. (Lines 50-52)

For both Pearl and Sarah, then, the booklet allows them to review a resource when they are no longer at class. Sarah seems to gesture that the curriculum booklet can serve as a replacement when a tutor is not around to answer her questions.

Similar to Pearl and other learners, Sarah takes notes while she is in class. She said she does it because "I'm that type of learner where I wanna see things and then incorporate it here" (Line 79). She stated, "I like to see it. It's just better for me, that's the way I learn better. See something and then reference" (Lines 80-81). Alphabetic text serves as a useful resource for these two learners, relying on it in class and at home. They also create their own resources for themselves when they take their handwritten notes.

Attaching a Resume

Outside of class, patrons are also weaving resources. One patron, who was about 20-30 years old, needed help with attaching his resume and sending it in an email to recruiter. When I arrived to help at his workforce computer, he asked how he was supposed to attach a document. He had opened what appeared to be an email window, but it did not have an attachment button and there was not a website surrounding the open window, so I asked if we could start over by going to his Gmail site, which he had told me he had. He looked at me and said he was computer illiterate and did not know what to do. He appeared embarrassed and unsure of how sending this email was supposed to work.

After logging into Gmail, he went to his phone and started looking at something. He told me he had gone into the wrong email account and needed to access his Yahoo account. This was interesting because when he did open his Gmail account, there were a lot of prompts from Gmail regarding how to use the account. It seemed as though this was the first time he had opened up that account. After he went to his phone, it made me think that he is used to getting emails via his phone and maybe never or rarely uses a computer to do email tasks. This was an observation that staff members told me about fairly regularly. Patrons would ask staff members about how to access their email account on desktop. They explained how patrons would not remember the password to their email account because they always accessed their inbox on their phones.

The patron was using Internet Explorer, but the Word document would not attach. After two attempts, we moved to Google Chrome. Prior to opening Chrome, the patron had opened an email to which he wanted to reply and attach his document. I told him to reply he would need to click the “Reply” button. Because of what he said before about being “computer illiterate” and his hesitation for how to respond, I told him that it might be nice to type a short message to the sender. He proceeded to type in a line that stated how this was the information the person had requested. Because the email was for a recruiter, I coached him through writing a brief, more professional email message. He then found his document and attached it. I showed him where he could look on the email interface to see that the document had attached. There were two links next to the file name that said something like “Cancel / Download.” He asked me if he needed to download the file or anything, and I responded that he did not because the file was

attached to the email. He sent the email, and after doing so, seemed to be in shock that it worked. I showed him that he could tell it had sent by looking at the time stamp on the email.

For this learner, he utilized a combination of resources (Figure 10) that included a smartphone in addition to a desktop:

Multimodal resources accessed in CTC

Gmail email account (desktop)	Tutor	Yahoo email account (smartphone)	Email message (desktop)
		Tutor	Tutor




Figure 10. Resources accessed at workforce computer

His use of a smartphone lends insight into the ways in which many people are accessing the Internet today. The Pew Internet Research Project has found that smartphones are increasingly popular in the U.S. and that 68 percent of adults have one (Anderson, 2015). Furthermore, the Pew Internet Research Project reports that people are also using their smartphones more now to search for jobs, and 23 percent of smartphone job seekers have used their smartphone to construct job materials like cover letters and resumes (Smith, 2015). A look into this learner’s practices reveals one’s familiarity and use of multiple devices to accomplish technological tasks.

Saving Files

On a non-class day when I was volunteering at the computers, a learner asked me to help her save files to her jump drives. This is a frequent concern for patrons unfamiliar with computers. As I told her the instructions, we walked through saving her file and she took a slip of paper from the dispenser on the desk in the computer lab. She wrote out the steps so she could remember how to do this on her own again in the future (Figure 11). Her sequence of activities is as follows:

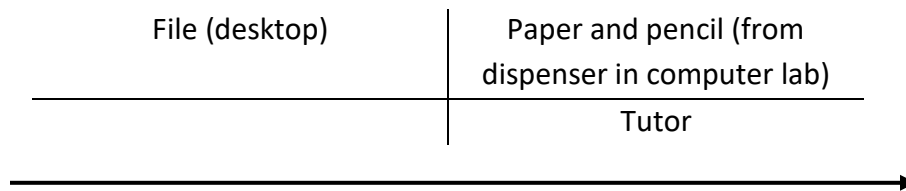


Figure 11. Patron's sequence of activities

At Urban CTC, if a learner is unsure of how to move forward, he/she often reaches out to a tutor for guidance. Learners frequently record these technical steps on paper. Alphabetic text at the CTC is an important resource that learners and tutors frequently encounter and utilize. Whether a learner is trying to learn about how to use a program and accesses the curriculum booklet or the learner seeks to retain the information for later and writes handwritten notes on paper, alphabetic text is a key resource. And as these examples have demonstrated, learners engage with technical

information in unique ways that make use of human and non-human resources in the CTC.

Throughout this chapter, I have illustrated some of the texts and communication practices present in the Urban Library CTC. It is evident that the learners featured in this research are novices because they lack the experience and skills necessary to go online and operate ICTs critically. Learners attending this CTC have little to no experience using ICTs and desire to build their digital literacies. In this chapter, I outlined how learners connect with other learners and tutors at Urban CTC and how learners connected with the available multimodal resources in the CTC. In particular, learners interact with other learners before, during, and after CTC computer classes. These are supportive interactions that often serve as a helpful resource to learners. In addition, the Urban CTC tutors serve as local technical communication experts who can effectively help patrons build their digital literacies. They do this by informing learners about visual cues and developing strategies such as visual and audible representations to present learners with a non-screen based examples. These examples magnify unfamiliar and taken-for-granted concepts that experienced users forget about such as where to place one's fingers on a mouse or how quickly to click the left button on a mouse. Tutors also utilize metaphors and personalize class sessions to assist learners. I conclude the chapter by addressing research question three and describe the variety of ways that learners connect with other multimodal resources at the CTC. By doing so, learners have been able to use GCF Learn Free to learn about computers and to practice their standard American English comprehension skills, for example. I found that multimodality is a key aspect of learners'

user experiences at Urban CTC and that they access and weave together a combination of resources while at the CTC, including alphabetic text, handwritten notes, and both professional and user-created online video tutorials. By utilizing these resources, learners could move one step closer to becoming critical users of ICTs. Overall, confronting the technical communication regarding ICTs is a collaborative process at Urban CTC, and tutors play an integral role in assisting learners with that process. When learners connect to a variety of resources, including human and non-human, they are able to continue their journey toward digital literacy development.

Chapter 5: Results, Phase 2

For research question one, I focused on the ways in which learners connected with other learners at Urban CTC, and for research question two, I provided detail on learner and tutor interactions. To address research question three, I illustrated the ways in which learners were connecting with various multimodal resources to build their digital literacies. All of the findings discussed in Chapter 4 stem from data sources collected during Phase 1 of my research. In this chapter, I highlight findings from Phase 2 of data collection, which further underscore the important learner to tutor connections discussed in Chapter 4. For Phase 2, my observations stem from the workforce computers, helping patrons at their own personal computers, one-on-one tutoring sessions, and the newly renovated computer lab (on the first day of classes after the completed renovation). Therefore, I only focus on research question two (learner to tutor connections) within this chapter because my data did not stem from learner to learner interactions during this phase. I also conducted interviews with library staff members and with patrons who attended one-on-one computer help sessions. My data revealed eight methods (see Table 4) staff members used to help patrons. I present two of these methods that I selectively coded for here in this chapter.

Table 4. Types of help CTC staff members offer

	Types of help offered by CTC staff members
1.	Providing password help
2.	Providing navigation help
3.	Providing distractions for children accompanying parents at library (e.g., paper and crayons)
4.	Providing assistance that resembled a remedial course
5.	Conducting audience analysis
6.	Facilitating networking for patrons
7.	Offering encouragement
8.	Participating in professional development to stay up to date on technologies

These types of help are important because they shed light on the myriad ways CTC tutors are assisting community members daily. In addition, the data behind these categories reveal the nature of learner to tutor interactions outside of computer courses and how CTC tutors participate as resources for learners developing their digital literacies.

Across Phases 1 and 2, a strong pattern has emerged for how staff members assist patrons at the CTC. By teaching classes and helping patrons one-on-one, CTC staff members are skilled at identifying needs and constructing rhetorically effective methods for helping inexperienced users advance their digital literacies. More specifically, Chapter 4 (Phase 1 data) illustrates how CTC tutors are local technical communication experts that demonstrate their ability to identify and utilize effective teaching methods to help novice users grasp the nuances of computer interfaces and hardware. For example, I discussed how staff members raise users' awareness for the visual cues present across

online and offline interfaces. In the current chapter, I illustrate the ways in which tutors continue to help users work with computer interfaces and hardware by describing how they help learners *navigate* the terrain of using computers. In addition, I will outline a second way they help, namely serving as *audience analysis* guides for patrons. As tutors share the rhetorical tool of audience analysis with learners who are seeking to construct effective forms of communication for employment or more formal purposes (e.g., resumes, job applications), they are showing them how to adapt their written communication to meet the expectations or genre conventions of their various professional audiences.

