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Muneerah Wakeel

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**OPEN SOURCE SOFTWARE AS APPLIED IN HIGHER EDUCATION:
AT ONE FOUR-YEAR UNIVERSITY**

by
Muneerah Wakeel

A Dissertation

Submitted to the
Department of Educational Leadership
College of Education
In partial fulfillment of the requirement
For the degree of
Doctor of Education
at
Rowan University
May 2, 2011

Dissertation Chair: Virginia Doolittle, Ph.D.

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Dedication

First and foremost, I give honor and thanks to Most High God and to His Son and my Lord and Savior Jesus Christ for carrying me through this journey. I would like to thank my mother, Elizabeth Jones, for her undying love and her tireless support to me throughout my lifelong learning process. I would also like to thank my deceased grandparents, Alma and Duffie Sharpless, for instilling in me the value of perseverance.

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Abstract

Muneerah Wakeel
OPEN SOURCE SOFTWARE AS APPLIED IN HIGHER EDUCATION:
AT ONE FOUR-YEAR UNIVERSITY
2010/2011
Virginia Doolittle, Ph.D.
Educational Leadership

The purpose of my study was to explain the implementation process of open source software (OSS) in a higher education setting, including any challenges that the faculty encountered during professional development, and implementation during instruction. This study was conducted at a four-year university in the southern region of New Jersey. In addition, as a participant observer I investigated my leadership throughout the research process so that I could employ reflective practice in order to determine if my espoused beliefs were aligned with my theory-in-use. I reviewed literature that discussed both OSS and distance education and connected them to the social justice paradigm.

I used explanatory case study methods to collect and analyze my data. I employed observation, open-ended surveys, semi-structured interviews, and my journal to collect my data. I analyzed my qualitative data by looking for emergent patterns and themes. My findings indicated that faculty members value working together in a collaborative effort to increase their knowledge and understanding of technology. Most faculty members revealed that they needed more one-on-one training so that they could properly infuse technology into their instructional practice.

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Chapter 1

Introduction

Technology is a part of most people's daily lives. Technology has a major influence in academia as well. In order to keep abreast of the growing trends of technology, the majority of college and university administrators are looking to professional development to keep their faculty and staff educated about new types of technology (Bower, 2001; Cook, Ley, Crawford, & Warner, 2009; O'Quinn & Corry, 2002; Parker, 2003; Tabata & Johnsrud, 2008). Cicero University (CU) (pseudonym) understands this global need to stay current and connected because it offers a wide range of academic degrees, both traditionally and online (CU's website).

CU's largest population is the four-year degree community of learners (D.V. Hayes, personal communication, February 28, 2010). Therefore, the majority of these individuals are what is known as the Millennial Generation. Millennial generation students have encountered technology on a daily basis ever since they were small children, so they are now transforming educational delivery in higher education (Falciani-White, 2008). Millennial students think of technology as an appendage that helps them make sense of the world as they perceive it. Millennials utilize laptops, iPods, and Flip Cameras for both school and fun. The Millennial generation has a need and desire to use popular websites like Google, Wikipedia, Facebook, and Youtube to enhance learning through social means (Keeter & Taylor, 2009). Millennials use their cellular

phones to send and receive e-mail, send and receive text messages, and they also send and receive tweets to stay connected to the world as events happen in real-time (Keeter & Taylor, 2009).

Therefore, it would behoove CU faculty to become immersed in technology so that they can learn how to manipulate new forms of technology. Through this learning process, faculty will then be able to infuse technology into their course syllabi in order to meet the needs and satiate the wants of the Millennial students. Summer 2010 Computer Bootcamp was a pilot program that was implemented to allow faculty to explore Google Docs. My role was to act as participant observer so that I could learn about and explore Google Docs alongside faculty. Google Docs is Open Source Software (OSS) that is free software to its licensed users. At the same time, I was also able to reflect about OSS implementation and observe a wealth of nuances in a learning community.

CU received a grant from Google that enabled administration to act as technology facilitators in order to help faculty become proficient with technology. The goal of the Computer Bootcamp was to introduce new forms of technology through presentations, group discussions, and a Google website by teaching faculty to incorporate Google Docs into their instructional practice. In order to get faculty to participate, they were informed that laptops would be given to them at the beginning of the bootcamp. Through observation I learned that the laptops were a compelling reason for the faculty to attend, but what motivated the majority of the faculty the most was that they sincerely wanted to enhance their understanding of technology. The faculty wanted to learn about new types of OSS and they wanted to infuse technology into their instructional practices. One faculty stated, "I want to improve my overall instruction."

OSS is rapidly changing how the majority of people view the world, because OSS is constantly changing the terrain for how both education and business navigate. Both business and education affect commerce because transactions of intellect and monetary values are made; these transactions produce intrinsic and extrinsic motivation that allow innovative technological commodities to materialize (Nuvolari, 2005; Williams van Rooij, 2007; Willinsky, 2005). OSS allows for the masses to partake in a global revolution in an effort to increase the knowledge base for most people who join the movement. Thus, the culture of the OSS movement is to foster human innovation through peer review that allows open transaction of intellectual property to remain a free, sustainable resource for everyone who desires to take part in technological change (Nuvolari, 2005; Williams van Rooij, 2007; Willinsky, 2005).

In the paragraphs that follow, I discuss both distance education and OSS in order for the reader to understand the impact that both have had in higher learning. Both distance education and OSS have been able to reach people world wide due to the technological medium known as the Internet (Larreamendy-Joerns & Leinhardt, 2006; Williams van Rooij, 2007; Willinsky, 2005). The Internet is the vehicle that provides people with access to knowledge globally. Colleges and universities see OSS as being essential to students' overall academic growth because students have the ability to obtain most scholarly articles at no cost. Therefore, OSS is an alternative form of technology that saves higher education and students money (Williams van Rooij, 2007; Willinsky, 2005). Distance education also provides academic freedom to nontraditional students because they are able to learn on their terms without being restricted to the actual classroom setting (Larreamendy-Joerns & Leinhardt, 2006).