Learners Connecting with Tutors

Two categories. When deciphering properties and dimensions of these categories, I selectively coded for “navigation” and “audience analysis.” These stood out as “outliers” (Farkas & Haas, 2012, p. 84) from the rest after completing open coding and determining properties and dimensions of the categories. Glaser and Strauss (1967/99) also call this process of identifying properties and dimensions as specifying the concept. After looking across the categories, navigation stood out from the others due to the sheer number of staff members who referenced helping patrons with these types of issues (six of the eight I interviewed) and the frequency at which staff members are asked these types of questions (daily). It is also an interesting category because it encompasses both software and hardware issues unlike the other categories. I selectively coded for audience analysis because this category involves staff members trying to help patrons analyze *their* audiences (e.g., future employers) as they prepare documents and other forms of

communication at the workforce computers. This category does not encompass how the CTC staff person analyzes the patron as an audience member (explored more in Phase 1). Instead, this category is limited to the methods that tutors utilize to teach the patron how to analyze the audience they are trying to reach. This category is an outlier because the incidents that represent this category are moments at the CTC when staff members are teaching rhetorical principles to patrons. Unlike other categories from Phase 2 data, this one is unique in that the advice provided to the patron is open to interpretation by each staff member. For instance, to recover a password (under the category of “password help”), a staff member is likely to provide minimal options to do so because there are limited ways an interface would allow this type of action. However, if the patron were to ask for advice for improving her resume (coded under “audience analysis”), there are a number of ways to do this. Therefore, the likelihood for different interpretations and ethical dimensions to emerge from these data points focused on audience analysis was worthy of exploration.

These two categories, navigation and audience analysis, are two main findings that respond to research question two, which asked, *in what ways are learners connecting to tutors at Urban CTC?* These categories offer evidence for how learners are connecting with tutors at the CTC when tutors were assisting patrons at the workforce computers when the computer lab was closed for renovations during Phase 2 of data collection. These categories also stem from helping patrons at their own personal computers and the one-on-one tutoring interactions I had with patrons who signed up for such sessions. Because each of these illuminate the types of help provided by the tutors at the CTC, data

points from these categories shed important light on the technical communication practices occurring at this particular Southeastern U.S. CTC.

Defining categories. Navigation refers to a type of help that tutors provide when novice users are beginning to develop their understanding of how computers, interfaces, and computer networks intertwine in order to operate. For instance, this could range from pointing out the meaning behind particular icons to explaining how to interact with a program's interface in order to send the desired number of copies to the printer. In addition, there are two particular types of navigation help that occur at the CTC: interface and hardware. Interface navigation involves helping patrons orient to software interfaces such as Microsoft Office, Adobe Acrobat, and Internet browsers. Hardware interface navigation involves orienting learners to the different pieces of hardware found at the CTC and helping patrons get different pieces of hardware, such as a desktop computer and printer, to communicate with one another.

Audience analysis includes instances when staff members help patrons write their communications (e.g., resume, letter) in ways that meet their audience's expectations. For instance, an employer would expect an up to-date-resume that clearly communicates past work experience and skills. Whenever I observed or heard a staff member discuss helping patrons try to write in ways that would encourage their audience to pay attention to them, I coded it as audience analysis. This category does not encompass the ways in which CTC tutors analyzed their audience, the patron. Rather, this category only focuses on the ways in which the staff member would teach the patron how to consider his/her audience

and adapt his/her communication. Next, I will outline specific ways that tutors and learners connected at the CTC regarding navigation.

Types of help: Navigation. Navigation at the CTC took many forms but always included assisting learners with software and/or hardware issues. Typically, navigation help was offered at one of the workforce desktops, but occasionally patrons asked for help with their own personal devices. When patrons wanted to signal to a staff member that they needed help at their computers, they would look up from their screen and wave their hand or hold it in the air. They would also call over with a staff member by saying, “Excuse me” or “M’am.” Navigation help occurred at the CTC across numerous patrons and in various ways. I observed eight particular ways that tutors helped learners navigate using computers and the Internet, including: downloading and sending documents to print, saving documentation, navigating online, troubleshooting to find best browser, accessing websites, setting up software, assisting with electronic correspondence, and using hardware. Although the examples I will elaborate on next are from my observations of users at the workforce computers, at their own personal computers, or in one-on-one tutoring sessions, which means they were not in a computer course but working on a desktop outside of the computer lab to complete tasks, I recall occasionally hearing Susan instruct another tutor assisting during classes to take a step back from helping learners at their computers. There were different opinions regarding how much to assist patrons at computers, which may have been a feeling present when tutors would interact with learners at workforce computers. From time to time, I felt this uncertainty as well.

While serving as a participant-observer at Urban CTC during Phase 2 of my data collection, I spent time circulating around the 10 workforce computers helping patrons individually. These included eight desktops located in the central, main area of the library, and two more by the outside edge of the library away from the more public main area, offering patrons a quieter setting to work. Patrons were allowed one three-hour session on workforce computers each day, but their activities were restricted to job- and school-related tasks such as resume writing and homework. My interactions at the workforce computers were short, typically 15 minutes or less, and were usually initiated by a patron holding up a hand or asking for a staff person to stop over. The info desk was located right by eight of the 10 workforce computers.

Each staff member sat at the info desk and assisted patrons for two, one-hour shifts each day. When I was holding one of my volunteer shifts, I would stand by the desk and wait for patrons to ask for help. To avoid appearing as if I were monitoring patrons' behaviors at their computers, I would make small talk with the staff member at the desk, tidy up informational materials such as pamphlets that were sitting on the desk, walk by the two workforce computers that were located away from the main workforce area, and "fluff" the books nearby in the children's section (make sure all book spines were facing out). When a patron did express needing help, either the staff member or I would walk over to his/her computer. There were also times when the staff person and I would consult one another while we were helping a patron if we did not know the answer ourselves.

Because of the ongoing construction during this phase of data collection, computers were limited. The computer lab was completely unavailable to patrons during this time. Some patrons brought in their own laptops and worked on those while sitting at the tables in the library. Other than that, only the 10 workforce computers were available to patrons, and they were still only to be used for workforce purposes, unlike the lab computers that had previously been available. For the examples I provide in this chapter, I frequently draw upon my own experiences assisting patrons at the workforce computers, in addition to the ones I observed. While the construction was taking place, I was also volunteering as a one-on-one computer tutor for patrons, which means I met with patrons during a scheduled time for 30 minutes or more. The field examples I provide in this chapter also stem from the 10 one-on-one tutoring sessions I conducted with four different women ranging in age from 50s to 80s.

Downloading and sending documents to print. The time I spent working with inexperienced users provided me an opportunity to learn about how they use computers. In a tutor role, I was able to apply the knowledge I had accrued through helping patrons.

When working with inexperienced users at the workforce computers, I learned that some could open their email accounts and individual emails without any help, but when they wanted to print an attached file, they ran into issues because of how they were clicking on the document icon within the email. This was an issue for several patrons at the CTC. Patrons would open the document as a preview within Gmail and were puzzled with how to print the document. Instead of downloading the file, they were opening it as a preview, which did not work for printing at the CTC. For example, one patron came to

me when she needed help with printing a PDF. She was getting an error message on all of the pages she printed. I learned that inexperienced users would click on the attachment icon right away instead of hovering over the icon to see what options were available for manipulating the file (e.g., “Download,” “Save to Drive,” and “Edit with Google Docs”) (See Figure 12).

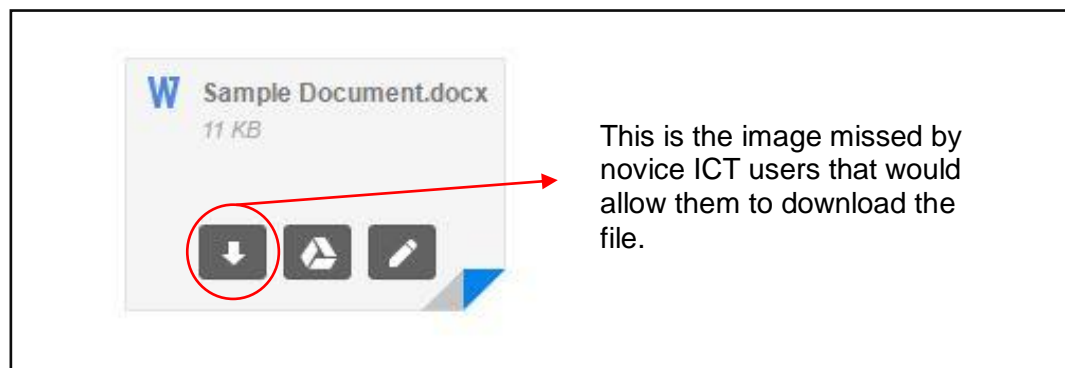


Figure 12. Icon that appears for an attached Word document when mouse hovers

Because they clicked the icon, they would open the document as a preview. After I realized that patrons were not downloading the file, I helped them see that they needed to put their mouse arrow over the icon, without clicking it, and then click on the arrow that appears when the mouse is over the attachment icon so they could download the file to print. For novice users, such subtleties frequently go unnoticed because they lack the computer experience.