The subsections in the paragraphs that follow entail the larger and local contexts of my study, significance of my study, my research questions, the specialized vocabulary, and the limitations of my study. This will enable the reader to gain an in-depth understanding of the study in its entirety. Also this information will increase the readers' general knowledge base in the educational realm, which will empower the reader with the strategies to apply this knowledge to real-world experience. Lastly, in the concluding paragraph of this chapter, I will provide a summary describing what is to be expected in the chapters that follow.

Larger Context: Distance Education Is Not New

William Rainey Harper was a man who had great reverence for the Bible and he also had reverence for educating people (American Institute of Sacred Literature, 2009). Harper founded the first brick-and-mortar college that offered correspondence studies to promote lifelong learning to all who embarked upon the academic journey (Nasseh, 1997; American Institute of Sacred Literature, 2009). In 1880, Harper's passion became a reality, giving birth to the first correspondence school in the United States. According to the American Institute of the Sacred Heart (2009), Harper's school started out as a Hebrew seminary school, originally named Morgan Park Theological Seminary. As time progressed, Harper changed the school's name three times. In 1881 it was named the Correspondence School of Hebrew, in 1883 it was called the American Institute of Hebrew, and in 1889 it became the American Institute of Sacred Literature. Even though the school's name had changed multiple times the premise remained the same, because he continued to offer religious correspondence courses to students (American Institute of Sacred Literature, 2009).

During the nineteenth century, higher education would not remain stagnant, because the forces of change pushed a few educators to become innovators (Larreamendy-Joerns & Leinhardt, 2006). These pioneers became innovative by altering educational delivery to students. By offering correspondence programs, the educators gave students an alternative route to educational enlightenment that reached beyond the confined walls of the ivory tower. A few nineteenth century colleges and universities continued to transform how knowledge was disseminated to the masses regardless of gender, age, or class (Larreamendy-Joerns & Leinhardt, 2006). Between 1883 and 1891, Chautauqua College of Liberal Arts was the first accredited institution commissioned by the state of New York to confer academic degrees to students who were educated via correspondence studies (Nasseh, 1997). The cofounders of Chautauqua were John H. Vincent and Lewis Miller. Vincent's and Miller's belief for Chautauqua was to provide protestant christian values and a liberal arts education to their adult students in order for them to be able to self-actualize (Scott, 2005). Harper was also instrumental in cultivating Chautauqua, because he was in charge of Chautauqua's liberal arts department from 1883-1892 (Larreamendy-Joerns & Leinhardt, 2006; Scott, 2005).

Chautauqua became the quintessence of correspondence education on both the national and international fronts (Scott, 2005). The late nineteenth century was slowly departing from a planter society and transforming into an industrialized society (Scott, 2005). This New World was also introducing secular ideas through education as opposed to solely teaching religious ideals. Chautauqua saw this change and decided to adapt to the New World by infusing religion, arts, and secular education into their curriculum (Scott, 2005). As a result of Chautauqua's new paradigm, in 1891 the University of

Wisconsin commenced correspondence education for the masses (Larreamendy-Joerns & Leinhardt, 2006).

As an educator, Harper went on to establish a partnership with the University of Chicago. Through this partnership, the American Institute of Sacred Literature was able to connect to the University of Chicago's Divinity School in order to offer correspondence courses to students. The two colleges allowed students to transfer credits between departments (American Institute of Sacred Literature, 2009; Doyle, 2009).

Moving Forward

As time progressed, various forms of technology emerged in the mid- to latter-20th century, so students could be better educated through correspondence studies. Subsequent forms of technological instructional tools were the radio, television, videotapes, and satellite, all of which served as vehicles to supplement correspondence education. However, when the World Wide Web came into existence, it allowed the Internet to reach non-traditional students globally (Matthews, 1999).

According to a study administered by the National Center for Education Statistics (NCES), the Postsecondary Education Quick Information System (PEQIS) revealed that distance education gained momentum at the beginning of the 21st century, because on a national scale the 2000-2001 academic term had 89% of students enrolled in distance learning courses at four-year public colleges and universities, and two-year public colleges had 90% students registered (National Center for Education Statistics, 2003; Tallent-Runnels et al., 2006). Moreover, 82% of 2,876,000 undergraduate students nationally were taking online courses. Forty-three percent of colleges and universities that offered online courses did so in a synchronous format. Synchronous instruction

allows students who are all registered for the same class to log-in online and work on assignments concurrently (Tallent-Runnels et al., 2006). By the fall of 2007, the number of students taking online courses in higher education increased to 3.9 million (Doyle, 2009).

Open Source Software: A Force To Be Reckoned With

Open source, as defined by Pan and Bonk (2007), is software that has a source code that can be used, modified, distributed, and redistributed by its users. This means that anyone can obtain OSS, because OSS is free to its licensed users. These licensed users work in unison to perfect the source code, so they are able to enjoy the product (Pan & Bonk, 2007). Pan and Bonk (2007) posit that the term open source is a “hot button” term that has made curious individuals key the word open source into the Google search engine generating 376 million hits in 2006. Information provided by websites made those who were not knowledgeable about the term open source at the beginning of their quest more knowledgeable (Pan & Bonk, 2007). Williams van Rooij (2007) asserts that open source’s popularity stems from being a more economical means of technological instruction, which fosters students’ academic growth as opposed to costly proprietary software which is protected by licenses. Willinsky (2005) asserts that open source was created because it was necessary for the culture of sharing to continue in academia. Former MIT professor Richard Stallman wanted the culture of higher education source code sharing to be preserved because it was slowly being ebbed away, and was being replaced by licensed commercial software. By Stallman keeping intact the culture that he respected, which was allowing individuals to obtain the source code without a license, more individuals could acquire the source code (Willinsky, 2005).

A similar open type of educational innovation has not been seen since Johannes Gutenberg's printing press in 1440. OSS is the new millennium version of Gutenberg's printing press, because it provides access to knowledge for those who seek it (Tompkins, 2006). This open and inclusive approach to education has to do with how globalization is impacting higher education with great force. It is necessary for higher education to adapt to globalization by providing access and equality to all in order for colleges and universities to survive in this ever-changing global society (Chun & Evans, 2009). The term "open" in "open source" software is defined as software that comes with a source code for its users' retention. This means that the source code is theirs and they can use it how they see fit. Users have the right to manipulate the software and share the software according to their specific purpose (Nuvolari, 2005, p. 2).