Saving documentation. Many users at Urban CTC find it helpful to get assistance navigating a computer’s organizational scheme because it is challenging to do so for an inexperienced user. Saving documentation at the CTC usually involves saving a

document to a USB drive. During one of my visits to the CTC, I helped a patron with using a USB drive for the first time. I pointed out the open half of the USB and then the closed side and explained that the patron could put the USB into any of the four outlets. I also worked with a patron who was unsure how USB's held her saved files. She asked me if she would be able to get her files from there at any time. To confirm that the files were on there, we double checked the USB drive. I showed her how to open a file window and locate the USB. Upon opening it, she saw the file she had named and saved there. During this process of figuring out how to save her file she mentioned that she would have no idea how to navigate all this on her own.

Another patron asked me for help saving her resume to a jump drive. She told me that the librarian let her borrow the jump drive so she could save, which is something that librarians can choose to do at the CTC. When helping the patron, I navigated her through the "Save As" sequence from Word until we got to "Browse" and then I told her to select "USB REMOVEABLE." An error message indicated that the device had not been detected. From past experience, I knew that not all of the drives on the library computers work properly. From there, I asked the patron to unplug and plug the USB drive back in, and I helped her locate the drive again on the computer until her file was saved.

Asking for help on saving something at the CTC is a frequent request. According to Linda, most patrons do not come into the library with their documents saved on a USB drive. Instead, they are saved as an attachment in their email account. Because patrons are unable to save to the library desktop computers, she finds that she has to help them

with transferring their document to a USB drive or to a cloud-based space such as Dropbox.

As staff members encounter repetitive questions about saving files on the workforce computers, they gain important experience knowing how to help novice users. Linda's anecdote underscores how staff members know that patrons often lack the equipment (e.g., USB drives or cloud-based storage) and knowledge for saving their important files. Through these daily interactions, they help patrons determine their file saving strategy as they begin a new resume, help patrons figure out how a USB is plugged into the machine, and offer their own personal USB drive they carry around in their pockets.

When helping a patron with saving documents, tutors may also guide them through saving by telling them where to click on screen. This verbal guidance through the computer's file organizational system paired with the learner doing the actual clicking is needed at the CTC because some have never saved a file before. For example, tutors may show the learner where to find the 'Save' area within Microsoft Word and then help them learn how to search for file folders or specific drives on their computer.

Navigating online. When assisting patrons with online navigation, there were two particular incidents that stood out during my participant observation, including: a.) helping patrons navigate to a desired location on a company website; and b.) helping patrons navigate an online search. Tutors also help decipher where job application information is located on different websites as well as what language used to signal job information.

Helping patrons navigate websites. During one of my visits to the CTC, I observed the manager help a patron locate the job application area of the website for a local gas station. This is not uncommon for staff members. Patrons who are applying for jobs on the workforce computers often lack familiarity with website organization. The tutors understand that the inexperienced users they work with often are unaware that this information can be tucked into a menu of some sort on the site. Tutors will show learners that they may have to scroll to the very top or bottom of the site to find such information. At Urban CTC, the tutors are knowledgeable about how to help inexperienced users who lack the experience to know what to look for on a website.

Carla said that her second most frequently asked question after “how to print at the library” was, “how to get to the correct place on a website,” the patron was navigating. In other words, Carla said she often needs to point out where the patron should go on the website itself. She stated,

If they’re looking for where the jobs are located and they have to click on jobs, careers, employment could be listed at the bottom or at the top if they don’t see it. I guess how to navigate that website, questions, yeah, things that they’re looking for that they can’t find and that you have to read or point it out to them. (Lines 12-14)

Based on Carla’s experience, the terminology used to represent employment information may not be direct enough for some of the patrons visiting this library. Tutors are skilled at helping novice users recognize the different terms utilized to advertise job openings. Instead of “jobs,” a tutor will highlight how “careers”, “employment”, or “team

members” are synonyms for job applicants that the patrons may need to look for.

Therefore, staff members like Carla help patrons with identifying where they are to go on the larger website to apply for jobs. Staff members are attuned to how patrons may be unfamiliar with website genre conventions and can point out conventions of website design that can help them in the future. In addition to orienting inexperienced users to employment information on a website, tutors also assist with conducting online searches.

Online searches. The second type of online navigation I encountered involved helping a learner conduct an online search. In one of my one-on-one tutoring sessions with Eleanor, I helped her navigate the library’s online genealogy database on her personal laptop. Within this session searching online involved showing her several different elements involved in conducting a search. Her experience relates to other inexperienced users because they come into the CTC with a goal and are unaware of the sometimes numerous steps needed or forms of knowledge that they lack. For Eleanor, she wanted to investigate whether or not her parents had actually been married. When Eleanor explained her goal for the tutoring session, I asked one of the staff members for advice on helping her track down this information and was directed to a genealogy database. This online search would involve interacting with the hardware and interpreting a document on-screen. When a learner is beginning to acquire these skills, this type of search can be time consuming and even frustrating for the learner. The example of working with Eleanor for this session displays the types of obstacles tutors and patrons overcome together and how staff members serve as resident rhetoricians.

Because Eleanor was already in her 80s, the U.S. Census records we located dated back to the early 1900s. We found what appeared to be her father and mother's name in a Census record. Because of the word "wife" handwritten under the column titled something close to, "Relationship to head of household," Eleanor believed this was the confirmation she had been searching for and was excited to find evidence of their marriage printed on an official government document. Although her main goal was to determine if her parents had been married, this task required help that rested on hardware operation, Internet and database navigation, interface navigation at the site of the database search engine, and then understanding how to locate a PDF file link on the search results page and how to open the file. Without another person helping her, Eleanor would be unable to access and utilize the database to search for this information on her own.

When Eleanor wanted to save the PDF file, this required helping her with navigating through the computer's filing system to get the document downloaded and saved to her desktop. Because of my time volunteering at the CTC, it was evident that Eleanor needed to gain familiarity with the visual cues associated with a search engine interface (e.g., search boxes and PDF linked documents for results). In giving her the opportunity to do the work of searching herself (e.g., clicking and typing), she was gaining the experience of working with a computer on her own. Staff members do this because they understand that these novice learners learn better when they practice and walk through the steps on the computer on their own.

Troubleshooting to find best browser. Tina, one of the staff members explained that sometimes she has to help patrons determine which browser is going to work for them. She noted, “sometimes we have problems between what works best for the applicant or the application, whether it’s Google or Internet Explorer...so we have to, you know, go from one to the other to see what’s best for them” (Lines 10-11).

On occasion, tutors assist learners with which browser they should use because not all work well with the types of sites they are trying to access. If a patron comes to them with an issue about how they are unable to get to a particular website, the tutors know that patrons may not realize that they need to try a different browser. Inexperienced users lack the knowledge that not all browsers function the same. Staff members know their audience and know that they may need to guide the learner to try a new browser. By showing a patron this strategy, they are also teaching them the background knowledge to then utilize on their own in the future.

Accessing websites. If patrons are blocked from a site, for some reason, or unable to use the mouse properly, tutors show patrons how to get to the site through a different route or they show them how to use the mouse. These are not uncommon obstacles and the staff members are aware of what can trip up their patrons who are novice users. While it may be an issue of which browser the patron is in, staff members know that sometimes the obstacle is a restriction on the computer put in place by the library.

For instance, sometimes the URLs patrons type in do not bring them to the website, and Lorraine explained that it is not uncommon for patrons to ask her about this. These patrons are sometimes given a web URL by someone else they know such as a

recruiter, but when they type it into the address bar on the CTC computers, they are unable to get to the site. Lorraine mentioned that sometimes this is due to the limits set on the CTC's computers. She explained:

So I always have a backdoor, and my backdoor is to go to either Google Chrome. Go to uh Yahoo and just type in what you're looking for, the site will come up...So that's why I choose to go in the backdoor- it's not a backdoor but I call it a backdoor- because most people that give someone a site to go on, they give you the web address, and some time with our computers and the way they're set up, limit you to certain sites you can go on, so that's my backdoor. (Lines 17-20)

Because tutors have background knowledge about the library computers and the Internet, they offer patrons an alternative way to reach the site such as using a search engine to search for the name of the site.