Local Context

This study will be conducted on the campus of Cicero University (CU). CU is located in the southern region of New Jersey in a small suburban setting. CU has undergraduate programs, master's degree programs, and one doctoral program. Most of the programs can be taken via the traditional route and online (CU website). CU has a culture that resonates and accepts change in both the environment and itself (E. J. Snow, personal communication, May 23, 2010). This is the reason that CU is always seeking cutting edge projects that allow them to compete and grow in this ever-changing global society (CU website).

CU began in 1923 as a normal school in order to prepare teachers and was called Cicero State College. Ever since its inception, CU has been committed to advancing novice educators. The political climate in 1923 indicated that there were many teachers

who were not primed to educate children. CU decided to take on the challenge of advancing teacher education and has made this practice sustainable well into the 21st century (CU website).

The College of Distance Education (CDE) of CU was developed to provide an alternate revenue source for the university to alleviate financial burden. CDE wanted to increase student enrollment through an online medium. CDE students can only take online courses that are not on a 16-week course format and are offered only to the nontraditional adult learner. CDE courses are accelerated and last only eight weeks, using both synchronous and asynchronous methods. Synchronous is when the faculty and students log in at a specified time and work on assignments together. Asynchronous is defined as students completing their online assignments at a time that is convenient for them (F.S. Grant, personal communication, October 12, 2010). These accelerated 8-week courses are 60% online, making them hybrid mixed courses. CDE offers undergraduate, graduate, and doctoral degrees, and post-baccalaureate, graduate certificate, and endorsement programs for distance learners (F.S. Grant, personal communication, October 12, 2010).

The majority of this research project took place in a large classroom reserved for the faculty, which is located on the first floor of Technology Hall. The computer bootcamp took place in May 2010 on Monday mornings. The first floor of Technology Hall is filled with various forms of technology and laboratories that can be reserved for lectures. The staff who work at Technology Hall offer themselves to both faculty, staff, and students in order to repair their equipment and to provide training.

Problem Statement

Presently most faculty employ a course management system (CMS), which is their only means of online instruction at this four-year university. During my observation a faculty member stated that her colleagues find the course management system to be quite arduous to employ. The faculty members also feel constrained by the software, especially when trying to plan and implement instruction for a diverse population of students who have different learning styles. The faculty members perceive that the world is in a constant state of change, so they want to seek an alternative technique in the form of OSS for instruction. This will enable them to learn a new method so that they will be more equipped to adapt to change.

Significance of the Study

This research matters to me, because I am passionate about lifelong learning and I also want to make a contribution to educational research. I am a certified teacher of reading, and literacy matters to me both as a person, and as a professional. Learning has had a huge influence on my life and it continues into my adult life. Technology is no longer a choice in education, it is a necessity and I want to educate individuals on how to segue into the 21st-century through a virtual medium.

My study is important because it helped faculty to strengthen their knowledge of OSS. Faculty increased their knowledge of supplemental instructional and technological support. Faculty actively participated and had an ownership role within the project and held themselves accountable in order to equip themselves with the resources that their students need to succeed academically. The tool that made everyone accountable within the group is that each member had to create, share, and post their learning goals. The

university does not have OSS grounded in online instruction in place for students. I think that it would be appropriate for CU to employ OSS as a supplemental tool to proprietary software so that educators may educate their diverse students in a diverse manner.

Therefore, the university would be fostering a true social justice framework for all. For example, according to a few faculty members, there are some students who have limited financial means and these students have difficulty paying for resources. As a result, OSS has the ability to reduce all students' financial burdens by providing free software.

Purpose of the Study

The purpose of my study is to explain the implementation process of OSS in a higher education setting, including any challenges that the faculty encountered during professional development, and implementation during instruction. In addition, I will investigate my leadership throughout the research process (Appendix A). My sample population is nine faculty members, all from CU, who participated in the initial pilot program. My role is to act as a participant observer. I perceive CU to be a medium-sized mid-Atlantic, predominately four-year university just coming into technology. On this campus OSS is relatively unknown to the academy. The university usually purchases proprietary software for educational use. Commercial software is what the faculty is most familiar with, because this belief has been socially reproduced within the campus's culture as a whole. As a traditional doctoral candidate, I have only used Blackboard in both asynchronous and synchronous assignments. A faculty member also validated my point by indicating that, "Bb WebCT is what Cicero supports." I also want to expound upon my leadership by explaining my journey based upon the data that I collect via my

journal. I want to reveal if I am the leader who I espouse myself to be, and to also reveal how this project may have both strengthened and challenged my leadership style.

This research study may enable more colleges and universities with the means to employ Google Docs as a form of technological educational instruction for their students, which may also give them a richer understanding of technology. This research will employ different strategies for the development of a sustainable and accountable global medium for other colleges and universities to peruse. This research may also provide the field of academia with the benefits and importance of having a virtual model that represents an academic institution. This study will allow me to make a contribution to scholarship in hopes that all students will have access to knowledge and differentiated instruction through technological means.

Rationale

Presently, CU faculty have a wealth of knowledge that they share with their students via a course management system named Blackboard. However, providing students with even more technological resources through OSS may increase students' knowledge base. The institution's academic prowess may also increase, which will allow for the university to compete in the global 21st century collegial market.

Research Questions

This study addressed the following research questions:

Did the opportunity to secure free laptops motivate the faculty to participate in Summer 2010 computer bootcamp training?

What were the challenges that faculty faced during OSS training?

Why did faculty decide to change from proprietary to OSS?

How do faculty perceive OSS technology?

These questions were significant because they allowed me to explain the implementation process of OSS and the challenges that the participants encountered while on their journey to improve overall instruction. In the next few sentences I will describe the importance of case study research, because it is the driving force of my study in its entirety. Yin (1984) postulates that using *how* and *why* questions has a greater explanatory appeal, which enhances the overall employment of case study research. The *how* and *why* questions employed by the researcher over an extensive period of time give credence to the overall study.