Linda has also had to help with website access, but her experiences stem from patrons having difficulty with the material or physical barriers to using a computer. When I asked Linda about what types of things patrons ask her for help with, she said, "helping them get to a website like some people still have issues with just using the physical computer, the keyboard, the mouse, that kind of thing. So assisting with that" (Lines 6-8). Because tutors help so many people each week, they figure out solutions to overcome the obstacles patrons encounter.

Patrons asking these questions about accessing websites are often unaware that there may be other ways to get to the site, which is where tutors can step in with an understanding of how to assist that particular patron. On other occasions, tutors recognize

that patrons have a hard time with physically using the computer hardware such as the mouse and are able to offer assistance by showing them how to use it and where to put their hands.

Setting up software. I have also offered a step-by-step walk through for a printer driver installation, which was needed because the patron was still unsure how to install the library's printer driver on his own. When patrons have their own laptops, they can download a printer driver from the library's website and send their documents wirelessly to the printer in the library instead of logging into a library desktop and printing. I went through the steps for downloading a driver that I had observed Tina utilize for helping a different patron. When I was helping the patron through the steps provided online, I offered needed explanations of alerts along the way to help him successfully install it. This patron had an issue with pop-ups being blocked, which inhibited his ability to open the printer-driver download. When he clicked on the bar, his computer said something about trust and if the patron wanted to allow this blocked material. This seemed to make him apprehensive to go through with it. Initially, he did not want to allow the pop-up but was eventually comfortable allowing the pop-up and decided to click through and was able to download the printer driver.

As a tutor, I was helping the patron because I knew that the instructions did not make sense and that he did not look elsewhere online to figure out how to install the driver. In addition, I had to explain the alert that came up regarding his pop-up blocker. This patron was unaware of some of the features configured on his machine and I explained them in such a way that offered him information without persuading him to

take a particular action. Providing information and letting patrons decide what to do on their computers is important for ensuring that staff members are not to blame if something bad happens. Tutors at the CTC also understand that taking the time to show a patron a particular process is often necessary and helpful. The experience for learning these different processes can be empowering for the learner.

Assisting with electronic correspondence. Tutors also assist learners with email. This happens in a variety of ways, but the tutors understand that many of their patrons are accustomed to going online on their smartphones and need specific assistance retrieving information from their email accounts off of desktop computers or need help with submitting and finalizing communications.

The learners at the CTC might be asking for help with accessing their email account on a computer. Tutors know that frequently those inexperienced users who are only used to checking their email on their smartphones will have a hard time accessing and using their account on a desktop computer. Knowing that patrons will need to be reminded that they have to use the same password from their smartphone on the desktop computer to access their email account is something to which tutors are accustomed because they help learners so frequently with these types of concerns and issues. Tutors are especially adept at pointing out the ways that learners need to transition from working on their smartphone to a desktop computer. Tutors also assist patrons with attaching documents, submitting applications via email, setting up email accounts, or creating a professional email message.

When interviewing Linda, she mentioned how she is helping patrons daily at computers and that it involves, “Something simple as attaching a document to an email submitting an application via email. Setting up an email...most of it is helping with submitting resumes, submitting attachments, creating emails, that kind of thing” (Lines 6-9). Tutors are consistently asked questions about submitting or finalizing communications for job-related tasks and each day bring valuable knowledge for helping a patron. Although they are careful not to overstep their bounds, they know that patrons are in need of the cultural knowledge they hold both in terms of navigating the worlds of computers and employment.

One day a young woman asked me for help with attaching a document to an email. The patron needed help sending her resume to a future employer, and she said she needed help getting the resume off of her jump drive. She plugged it in when I was over by her computer. The patron had the email address of the employer who needed the resume. She also told me that she had two resumes, and updated the one she planned to send. We discussed her options for sending the document as a Word or PDF document, and she said that she wanted to save it as a PDF, and I walked her through how to do that. When we were working on saving her file to her jump drive, she commented on how confusing it was to do all this. For her, it was a challenge to know what tabs to click on and where to find the jump drive on the computer when navigating to it through Microsoft Word.

When composing her email, she asked if starting it with ‘Good afternoon’ would work. I reassured her that was fine. She commented on how slow her typing was, and I

tried to alleviate her insecurity. I helped her compose the email as she asked me for confirmation that what she intended to type would be alright. While helping her through this process, I was able to offer particular knowledge about email. For instance, I let her know that including a message, instead of sending a blank email with an attached document, can be useful for the recipient. I mentioned she could write “Sincerely” followed by her name at the end, due to the formal nature of the relationship I assumed was established between her and the recipient, and she asked me an interesting question. She asked if it was necessary to include her name since her email address would make it obvious, but I let her know that a common expectation for professional emails is to sign the email. I also indicated that holding off on typing in the recipient’s email address until the message was ready to be sent was one way to ensure an incomplete draft would not accidentally be sent. In this interaction, I noticed how the patron was unfamiliar with the cultural conventions of emailing a future employer, and I tried to help illuminate some of the expectations for email communication and how to avoid accidentally sending an email draft too early.

Using hardware. An additional example of how tutors assist with navigation at Urban CTC stems from my experience helping a patron, Eleanor, in a one-on-one session where we collaboratively constructed a set of instructions for her digital camera hardware. She did not know what the pictures on her camera stood for and she wanted to learn how to use it. Because of this, I told her what each picture was and what it symbolized. Tutors frequently assist patrons with figuring out how to interpret the imagery engrained in hardware and software, and it does not just involve explaining what

the image is but what that image symbolizes in the larger ecology of the interface or machine.

In this one-on-one computer session with Eleanor, we spent about 35 minutes going through the different picture settings and what all of the buttons meant on her camera. After that, she took out her notebook and wanted to go through each function again and write down everything we talked about. Essentially, she wanted to construct a key or guide with images for her camera so she could remember what all of the different settings meant. This was a way to help her use the hardware on her own in the future because she could refer back to her key that we collaboratively constructed. We decided that she would write out her own text and that I would draw the images from the camera so she could know what her handwritten, alphabetic notes were in reference to. Some of her notes included, “Play Button,” with my image of the triangle for “play” drawn to the right of her notes. Below that, she added, “Press on see the picture.” She also wrote, “Trash can,” “Video picture,” “night time when dark,” “Something moving,” and “landscape” to help her remember what each tiny visual meant. She wrote herself a reminder, “The SD card is in with Battery press down to get it out.” For this particular learner, I was helping interpret the visual images that she would need to understand in order to use her digital camera or hardware. Interpreting the visual features of hardware helped Eleanor understand the images in the greater context of the camera.

Across these examples of navigational help, staff members are local technical communication experts that understand the dilemmas patrons face as they develop their digital literacies. As patrons develop knowledge for how the file organizational system is

set up on a desktop computer and what particular icons represent, tutors are by their side answering questions, customizing methods for helping the inexperienced user, and offering valuable cultural knowledge of computers and the greater ecology of ICTs.

Types of help: Audience analysis. The second critical method for how learners and tutors connect at the CTC involves tutors serving as audience analysis guides, or what I am calling “resident rhetoricians,” to learners. A resident rhetorician is an Urban CTC tutor who has specialized knowledge of the patrons that visit their library branch and helps users with appealing to their professional audiences. Patrons seek advice on composing written communications (e.g., resume, letter) to recruiters, future employers, and other audiences they wish to correspond with more formally. Tutors provide rhetorical insight to patrons so that they might meet the credibility or document convention expectations of their audiences. For instance, an employer would expect a current resume that effectively highlights past work experience and skills. Library staff members have provided help that involves teaching patrons how to adapt their writing to appeal to the eyes and ears of employers.

While coding, whenever I came across data that included staff members helping patrons to write in ways that would encourage their audience to pay attention to them, I coded it as audience analysis. This category does not encompass the ways in which CTC staff members analyzed patrons (part of the focus of Chp. 4 and the first part of this chapter). Rather, this category only encompasses the ways in which they teach patrons how to consider their audience in terms of document formatting and rhetorical style.

Next, I will outline specific ways that tutors and learners connected at the CTC regarding audience analysis for patrons' audiences.

Preferred Conventions. The tutors serve as resident rhetoricians when they help patrons with adjusting their documents that will be sent to a professional audience, whether that is a future employer or teacher. These adjustments have included suggesting resume templates, because for those who are new to constructing a resume in Word, templates are a reasonable option to develop a professional looking document. Tutors have also helped patrons with opening a Microsoft Word document and highlighting text and changing its formatting, to more complex issues such as adapting one's alphabetic written text to more closely align with the conventions the employer is expecting.

When Tina explained how she observes patrons writing, she said that she reads a lot of resumes and that some patrons are not trained well or do not know how to construct a resume. When she is asked for help and notices this, she helps them to notice the sentence structure of the organization's website to get a sense of what the expected or preferred conventions are for the type of writing that organization expects. She notes:

I see some poorly written resumes and what I suggest to them is to go back on the website, let use, for instance, Food Lion or McDonald's. So I ask them to go back on that website and look at the way the sentence structure is for that particular company, because what they ask for you to be there is what...you can put that on paper, and so it's easier for them to really see the difference of how they wrote it as opposed to what needs to be written 'cause you're trying to sell yourself, and I think once they

get that in mind, it's not just 'I pull, I shelve, I stock,' you know, 'I, I, I,' things like that, but 'Let's use it in a better sentence.' (Lines 59-64)

Tina assists by bringing patrons' awareness to the preferred conventions for writing that employers may expect of employees and helps patrons see how they could revise what they have already composed on their resume. She notes that not all patrons that come into the library need this type of assistance and that she sees very well-educated people writing at the computers as well. For those who do, she points to the "sentence structure" found on a company's website as a place to go for clues for what type of writing is expected. Tina helps patrons analyze their audience by directing them to the ways in which the company writes on their website as a way to gauge the literacies the employer may be seeking from the applicant.

Lorraine has also assisted patrons with showing them how to construct written prose that impresses the audience:

A lot of times I will refer them to online, if they know exactly the job that they are applying for, they can go online and type that in and express* templates. And they'll show them actual jobs, people's education, qualifications, things that they need to have to fill out that application in the way it should look. So, therefore I tell them I say, 'Hey, if it's something on this outline that you actually do, I tell them to copy and paste it and put it on their resume.' You know, 'You may not know how to word it, they can word it for you.' You wanna make sure that you're presentin' it in the way that's gonna draw some attention to the people who you're applying for, you know. (Lines 118-123)

In this example, Lorraine offers an idea of how to compose in a way that will sound professional and meet the expectations that employers are looking for, and it could be perceived as a form of plagiarism. Instead of guiding patrons to wrestle with the wording on their own, she gives advice on how to locate example documents online that may provide strands of prose that describe their skills in particular ways. Lorraine knows that language matters on applications and was hoping to help her patrons as much as possible. Because she knows that some patrons struggle with constructing resumes, she advised such an approach to help them stand out to their employer audience.

Summer told me about an instance when a patron asked her about composing a letter and the proper format for it. The patron was writing to resolve a conflict that involved his brother and a car. As Summer stated, cultural barriers, including language, made this interaction challenging because she felt like she had to include information on how a letter is composed in the U.S. She stated:

there's a gentleman, and he's African I think, and his brother...had him write a letter verifying it. He was trying to find the format for it, so I helped him with that. And there was a language barrier, a cultural barrier in how- between myself and the gentleman also, who didn't understand the whole- the way it's done here.

(Lines 71-74)

Here, Summer explains how she attempted to help this particular patron with letter writing conventions that would be persuasive to a U.S. American audience.

Another example stems from Linda's experience. She recalled recently helping a patron with document formatting: "just a couple of days ago one lady was having issues

with formatting, and I kinda gave her some suggestions on how she could fix it and improve it” (Lines 20-21). All of the staff members I talked to assist patrons at the computers every day they work. When I asked Tina about how often she helps patrons at computers, she said, “Everyday. I assist patrons everyday with resume writing or building. Job searching, uh educational needs from time to time, children to adults. So the assistance for them is everyday, it’s ongoing (Lines 4-5).

When I was volunteering, a woman asked me how to create a resume. She said she had not made one before and never used Microsoft Word. I set her up with a template on Word and helped her get started. I did that by showing her that the first line of large, gray text was the placeholder for her name. She was not familiar with clicking and dragging over the text to highlight so she could change the text. I asked if I could show her what I meant and then explained how to highlight. She tried it on her own and was able to do it. I let her know that once the text is highlighted, she could start typing in her information. Below is a screenshot of the template in Word (Figure 13).

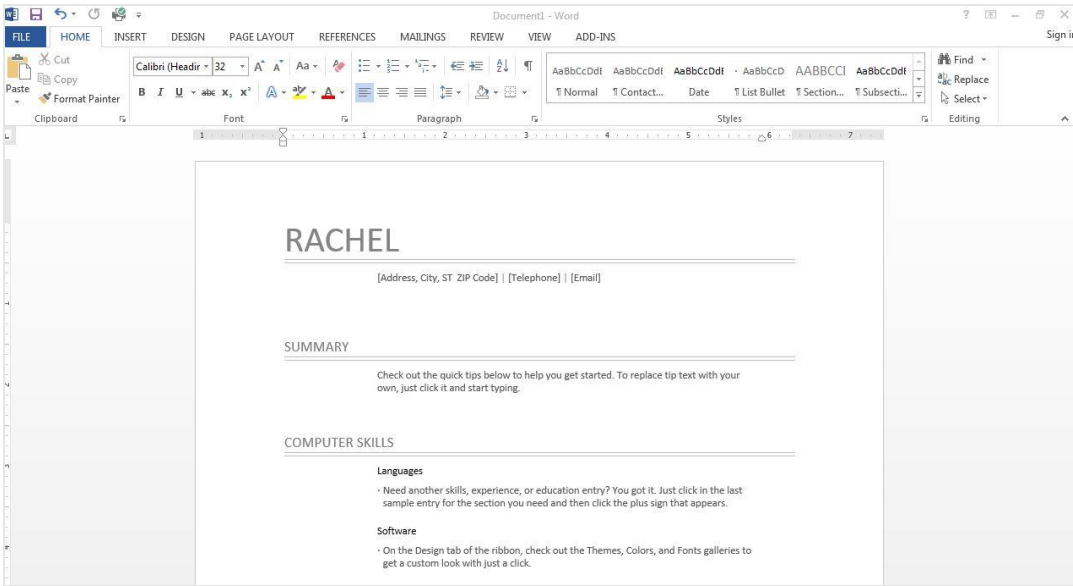


Figure 13. Screenshot of resume template in Microsoft Word

I also mentioned to her that if she wanted, I could help her with an online search so we could bring up other examples of resumes other people had done to give her an idea of the wide variety of ways they can be constructed. She did not appear interested and seemed more interested in typing. It seemed as though she was pressed for time, something I noticed frequently at the workforce computers. Patrons were often trying to get a lot of work done in the limited time they had at the computers. This reason alone was behind a recent policy update to allow patrons to work on the workforce computers for three hours. The library knew that patrons needed more than one hour at computers because employers are asking applicants to complete surveys and submit all application materials electronically. Inexperienced users, and even those who have experience, need the extra time on computers to produce the materials required of them. Knowing the demands of the patrons' various audiences, a policy change was made.

Tina's experience working with patrons reinforces the idea that patrons sometimes feel rushed when they are at the computers as well. Tina explained that patrons are unaware of the time-consuming processes that can be involved when working on computers. When I asked Tina about the types of questions she is asked, she explained that:

And just a lot of job questions, test-taking, as far as info – job has a test on it, why they fillin' out for the profile part of it, I mean just any little questions. I think more or less they just want to come in, get it done, and you know, and that's it. But there's a process, in one sense. Every job is different, every application is different. So, I think they're [patrons] not mindful of all of those things, and they think we have the answers to it all. But we actually don't. You know, we only house the computers and we only assist you in what we can do. (Lines 11-15)

Working on an unfamiliar piece of technology and feeling like it takes longer than planned can lead to patron frustration, and for novice users, I believe this can contribute to the stress of the time constraints they are dealing with at the computer.

Jacora explained that she has helped people with a wide variety of tasks including, “how to pull up a Word document to start typing in a Word document, how to change a font in Word document, help with doing the Power Point. Like I said it's from something that's the smallest thing to real major” (Lines 6-7). She said that helping patrons with placing images in their PowerPoint presentation was complicated. She recalled:

lately we've had quite a few graduate students who have come in here and needed help on things that I know nothing about. Graphic things and like PowerPoint. How

to- in other words, changing- putting one picture on top of another picture with the font on top of that and trying to you know and sync all of that together, and I don't do things like that on a constant basis. For me, helping them was a learning process as well for me. So, but we stuck through it and got it done. (Lines 11-14)

Jacora worked with the students to help them create presentations and despite her lack of knowledge about working with graphics in PowerPoint, she also learned something from the experience.

Like Jacora, Carla said that she helped patrons in Word with a variety of editing and formatting features. She let me know that, "if they're working on a Word document, you know and that question can range to regarding spacing, how to I guess some of the basics on those, how to change fonts, just any question regarding the Microsoft program, you know the Word program, that they may ask" (Lines 14-16). Tutors know that document format counts when patrons are turning in documents or assignments to employers and teachers, so they are often well-versed in various formatting and editing features in Microsoft programs.