Definition of Terms

The purpose of this section is to expound upon the technical terms used in this study. Six terms are defined for the purposes of this study. The following terms and definitions are indicated below.

Asynchronous online instruction is defined as the student being separated from the instructor by time and space and without any interaction. Students are given the opportunity to complete assignments on their time by the due date without interaction with instructor or classmates. According to Conceicao (2006), *Correspondence/Distance/Online Education* can be delivered via correspondence, digital technologies, broadcast, teleconferencing, computers, World Wide Web, and the Internet. *Democratization*, as elucidated by Larreamendy-Joerns and Leinhardt (2006), is defined as enabling underrepresented individuals with the privilege to acquire admittance into higher education via online education. *E-Learning* is defined as individualized or differentiated instruction via electronic technology (Commission on Technology and

Adult Learning, 2001). *Millennial Generation*, which is tantamount to “Net Generation,” “Next Gens,” or “Generation Y,” are individuals born between 1982-2002. These individuals need information immediately due to growing up in a technologically advanced world. The Millennial Generation is changing instructional delivery in education (Falciani-White, 2008). *Open Source Software* (OSS) has the ability to be used, modified, distributed, and redistributed by users at their discretion without any type of interruption (Nuvolari, 2005). *Proprietary Software* is all software that is not free. Proprietary software cannot be modified or redistributed because those acts are deemed illegal. Proprietary software requires that its users secure permission prior to any alterations, in order to modify or redistribute the product (Stallman, 2010b). *Synchronous* online instruction refers to distant learners logging on at a specific date and time in order to work with both instructor and their online learning community so assignments are completed collaboratively (Ayadi, Adekoya, & Ikem, 2005; Conceicao, 2006; Kapitzke & Pendergast, 2005; Tallent-Runnels et al., 2006).

Theoretical Framework

This dissertation will employ the concept of symbolic capital, one of Pierre Bourdieu’s four types of capital. I will briefly expound upon all of Bourdieu’s types of capital in order to familiarize the reader with Bourdieu’s theory. Cultural capital is related to both tangible and intangible goods like educational credentials. Social capital encompasses the various individuals that you know or are connected to such as colleagues, family, and friends. Economic capital is the property and monetary gain that an individual has amassed (Copeland, 1995; Emmison & Frow, 1998; Vanderbilt, n.d.).

Lastly, symbolic capital encompasses legitimate power via a social network, meaning individuals within a group have a common moral purpose and act as a unified body (Emmison & Frow, 1998; Swartz, 1996; Vanderbilt, n.d.). The theory of symbolic capital complements OSS because OSS is driven by the inherent common moral purpose of its creators. Zeitlyn (2003) posits that individuals in the group do not seek to satisfy egotistical needs; instead they collectively work for altruistic purposes. The group collectively acts to meet the needs of others. This study has a social justice underpinning because OSS seeks to educate all and ensure access for all. All who use it will be empowered to share it with the masses, so that the negative effects of the dominant group can be mitigated (Anyon, 1981; Luke, 2010; North, 2006; Swartz, 1996).

Limitations

Limitations, according to Glesne (2006), are a way for the researcher to clarify to the reader any obstacles that the researcher perceives may affect the overall content of the data collected. Thus, the researcher is being honest about the culture of the context, which allows the reader to perceive that the researcher conducted trustworthy research. Below I describe my overall limitations as they relate to my case study.

I employed case study research at a single site, with a small sample; this may affect generalizability on the readers' part. The faculty's ability to access technology proved to be arduous due to them not receiving the laptops that were supposed to be provided from the technological department. Their difficulties interfered somewhat with my data collection and results. Participants being at different technological levels, especially when it comes to manipulating OSS for implementation, may have affected progress.

As both a student and researcher, I may find difficulty gaining rapport with both project facilitator and participants, which may have impeded my data collection. As a researcher I acted as a participant observer and collected my data in its entirety through my journal, observations, semi-structured interviews, and open-ended surveys. I also analyzed all data collected. The data collection tools may have been a weakness for my overall study and results, because my bias may be evident. To compensate for evidenced bias, I employed a journal for constant reflection that made me aware of monitoring for biased statements.

Subsequent chapters in this dissertation expound upon the review of literature, methodology, findings, conclusions, and recommendations. Chapter 2 expounds upon the literature that I reviewed and I will further reflect on how distance education has a past, present, and future. Distance education is an alternative means of learning for all who seek lifelong edification. I also discuss OSS in more depth, including how it affects the world. Chapter 3 illustrates my chosen methodology, how I collected and analyzed my data in detail, and how I triangulated my data. It also elaborates on my qualitative research design. In Chapter 4 I explain what I learned from analyzing my data and I explain how my data complement my research. Chapter 5 covers the conclusions and recommendations and I explain to the reader how my research achieved what I intended prior to the commencement of the study.

Chapter 2

Literature Review

Introduction

In this literature review I illuminate peer-reviewed qualitative journal articles, scholarly websites, and scholarly technical reports online and in print. In order to bring meaning to, and understanding of, online education and Open Source Software (OSS), the documents that I have reviewed contain up-to-date information to inform readers about OSS and online education. This section enables me to explain technology by employing a plethora of metaphors. These metaphors allow me to capture the essence of technological terms in a reader-friendly manner without losing their substance. I also intend to clarify how educational delivery has been an ongoing debate for many decades, because both sides, traditional and online education, believe that their method is better than the other. For example, knowledge has been and continues to be delivered in diverse formats. Distance education, traditional education, OSS, and proprietary software continue to be at odds with one another, with no one in the middle of the continuum (Larreamendy-Joerns & Leinhardt., 2006; Nuvolari, 2005; Pfaffman, 2008; Stallman, 2010a).