Honesty. Lorraine described her experiences trying to help patrons with completing job applications. She encourages patrons to be honest as they write their responses and tries to teach them audience analysis skills by helping them understand how the employer uses the information that the patron provides. She stated:

You know, I always try to explain to people you can't get around the questions. If you don't answer them, that's their way of seeing if you really know what you're sayin', that you know. When you apply for this job, are you really capable of doin' the job,

you know? So I try to deter them from puttin' the wrong answers or trying to override or get around something that they want it to look good on paper. That, that is a, it's an issue with people that can't understand, and then they wanna know: 'What should I put here?' You know. 'Why are they askin' for this?' You know, 'Just give them what they ask for.' That's what I say to them. 'Give 'em what they ask for and after that, it's up to them to pull you in on an interview.' (Lines 82-88)

Lorraine works to assist patrons with understanding how to analyze one's audience so that they can be successful applicants. One of her tenants for completing an application well is to complete it honestly. Lorraine believes that if the patrons write an honest application, then the employer has a fair chance to judge the applicant's qualities. As a resident rhetorician, Lorraine is extending, without knowing, knowledge of ethos, in order to help her patrons establish good rapport with future employers.

These different examples of how staff members help patrons analyze their audiences reveal the intricate ways they have conveyed rhetorical skills to their patrons. Although, as Lorraine noted, not all of their interactions are based on a piece of writing that patrons have presented to them. Instead, sometimes her role is to help patrons understand what the application questions are asking before they even begin typing a response. Regardless of the complexity of the question asked, tutors serve as resident rhetoricians who relay elements of audience analysis to patrons so that they might be successful in their communications with their professional audiences.

In addition to offering audience analysis guidance for professional writing contexts, tutors served as "resident rhetoricians" because they introduced foundational

knowledge about using ICTs to learners that is crucial for their future participation in communication about ICTs. The foundational knowledge they are providing includes knowledge of the language (e.g., jargon such as “browser”) and other cultural elements for using ICTs (e.g., visual cues across interfaces), which are components of functional literacy (Selber, 2004). Without such knowledge, learners desiring to discuss or critique ICTs will be at a disadvantage. Tutors provide language and a cultural structure within which to understand ICTs, which is rhetorical work. For example, the jargon tutors shared with learners is part of teaching them the language of the space so they can more easily participate in discussions in the future. In Selber’s (2004) words, functional literacy allows learners to be more able to use the “language of the powerful” (p. 35).

Functional literacies are also advanced at the CTC when tutors share knowledge about cultural elements of ICTs. Cultural information beyond language can include, for example, the work of interpreting visual nuances of online interfaces. It also involves typing in a URL in the web address bar, conducting a search in a search engine, and recognizing the organizational scheme on a desktop computer. Cultural dimensions of ICTs also encompass online security and what it means to shop at a secure site. At Urban CTC, these crucial functional literacies are not lost on tutors. The work of teaching learners about functional literacies is rhetorical because tutors are providing learners with language to use and cultural knowledge about ICTs, which allows them an opportunity to participate in communication about ICTs in more complex ways in the future. Sharing this useful knowledge is one more way that tutors serve as “resident rhetoricians.” At Urban CTC, the learner to tutor relationship is grounded in rhetoric, and as learners and

tutors have demonstrated, this relationship plays a critical role in digital literacy development.

As the previous examples have illustrated, tutors determine needs of their novice user patrons and find creative methods for helping them advance their digital literacies. Tutors assist learners by helping them navigate the terrain of computers, by serving as audience analysis guides who help them prepare communications to their future professional audiences, and by informing them about foundational knowledge such as the language and cultural elements associated with using ICTs. In particular, they take patrons through saving a document for the first time, offer their own USB drives for saving, assist learners with locating employment information on a website, and point out job-related synonyms on websites. Tutors help to illuminate the style of writing employers expect and teach them how to locate resources to assist them with their writing. They also introduce ICT jargon and cultural dimensions to ICTs, such as informing learners about how YouTube can be a resource for instructional guidance. These tutors have experience helping inexperienced ICT users who step into their branch and find localized ways to assist them with crucial components to utilizing ICTs competently and rhetorically: how to navigate hardware and software and how to use the technology to appeal to the professional audiences they seek to reach. This is critical information for users that they may not be getting from other sources, and the technical communication and rhetorical work done by CTC tutors makes them key community resources for learners.

Chapter 6: Conclusion

Summary of Findings and Implications

My dissertation has addressed the user experiences of inexperienced ICT users as they engage technical communication at an urban, Southeastern U.S. CTC. To address my research questions, I approached my project from an ethnographic, community-based perspective, using grounded theory for data analysis. Reflecting on the goals of grounded theory that Glaser and Strauss (1999/1967) outline, a theory that is built up from the data is paramount. While a formal theory that captures an understanding of a broader, conceptual area of study can be the goal of a grounded theory analysis, a substantive theory that illustrates specific local aspects of a phenomenon for a particular context can also be the goal (Glaser & Strauss, 1999/1967). The product of my dissertation is the latter as a result of my data collection and analysis thus far. Substantive theories are utilized to construct or redesign formal theories. My work represents early efforts to develop a substantive theory that can be used to eventually develop a more formal theory for ICT user experience when learning to use ICTs.

The grounded substantive theory based on my CTC research captures the cooperative, networked, and multimodal technical communication work of learners and tutors at Urban CTC as they advance digital literacies. Specifically, learners participate in three dimensions of networked learning (e.g., learner to learner, learner to tutor, and learner to other available resources) as they engage with technical information to learn how to use ICTs. CTC tutors serve as local technical communication experts guiding learners to develop key cultural and physical knowledge for using ICTs. During learner to

tutor interactions, tutors utilize subtle but crucial strategies that help learners which include: a.) pointing out visual cues, b.) making use of audible and visual representations, c.) providing navigational assistance, and d.) serving as audience analysis guides (“resident rhetoricians”). This theory summarizes the presence of communication texts and interactions at Urban CTC and the ways that learners and tutors engage with technical information. As a grounded substantive theory, it offers a local account of underrepresented ICT users for technical communication scholarship and sheds light on how those who are at the early stages of their digital literacy development experience using ICTs in a public, community setting. This is a useful example for technical communication scholars and practitioners who are interested in applied user experience research as it is one that shares user experiences from those not commonly found in the literature. To more fully describe the elements of the theory, I will briefly review the findings I presented in my analysis chapters.

In Chapter 4, I elaborated on the ways in which networked learning was occurring between learners and other learners and learners and tutors at the CTC. In particular, learners were connecting to other learners during computer classes, and learners were interacting with tutors as they gained knowledge about visual cues, cultural structures associated with operating ICTs, and how to physically use ICTs. To help put learners at ease, tutors also made use of metaphors and personalized class sessions. Learners also connected with numerous other available multimodal resources while at the CTC. Ultimately, learners interacted with human and non-human resources to help them reach their digital literacy goals.

I continued to address the learner and tutor relationship in more detail in Chapter 5, where I focused on two main types of help tutors extended to learners during Phase 2 of my data collection. First, tutors assisted with ICT navigation as they informed learners about the layout of interfaces and how to transfer a document from one location to another. Such tasks included sending documents to the printer, saving documentation, navigating online, finding a browser, accessing websites, assisting with electronic correspondence, and navigating hardware. The second type of help I wrote about in this chapter was audience analysis guidance for learners who were writing for more professional audiences. In this way, tutors served as “resident rhetoricians” who extended valuable rhetorical instruction for users who were working to prepare resumes and other job materials for employers. Overall, this chapter highlights the learner to tutor relationship at the CTC and displays two key methods that tutors utilized when assisting learners at computers. Extending both navigational assistance and audience analysis guidance helped learners interpret interfaces, transfer documents and information, and reflect on their writing in light of some of the potential expectations of their professional audiences.

Throughout the remainder of this chapter, I will outline the implications of this research for technical communication scholars in terms of networked learning, multimodality, user experience, research methods, and technical communication pedagogy. I will conclude with a discussion of limitations and directions for future research.

Lessons about networked learning from Urban CTC. One key finding from my research was that all three dimensions of networked learning were taking place at Urban CTC. This means that learners were connecting to other learners, tutors, and other available resources. What the networked learning literature lacks, at this point, are detailed accounts of how it occurs in informal, face to face settings outside of higher-education. My research addresses this void and illustrates the nature of connections in this type of setting.