Distance Education Provides Access to All

Through the years the need for higher education has been quite apparent (Curry, 2003; Matthews, 1999). Brick-and-mortar universities have largely satisfied this need; however, in both the United States and abroad, brick-and-mortar institutions are slowly becoming overcrowded due to limited seating (Curry, 2003; Matthews, 1999). This is the

reason many students across the globe are seeking online education as an alternative means of obtaining academic credentials (Curry, 2003; Matthews, 1999). More and more students are seeking educational enlightenment for self-improvement purposes (Curry, 2003). For example, career advancement, degree attainment, career security, and most essentially, empowerment, are goals of many. When individuals empower themselves, they have a voice to control their own destiny. This demand for quality education can only be satisfied by scaffolding them via the World Wide Web (Clark, 2003; Curry, 2003). The World Wide Web has this power because it has the ability to build bridges through a global superhighway by connecting those who are isolated, people who are busy with their careers, and individuals who are homemakers, or caretakers with a continuous flowing well of omnipresent knowledge (Clark, 2003; Curry, 2003).

Matthews (1999) suggests that distance education provides students with endless possibilities, so they are able to grow intellectually on their terms. At the same time, distance education stimulates the budgets of colleges and universities that offer this alternative means of education (Matthews, 1999). Most importantly, distance education engenders diversity among students and faculty because most are connected globally (Natriello, 2005).

The number of students enrolling in colleges and universities has never been on the decline and it appears that it never will be (Curry, 2003). Looking at 20th century enrollment and moving forward into the 21st century is like watching a tsunami of students entering worldwide who want to increase their knowledge base through higher education (Clark, 2003; Curry, 2003). For example, in 1960, 13 million students pursued higher education and then, in 1991, this number detonated to an astounding 65 million.

However, this is only the incubation period, because in 2010 this number is anticipated to surge to 130 million, thus doubling enrollment on a global scale (Curry, 2003).

Online education and distance education are synonymous terms (Betts & Sikorski, 2008; Lovvorn, Barth, Morris, & Timmerman, 2009). Distance education dates back to the 19th century, whereas learning online is a 21st century term. Distance education is still used in conjunction with online education. Online education is a multi-billion-dollar-a-year industry. Students come in droves to acquire an education that allows them to be flexible while enriching their knowledge base. Students can take classes “anywhere, anytime, twenty-four hours a day, and seven days a week” (Betts & Sikorski, 2008; Blocher, Sujo de Montes, Willis, & Tucker, 2002; Clark, 2003; Guri-Rosenblit, 2005; Heerema & Rogers, 2001; Lovvorn et al., 2009). In 2003, 34% of colleges and universities provided one or more online degree granting courses for students. In the same year, colleges and universities provided greater than 80% of online or blended/hybrid courses. In 2006, it has been estimated that 3.5 million students were enrolled in distance education courses. Online education is a supply and demand industry that continues to proliferate (Betts & Sikorski, 2008; Lovvorn et al., 2009).

Open Source Fosters Global Accessibility

Pan and Bonk (2007) posit that individuals have become enamored with the virtual world due to its easy access; moreover, they are able to acquire instant gratification in terms of information retrieval. In 2005 this far-reaching medium attracted many individuals to key in the term “open source” using the Google search engine, and it generated 28.8 million results. Every day individuals are not the only people intrigued by OSS. Businesses have been on to this trend as well due to their ability to make OSS cost

effective (Nagy, Yassin, & Bhattacharjee, 2010). For example, Amazon.com has saved \$17 million dollars by changing from proprietary software to OSS (Nagy et al., 2010). Another business example is Cendant Travel Distribution Service who once had a \$100 million dollar mainframe system, but Cendant decided to switch to an OSS called 144 Linux (Nagy et al., 2010). Linux's mainframe system cost Cendant \$2.5 million dollars, thus saving Cendant \$97.5 million dollars (Nagy et al., 2010).

Pan and Bonk (2007) define open source as computer software that has a source code, which is free to its licensed users. These licensed users have the ability to use the source code at their discretion, they are able to modify the source code, and they can also redistribute the open source computer software (Garzarelli, Liman, & Thomassen, 2008; Pan & Bonk, 2007; Williams van Rooij, 2007). Individuals may employ this free source code in its entirety or in part. Open source is more of a social networking device, meaning it is created by users in a learning community who rewrite the original code for their specific purpose as opposed to commercial solitary vendors who create software only for their specific purpose, and the licensed user cannot deviate from the product's intended purpose (Pan & Bonk, 2007). Generally computer software is either object or binary code, or source code. These codes communicate with the computer to perform the tasks that the developer or programmer gives to it (Gruen, 2005; Lerner & Tirole (2004). For example, the terminologies that object or binary codes use are patterns of 0s and 1s (Lerner & Tirole, 2004). Source codes employ Basic, C, and Java (Lerner & Tirole, 2004). Gruen (2005) indicates further that the source code is the framework for binary codes that programmers compose, so that they can interface with the computer. The

arduous process of writing the source is the reason the source code is treated as esoteric by proprietary software companies (Lerner & Tirole, 2004).

Open source software is tailored to programmers' or developers' specifications and each member of the group uses a constructivist approach (Gallini & Barron, 2002; Pan & Bonk, 2007; Rumble, 2001; Williams van Rooij, 2007). This means that they learn and work together as a group. The open source approach engenders both intrinsic and extrinsic motivation from individuals who bring innovative ideas into fruition (Pan & Bonk, 2007; von Krogh & von Hippel, 2006; Williams van Rooij, 2007). Curry (2003) posited that open source is a means to meet the demand of individuals seeking higher education worldwide. Williams van Rooij (2007) concurs that open source has the ability to meet the demand of students' needs and will also lessen the technological expenditures of universities who use commercial software.

Distance Education's Milestones

Discourse is necessary to build relationships (Nasseh, 1997). Without discourse knowledge is limited because it is solely for the individual that possesses it (Nasseh, 1997). Building positive relationships and sharing information increases the knowledge base in a social way and is also the foundation of leadership (Nasseh, 1997). Knowledge is power and only builds momentum when it is shared. Through sharing, it cements lives and worlds together to make a whole, thus edifying the knowledge base (Nasseh, 1997). Discourse and having a leadership role entrenched in intrinsic motivation on the educator's part are what paved the way for correspondence education (Nasseh, 1997).

Learning Communities At a Distance

Correspondence instruction brings educator and student together. Correspondence instruction via mail came into fruition in 1840 by an English inventor, Sir Isaac Pitman, who developed shorthand (Matthews, 1999; Rumble, 2001). As the decades progressed, correspondence education emerged throughout the United Kingdom, Germany, the United States, and Japan (Matthews, 1999). The late nineteenth century in the United States was a very pivotal time for education, especially for women. Correspondence education, which is tantamount to distance education, began in the United States from the dream of Anna Eliot Ticknor. Ticknor wanted to share her knowledge with other women. Her school was an underground route for higher learning (Larreamendy-Joerns & Leinhardt, 2006; Nasseh, 1997).

Ticknor created the Society to Encourage Studies at Home in Boston, circa 1873. This society was entitled, “the silent university” and was formed by progressive women from elite backgrounds (Bergmann, 2001; Larreamendy-Joerns & Leinhardt, 2006). They formed this society to help women gain knowledge and liberal education under their leadership. This society was the beginning of correspondence education in the United States (Bergmann, 2001). Ticknor was able to undertake this journey because her father, George Ticknor, a professor at Harvard University, afforded her an education. When her father died, she and her mother inherited his enormous library (Bergmann, 2001). Ticknor’s inheritance enabled her to bring her correspondence school to fruition, meaning she and her colleagues mailed the books from the library and course materials to the women enrolled in the society’s program (Bergmann, 2001; Larreamendy-Joerns & Leinhardt, 2006).

Distance Education Has Progressed Over Time

Pursuant to Nasseh (1997) education via U.S. Mail prevailed as a monopoly for more than 40 years. Correspondence education slowly became more sophisticated in practice than it was in Ticknor's era. Midway through the two World Wars, distance education stopped using print as its sole means of instruction, and began using radio as an instructional strategy. Instructional radio ultimately was the impetus for another strategy, which was the invention of television in the 1930s. Radio and television provided alternatives in terms of how individuals decided to acquire knowledge, so lifelong learning would exist. Other technological alternatives were videotapes, telephones, and various forms of multimedia (Freed, 1999; Guri-Rosenblit, 2005; Matthews, 1999; Menchaca & Bekele, 2008; Nasseh, 1997; Natriello, 2005; Rumble, 2001).

In 1969, the United Kingdom's Open University enhanced its pedagogical skills by delivering distance education to students. Its strategies depended upon a mixed-media approach, which entailed text-based materials, audio, and video, all sent by mail and used in conjunction with each other. Students were further prepared in instruction by telephone, radio, and television. The United Kingdom's Open University transformed distance education and made its methods more appealing for higher education to adopt more readily on a global scale (Matthews, 1999; Open University's website). For example, Open University provided instruction to all students based on a model referred to as open learning, meaning instruction is delivered from a distance via multiple technological methods and is differentiated based upon an individual's specific need (Ayadi et al., 2005).

Television also had a trend of its own by catapulting distance education to another level through satellite and cable. These vehicles further enhanced the delivery of distance education. PEACENET saw how the world was changing and decided to follow suit; however, they still wanted to be different and stand head and shoulders above the rest in distance education. In 1971, PEACENET decided to compete by being the first to incorporate satellite in distance education. Distance education and online education worlds collided and became complete when the Internet was invented. Mail, radio, television, and the Internet were technological transactions over a vast period of time that led to the global transformation in education. The Internet is the bridge that joined the worlds of distance education and online education by keeping the world connected through a global social network, which is the World Wide Web (Freed, 1998; Matthews, 1999; Nasseh, 1997).

Online learning erupted with a plethora of knowledge and is impacting the lives of students, faculty, and education. This global boom is very modern in nature, changing the face of education in a global society (Natriello, 2005). Online education has become one of the fastest routes for degree attainment because of its convenience (Leonard & Guha, 2001). Online education is omnipresent and allows for individuals to learn “anywhere and any time” through cyberspace (Chang & Smith, 2008; Clark, 2003; Conceicao, 2006; Cox, 2005).

Distance Education in Twenty-First Century Pedagogical Terms

Distance education is a learning practice, which is defined as instructor and student who are disconnected due to location, time, or a combination; moreover they converse via global technology. Distance education encompasses motley methods, which

entail correspondence, broadcast, World Wide Web, Internet, computers, digital technologies, teleconferencing, videoconferencing, etcetera. The following are two instructional terms that pertain to distance education: Asynchronous and synchronous. Asynchronous entails students being taught at a time convenient to the said learner without interfacing with others. Synchronous is based on students interacting with others in unison or discussion to increase their knowledge base through active, cooperative efforts. Synchronous takes individuals out of isolation, meaning individuals create a social context by way of global medium (Ayadi et al., 2005; Conceicao, 2006; Kapitzke & Pendergast, 2005; Tallent-Runnels et al., 2006).

Postsecondary Distance Education Schools of the Past

Virtual or distance education was first intended for asynchronous instruction to enable students to learn on a schedule that suits their individual needs (Kapitzke & Pendergast, 2005). Here I will describe a few of the fledgling universities that participated in the distance education model, because I think it is important for the reader to know the international and national impact of distance education. An example is the Correspondence and Open Studies Unit for the University of Lagos. Lagos State Nigeria developed this type of distance education from 1973-1974 (Ayadi et al., 2005). This pilot program targeted part-time students who majored in business, accounting, science education, and law, because students in these disciplines were expected to improve the conditions of Nigeria upon graduation (Ayadi et al., 2005). The virtual program failed because the instructors were unwilling to scaffold students through this new type of medium. The instructors believed that their well-being should not be sacrificed to create a learner-centered environment. This means that the instructors were uncomfortable with

change by teaching with technology; they preferred the conventional method of teaching (Ayadi et al., 2005).

However, Coastline Community College, based in California, received grants from Kellogg and various other corporations to create the first virtual school in the United States in 1976. The telecourses were broadcast by public television to libraries, colleges, and universities for students to view at a scheduled time in a live format (Freed, 1998). In the Midwest, Dallas Community College decided to take distance education to a new level by distributing telecourses on videotape to disseminate to other institutions of higher learning. These videotaped telecourses allowed students to watch at their leisure instead of them having to make arrangements in advance. In order to compete in the technological market, Coastline Community College soon followed suit (Freed, 1998).