Extending networked learning. Previous networked learning scholarship has illustrated how students in higher education are connecting with peers in online settings. My research extends this work in two different ways. First, as previously noted, my research has involved the investigation of networked learning in a face to face context with non-traditional students who are not in higher education but enrolled in free computer courses at a CTC. My dissertation work also connects networked learning to the field of technical communication by using it as a tool to examine user experience. Within the field of technical communication, efforts to better understand user experiences span the history of the discipline. Bringing in networked learning to this effort offers technical communication researchers a lens for which to view how users engage personal networks when they are learning to use a new technology and its technical documentation.

In addition, pairing networked learning with multimodality means that I was able to focus on the types of technical communication modes users preferred and utilized. Paying attention to the multimodal elements at Urban CTC illuminated what learner to

other available resource connections looked like. Analyzing the multimodal components of a learner's engagement with technical information makes it possible to better understand what resources users are connecting to (e.g., another learner, a tutor, or an online video) to advance their digital literacies and what modes are sought out by particular users.

Tutors as resident rhetoricians. I observed tutors at Urban CTC serving as “resident rhetoricians” during learner to tutor interactions at Urban CTC. They served as “resident rhetoricians” because they had accrued specialized knowledge of CTC patrons and helped them on their expedition to achieving their digital literacy and professional goals. I observed two particular ways that tutors conducted this rhetorical work. They taught learners about analyzing their audience for professional writing and introduced functional literacies for operating ICTs.

As audience analysis guides, tutors introduced learners to templates in Microsoft Word for building a resume and showed them that visiting an employer's website to read the writing there is an opportunity to analyze that style of the writing. Tina explained how she used this technique to give them a sense of the writing expectations of employers. She said this can help them to see how they might change their writing to more closely match what they see online. This method for helping tutors is a rhetorical one that calls learners to compare and contrast their writing with an employer's. Such reflection maps on to what Selber (2004) describes as rhetorical literacy, one aspect of his three-part multiliteracies construct. The act of being self-reflexive with technology is part of being rhetorically literate, and as learners review the writing they encounter online and produce,

they are developing their audience analysis skills to more effectively reach their professional audiences. This is incredibly important information to users who may have a looser grasp on what it means to be competitive candidate from an employer's perspective. This rhetorical guidance offered by tutors makes them resident rhetoricians because they are situated in their community setting, and for some patrons, this may be one of the only, if not the only, place where they are receiving such crucial guidance.

Furthermore, tutors served as resident rhetoricians when they introduced language or jargon associated with using ICTs as well as cultural elements involved in using ICTs. This crucial knowledge, that Selber (2004) categorizes as functional literacy, is important for preparing learners to be able to participate in discussions and critiques and of ICTs in the future. In my current study, learners are predominantly focused on acquiring functional literacies which, as Selber (2004) notes, are important. Foundational knowledge associated with functional literacies serves as a starting place in order to build toward critical and rhetorical literacies.

Technical communication and multimodality. Learners were accessing a variety of multimodal resources at the CTC when learning to use computers and the Internet. Based on my observations, learners were weaving or making use of multiple modes during their time at the CTC to reach their goals or answer their questions. As previously mentioned, the selection of modes users chose also reveals the value of the modes to learners. I observed learners referencing alphabetic texts (e.g., curriculum booklet, online tutorial text, Google search, email interfaces), videos at a tutorial site, and handwritten notes. Although users needed help accessing the more contemporary,

digitally-based resources such as online tutorials and videos, they appeared to enjoy using them, and one learner stated in an interview that she liked the break from reading text that videos offered. At Urban CTC, this variety of modes are valued for learning how to use ICTs.

Despite the popularity of online resources, hard-copy alphabetic text was still valued. Taking handwritten notes while learning was a common practice I observed, and one learner chose to record the meaning of icons that I drew in her notes so that she could remember what they meant when she was at home and had no one to ask. One key point about modes that struck me was the need for portable resources that users could take home and use on their own. More than one learner told me a story about using printed references and handwritten notes they had acquired or taken at the CTC at home to review and study what had been learned in class.

Utilizing multimodality as a lens for making sense of users' interactions with different modes can help technical communicators focus more sharply on what types of modes are valued in particular local settings. My research presents one example of this approach and reveals the creative and user-specific ways that various modes of technical communication were wielded by inexperienced users. I found that users have very specific goals and reasons for selecting their chosen modes, and their intentions bring to light to what is most useful to them in particular situations. Some learners may prefer beginning with a video and then switching to alphabetic texts to confirm what they have heard, for example. As the New London Group (2000) presciently argued, composing across different modes and for different cultural contexts is critical for effectively

engaging audiences in the 21st Century. Technical communicators should continue to construct documentation that draws from a continuum that extends from print to screen and avoid solely relying on screen-based instructions.

Lessons about user-experience. At Urban CTC, people of all ages visit during the week to study, apply for jobs, access Facebook, watch videos on YouTube, and play online games. Those patrons who choose to take a computer course or attend a one-on-one help sessions visit the CTC to learn how to use a computer for various reasons. As I learned from the participants I interviewed, their motivations are diverse but each one had personal convictions for why learning how to use ICTs and the Internet was important to them, especially at the point in time I encountered them.

User motivations. All of the learners I interviewed had particular goals they were striving for in mind (see Table 5) and expressed enthusiasm for learning how to use computers and the Internet. One advantage of the consistent class and tutor schedules was that learners could rely on someone at least once per week who could help them learn. For older adults, this was especially appreciated because family members were not always able to provide the consistent guidance that they needed or desired.

Table 5. Select sample of learner motivations

<i>Participant interviewed</i>	<i>Motivation for attending CTC classes or one-on-one sessions at Urban CTC</i>
Sarah	Wanted to keep up with the elementary students at her school when she worked in the computer lab.
Olivia	Wants to switch industries and find a new job.
Pearl	Eager to refresh her skills so she can work for an airline and travel for free in her retirement years.
Nina	Wants to be able to create business cards and print them out for the cosmetology business she wants to run in her retirement years.
Patti	Recently completed drug rehabilitation, moved to this urban area, and is looking forward to starting life anew. Learning how to use a computer for herself and securing employment are first steps.
Macy	Attending classes because they are free and she needs to learn to use Microsoft Excel for her church volunteer position.
Eleanor	Has multiple goals for using her personal laptop and scheduled several one-on-one sessions to: find documentation of parents' marriage, locate gospel music online, learn how to use digital camera and download pictures from camera to laptop.

As previously noted, of the 11 learners I interviewed, all but one were women, and those I interviewed were nearing retirement age and older. The presence of so many women may speak to their level of comfort visiting Urban CTC and perhaps appreciation of the female staff members teaching classes. Their presence may also be a commentary on whose bodies and voices are on the margins of discussions about new technologies, further reinforcing divides that exist because of age, race, gender, and financial differences. The motivations of learners are varied but a unifying thread is a desire to participate in society in ways that are meaningful to them. Designers and technical communication user advocates must keep an eye out for such users and work to construct

resources that work for them, and not just those with more experience and more money to purchase technologies.

User localization. Carefully localized instructional materials are needed for inexperienced ICT users so they can access culturally meaningful technical texts. Currently, there are well-intentioned texts that have been designed with novice audiences in mind, but they fail when they do not provide adequate cultural information about using ICTs and assume users have knowledge about operating a machine when they sit in front of a computer for the first time. While online tutorials may tout that they are meant for beginning computer users, there are subtle missteps that make the tutorial difficult to use (e.g., assuming users would know to click on an arrow button that only changes color when hovering over it or assuming users would recognize a video embedded into a webpage and know to begin a video by pressing the triangle “play” button). What my research has shown is that users would benefit from instructional materials that integrate knowledge developed from a user localization (Sun, 2006) approach for understanding how users make use of particular technical documentation. Getting to know participants and their practices, locally and in their own contexts of use, educates designers so that they can construct well-informed and nuanced material that will benefit the intended audience because user experiences were integrated into the design. Sun (2006) has long argued for a user localization approach when adapting materials to users. I also advocate for designers to take up user localization practices to create better, more engaging, and more empathic communication methods for inexperienced ICT users. This is a more

grounded approach to user experience that contrasts other localization practices that apply general, cultural constructs to users.

Methodological implications for technical communication scholars. My data collection method played a major role in what perspectives I was able to gain access to. Because I selected a community-based field site and took an ethnographic approach, and because the staff members at the library graciously allowed me to become a volunteer and participant-observer, I was able to access underrepresented user experiences over time. My time at Urban CTC allowed me to get to know the challenges inexperienced ICT users face while trying to develop their digital literacies and offered a different perspective than what a user test in a usability lab could offer.

My dissertation provides an example of user experience research outside of a usability lab setting. Due to the nature of this field site and the data collection methods I utilized, technical communication scholars and practitioners are able to access the experiences of underrepresented ICT users, which are perspectives that cannot be gained from traditional research contexts such as labs or businesses. Spending several months in Urban CTC led me to gain particular insights into the daily events and nuances of the space, furthering my familiarity with the variety of roles CTC tutors played and how they served learners. Tutors provided empathy having been witnesses to the stress and pressure patrons tolerated as they sat at computers to get the needed work done they came to the CTC to do. This study reveals how important it is to construct tutorial materials that reflect inexperienced users and their perspectives. Technical communication scholars and UX designers can learn a lot from taking a user localization approach to design as it

provides insight into the specific ways in which learners utilize tools depending on their circumstances and cultural contexts.

In addition, the CTC setting, an atypical usability and user experience research setting, allowed me to gain insight into the experiences of underrepresented users in technical communication scholarship. Such experiences cannot be accessed in a lab setting and actually differ in several meaningful ways from a usability test that occurs in a lab setting. For example, because users at Urban CTC were mainly developing functional literacies (Selber, 2004), they could have had difficulty with finishing particular tasks in a usability test setting. In addition, users at Urban CTC faced various time constraints and may have been unable to take part in a usability test that needed users to provide feedback throughout the design process. The experience at Urban CTC was also different from a traditional usability lab setting because learners were often socializing and interacting with fellow learners and the CTC tutors present within Urban CTC. Therefore, users in this field setting were not working independently while being observed in a usability lab and were not taking time out from their predetermined scenarios to conduct think-aloud protocols or providing feedback to designers after completing certain steps. In Urban CTC, learners were able to access feedback almost instantly from tutors, giving them an opportunity to learn as they go. As discussed here, part of the reason why underrepresented users may not be represented in usability studies is because they lack particular digital literacies. This field research that looks at underrepresented users is that much more valuable, then, because we can gain a better understanding of how users who are working toward functional and more critical

literacies (Selber, 2004) are doing the work to do so and what obstacles they face along the way.

This study offers technical communication researchers and practitioners an example of research conducted in a non-traditional usability setting and focuses on how those who are underrepresented in technical communication scholarship are engaging with technical communication to advance their digital literacies. For technical communication scholars, this study places users in a different light. Users are not on display in a usability lab, and instead, use the technology in ways that are natural and spontaneous in their local setting. The findings from this study are not only relevant to technical communication scholars and practitioners. There are also important insights to be shared with technical communication students. Lessons about community-based research, user experiences, social justice, networking, multimodality, and rhetoric are threaded throughout my dissertation, important concepts for contemporary students.

Implications for teachers and pedagogy. This research can inspire pedagogical ideas and strategies to aid in preparing future technical communication scholars and practitioners as well. Social justice-oriented pedagogical work like this is important for the field of technical communication, and I align with N. N. Jones, Moore, and Walton (2016) who contend that pedagogical pursuits in community-based settings do much for the students as well as the field. In particular, they write that service-learning and community-based learning opportunities promote inclusivity and are opportunities to expand approaches for how we think about technical and professional communication.

For teachers interested in preparing students for ethnographic, community-based research, and user localization research, my dissertation work can be used as one example of how this can be accomplished. If a teacher is seeking to connect technical communication students to social justice issues within the field, this research can also be an example used to raise student awareness of digital inequalities and future documentation needs to facilitate a more user-centered approach for marginalized, inexperienced users. In addition, my research could be utilized as a launching point for service-learning pedagogy for instructors looking to engage their students in meaningful technical communication projects situated within a community and engage their students in client-based project experiences. A smaller-scale in-class activity that could be initiated from this research is to engage students in a rhetorical analysis of online help tutorials for using ICTs. Students could conduct such an analysis from the perspective of more skilled users as well as from the perspective of inexperienced users and compare the rhetorical impact of the tutorial and make revision suggestions based on those different audiences.

Limitations and Future Research

Study limitations. I encountered obstacles over the course of my project, but I did my best to adjust as these came into view. One challenge for data collection was that the CTC I was observing closed for several weeks while it underwent a renovation. During this time, I no longer had a chance to interview CTC computer class participants because classes had paused with the construction. Therefore, one of the limitations to my study is that I did not interview more learners who were attending classes. Although the

renovation allowed for opportunities to interview other participants, I would have liked to have interviewed more learners taking classes.

Another potential limitation for my study was my role and position as a participant-observer. Of course this role offered me a very good position as both a volunteer and observer so I could become a familiar face to those at the CTC and could build trust with people working at and visiting the CTC. However, because one of my roles as a volunteer was to periodically teach computer classes, I was potentially also viewed as an authoritative figure in the CTC that may have been off-putting to learners. This power differential may have influenced how participants responded to me and my interview questions. In addition, it is possible that my role as a researcher may have led some staff members to be wary of my presence or to trust me less because I was an outsider to the community. Overall, my role as a participant-observer was the right one for this research as it allowed me to give back to the community and build relationships with those at the CTC.

Future research. While there are numerous possible future research directions for this work, I will focus on only three. I am most interested in making ICT user experiences for marginalized and inexperienced users more effective, so I will outline three avenues that serve that agenda: 1) investigating how mobile phone-reliant users utilize desktop computers for technical and professional work; 2) examining the rhetorical features of tutorials for inexperienced users; and 3) engaging in more community-based technical communication scholarship that is directed toward

combatting digital divides, while at the same time expanding the purview of technical and professional communication.

As I learned more about learner to tutor interactions based on interviews with tutors and helping at the workforce computers at Urban CTC, it was evident that some inexperienced users had a very difficult time switching from operating their mobile smartphone to using one of the CTC desktop computers. I heard several times from tutors that patrons who were used to retrieving information from their email accounts on their phone were stumped when they were prompted by their email provider to enter a password on a desktop. This is because they did not have to enter their passwords on their phone, and they had difficulties or were unable to interact with the online interface to reset their password. Further, I observed patrons struggle when they had to print something off of a desktop computer or attach a document to an email because they were not accustomed to operating such a device and working within desktop interfaces in that way.

As an extension of the analysis work I have begun for the way learners connect to available resources at the CTC, a future direction could include examining the ways that mobile phone users engage with desktops as they complete technical and professional work such as resumes and online job applications. These types of writing often require extensive drafting, formatting, and editing that is better suited for a desktop computer versus a handheld device. Learning more about how people accomplish professional writing tasks and negotiate challenges would be valuable user experience data to collect. The Pew Research Center (2017) has stated that home broadband adoption has started to

slow down and that some people in the U.S. rely only on their smartphone for Internet access at home (12% of adults in the U.S. in 2016 did this). It is particularly important to consider the demographics of those who are smartphone dependent. More specifically, users who are younger, non-white, lower-income, less educated, and who live in rural areas are more likely to rely on smartphone Internet access (Pew Research Center, 2017). Thus, this is an especially important digital inequality issue. This is also an important user experience problem for technical communicators. Pursuing research that investigates opportunities for improving the experience of transitioning from a mobile device to a desktop computer is a worthwhile endeavor.

In addition, a second avenue of research to explore could involve examining the rhetorical features of tutorials aimed at inexperienced ICT users. This could include looking at how the tutorials position the learners and what assumptions they make about their background knowledge and experience with ICTs, what types of cultural information about ICTs they offer, and the types of exercises introduced to learners to help them build their digital literacies. Another idea related to this vein of work could include testing out tutorials for users who are accustomed to going online via their smartphone. Currently, many tutorials are aimed at users with little to no ICT experience, but there do not appear to be tutorials available for those who are familiar with going online with a smartphone but not via a desktop computer. A potential research question could be, do mobile phone users engage with tutorials differently than non-users of technology? This second research direction could explore ICT user tutorials rhetorically

as a way to construct more tailored and effective instructional documentation for users based on which type of device they are most familiar with for going online.

A third fruitful avenue for future research is to engage in more community-based partnership work for communities across the U.S. who are seeking to expand digital literacies. From urban to rural settings, digital inequalities continue to be a source of exclusion. Because of the wide variety of tools and resources online, people who are interested in such resources and who would benefit from them are at a distinct disadvantage if they lack access to them. For the retiree who wants to enrich her life by using her digital camera, for the urban school teacher who takes the initiative to stay ahead of her students' digital literacies, and for those in rural areas who are often left waiting for reliable, affordable, and high-speed Internet infrastructures to be built, there are critical user issues that need to be addressed in order to make important life resources in our digital age more accessible.

Taken together, future research that looks at users who rely on mobile phones for Internet access, rhetorical features of technical tutorials designed for inexperienced users, and digital divides that continue to manifest in both urban and rural settings will provide important insights. It is by looking to underrepresented users that we will expand our understandings of what digital divides mean and how technical communication scholars and practitioners can contribute and lead efforts to combat their profound consequences. Technical communication scholars must find ways to get more involved in user localization practices to improve user experiences and help connect those who want to be connected in useful and meaningful ways.

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