E-Learning

According to the Commission on Technology and Adult Learning (2001), E-Learning was developed to increase job skills for the 21st century digital economy. In 1999, there were greater than 90 million Americans who had inadequate literacy skills, which made it difficult for Americans to compete in the workplace. E-Learning was an initiative created to mitigate adult low literacy levels by providing high-quality education designed to teach workers through individualized instruction (Commission on Technology and Adult Learning, 2001). E-Learning provides adults with intensive on-the-job training and instruction through electronic technology. E-Learning has a standard approach that is offered to online students in academia. E-Learning is an approach that specializes in guiding adults in an adult-centered, individualized, and work-related environment (Commission on Technology and Adult Learning, 2001).

E-Learning instruction enables adults to acquire much-needed skills so they can survive in the twenty-first century. These skills help adults keep present positions, seek employment, and be hired for high-quality jobs (Commission on Technology and Adult Learning, 2001). E-Learning encompasses motley ways that learners can share and acquire knowledge. The different modes of instruction entail virtual education networks, videoconferencing, CD-ROMs, and computer-based instruction. E-Learning not only increases and fortifies the infrastructure it also fortifies the nation (Commission on Technology and Adult Learning, 2001).

Quality Issues & Distance Education

Distance education has been scrutinized over the years, especially when it comes to higher education standards. Individuals have cast aspersions on its efficacy as compared to traditional coursework (Bower, 2001; Stella & Gnanam, 2004; Ulmer, Watson, Derby, 2007; Van De Bunt-Kokhuis, 2004). Quality has been questioned due to fraudulent programs that may take advantage of consumers who are unknowledgeable. These deceptive programs have been referred to as diploma mills and “webcowboys” (Stella & Gnanam, 2004). Quality assurance agencies and governments have come together to protect consumers and guarantee quality (Stella & Gnanam, 2004). However, this meeting of the minds does not serve as the panacea as it pertains to quality. The kinks must still be worked out to improve quality in distance education (Stella & Gnanam, 2004). For example, assessment must be given on a routine basis to promote student achievement. A program that does not make assessment a key premise puts the program’s quality at risk (Clark, 2003). Another issue with quality is that online students must be afforded the same rights as traditional students (Bower, 2001; Heerema & Rogers, 2001;

Richardson, Morgan, & Woodley, 1999;). For example, online students must have access to support from their instructors, classmates, and the library (Bower, 2001; Richardson et al., 1999).

Heerema and Rogers (2001) proposed that higher education has endorsed quantity over quality when providing instruction to students. This predilection led to many individuals being unhappy about distance education quality. Moreover, distance education was beginning to be viewed as not commensurate with traditional education (Bower, 2001; Heerema & Rogers, 2001). Quantity and quality must be delivered to students in a concurrent fashion, so distance education does not become inferior in the halls of higher learning. For online education to be successful, students must be inspired to learn. Students' motivation to learn is based on student interaction with content, with instructor, and peers (Clark, 2003; Conceicao, 2003), which leads to both intrinsic and extrinsic motivation so the students have high levels of self-efficacy in order to persist (Lewis & Abdul-Hamid, 2006)).

For the aforementioned to come to fruition, the online educator must lead these efforts by molding an environment conducive to positive learning. The professor's knowledge and understanding of technology has a huge impact on a student's learning outcome in terms of triumph or failure (Ulmer et al., 2007), because the student may not have sufficient prior knowledge or support to gain an understanding of the course (Blocher et al., 2002). Online education is beneficial to the student only if it is learner-centered, meaning tailored to students' individual needs (Conceicao, 2006). Learning is an active social process and human interaction is the cornerstone to students' overall

success and persistence in online education (Clark, 2003; Conceicao, 2006; Correia & Davis, 2008; Gallini & Barron, 2001; Rumble, 2001).

Online Students' Motivating Factors

Students' reasons for seeking an online education are no different from those given by students in Sir Isaac Pitman's and Anna Eliot Ticknor's correspondence periods. Some students today crave autonomy and want accessible education due to their active lifestyles, especially full-time working adults, stay-at-home mothers, single parents, individuals living in remote regions, individuals with disabilities, older adults, those saddled with socioeconomic factors, part-time students, incarcerated individuals, and those seeking independence (Christensen, Anakwe & Kessler, 2001; Doyle, 2009; Guri-Rosenblit, 2005; JBHE, 2004). Students are still looking to increase their knowledge on their terms (Clark, 2003; Kriger, 2001; Leonard & Guha, 2001). For example, 21st century students are able to learn in an individualized format either through synchronous or asynchronous means or both. The global market enables students to fulfill their dreams due to distance education's pervasive quality and ease (Clark, 2003; Kriger, 2001; Leonard & Guha, 2001).

Educators' Motivating Factors for Facilitating Online Instruction

As postulated by Cook et al. (2009), most educators who started with distance education had pure intrinsic motivation to scaffold their students' learning. These educators were willing to do whatever they could within their power so their students remained both intrinsically and extrinsically motivated, so they could learn successfully (Cook et al., 2009). Today, educators who follow in the footsteps of these tireless educators need extrinsic motivators to partake in distance education efforts to

increase students' learning (Cook et al., 2009). Educators most desire current technology, a less demanding workload, more preparation time to deliver instruction, a higher salary, professional development, promotion, tenure, praise for distance education efforts, and monetary stipends (Cook et al., 2009; O'Quinn & Corry, 2002; Parker, 2003;). Parker (2003) concurs that professors need to be intrinsically motivated when teaching students online. Moreover, there are a variety of reasons that instructors teach online courses. Ranking as the highest is intrinsic motivation, which encompasses teaching a larger body of students, self-satisfaction, and flexible scheduling.

Some Faculty Embrace

In terms of self-satisfaction, instructors from this study enjoyed sharing their knowledge with all students and were able to facilitate instruction with their best practices. Having a larger body of students allowed the professors to teach students of various backgrounds (Parker, 2003). Also, the professors did not have to worry about their classes being cancelled due to a lack of enrollment. Flexible schedules complement a larger body of students, because all students are able to increase their knowledge base on their terms. In the same vein, the professors are able to do the same, because they are increasing their technological skills by developing online courses (Parker, 2003).

Educators' Barriers to Facilitate Online Instruction

Online learning has struck brick-and-mortar colleges and universities like lightning by kindling them to try to compete in this ever-changing global society (Cook et al., 2009). Time is of the essence is the mantra that they are playing in their psyches 24 hours a day, seven days a week. Administrators are using many tactics to justify the means to their end in order to stay technologically abreast, so that the brick- and-mortar

colleges and universities do not vanish from academia (Blocher et al., 2002; Cook et al., 2009). For example, administration is placing a great deal of pressure on faculty to adapt to technology, because brick-and-mortar institutions are at risk of closing their doors forever if change does not come expeditiously (Blocher et al., 2002; Cook et al., 2009).

Some Faculty Resist

Some faculty refuse to facilitate online education because they question the efficacy of the instructional medium (Cook et al., 2009). Other obstacles pertain to salary and training. For example, faculty receive the same salary for teaching both distance education and traditional education courses, even though distant learning courses require more preparation time. Adjunct faculty or those who are untenured are expected to create distance-learning courses, which inhibits them from acquiring tenure, because they cannot fulfill other academic obligations that will beget tenure (Bower, 2001; Cook et al., 2009). In the halls of academia, faculty want to be authorities in educational instruction.

Moreover, faculty who are not trained properly become extremely resistant to teaching online courses, because they refuse to appear unskilled (Bower, 2001). Tabata and Johnsrud (2008) concur that training is paramount to increase faculty partaking in distance education. Faculty are not inspired when the organization has a weak foundation that does not supply them with the proper tools that they need to be effective as educators in order to instruct students (Cook et al., 2009).

Many colleges and universities do not supply faculty with adequate resources to implement instruction. Thus lack of proper resources leave faculty on their own to develop instruction, which is a very arduous process (O'Quinn & Corry, 2002). Faculty having to make a segue from content instruction to learning the process of curriculum

planning is onerous, because many instructors lack the prior knowledge of curriculum planning (O'Quinn & Corry, 2002). Lastly, teaching both distance learning and traditional courses requires more effort and this causes faculty to become overwhelmed by the course overload (O'Quinn & Corry, 2002).

Benefits and Weaknesses of Distance Education

Distance education comes as an extremely welcoming form of technology. It seeks to inspire, empower, and enable all those who utilize it with access to knowledge where otherwise these individuals would be incapable of acquiring an education. One benefit of distance education is its asynchronous feature. Through this feature students can access their courses through closed source software and obtain assignments. They can download the course syllabus and peruse lectures at their convenience (Falvo & Johnson, 2007). Conversely, having ample convenience may also bring misery to those who are unarmed with technological savvy. They are quite similar to skillful surgeons who do not have the proper surgical instruments. These students may not have adequate computer applications that are compatible in order to access course assignments. Finding technical support online to provide help to the students may prove quite difficult due to delays that may exist at especially crucial moments (Falvo & Johnson, 2007).

Research has indicated a few possible reasons that online students may fall behind in their academics. It appears that the possible reasons are no different than a traditional student's lack of academic success. Some online students may have low levels of self-efficacy (Blocher et al., 2002; Clark, 2003, p. 4). Self-efficacy is defined as an individual's judgement that they have the capacity to accomplish specific tasks or goals that are placed before them (Clark, 2003, p. 4). Online students who do not have intrinsic

motivation, extrinsic motivation, or support may procrastinate or they may also have difficulties with time management when it comes to completing their assignments, because they have the freedom of not having to attend classes (Blocher et al., 2002; Clark, 2003). Faculty who are not proficient with technology are often unable to facilitate learning in an online setting, therefore, the online student struggles because they both lack the necessary technological skills (Blocher et al., 2002; Clark, 2003; O'Quinn & Corry, 2002).

Many online students believe that online classes are more rigorous as compared to face-to-face instruction because of the isolation. Especially when it comes to working independently because the online students have to be totally committed to their own education without social interaction (Blocher et al., 2002; Leonard & Guha, 2001). Isolation and an instructor's inability to scaffold online students through technology due to their lack of technological expertise may lead to both student and faculty attrition, which ultimately has a negative impact on university retention rates, therefore increasing the university's debt (Betts & Sikorski, 2008; Carr, 2000;). Online students who are supported by proficient faculty members that implement learning communities as a form of instruction deter isolation. Learning communities foster knowledge sharing which is built upon collective values and beliefs in an effort to promote persistence (Correia & Davis, 2008; Gallini & Barron, 2001; O'Quinn & Corry, 2002).

Another benefit is diversity through international students. A diverse population of students adds value and meaning to the learning experience. Similarly, a traditional setting also engenders diversity; however, some may argue that face-to-face meetings may be more valuable and this is the reason hybrid programs are becoming quite popular.

A hybrid course is conducted with both online and face-to-face instruction. In the same vein, collaborative efforts enhance meaning in both online and traditional settings (Falvo & Johnson, 2007).

Democratization's Relationship with Distance Education

The elite have always had a leg up in the world, especially when it comes to acquiring a proper education (Jesiek, 2003; Larreamendy-Joerns & Leinhardt, 2006), whereas the less fortunate and minorities have had to make do with the bare minimum or were just denied in its entirety when it came to education (Larreamendy-Joerns & Leinhardt, 2006). Democratization served as the catalyst by way of distance education and its synergy with the Internet, which allowed marginalized individuals to gain knowledge through higher education that was often denied to them (Larreamendy-Joerns & Leinhardt, 2006).

Unfreezing Through the Social Justice Framework

Brick and mortar as a sole means of education often promotes a culture that is not grounded in transformation. Status quo becomes the norm, because certain values and beliefs are socially reproduced within the culture. Similarly, proprietary software as a sole means of disseminating knowledge has become the norm for our society, which has been decided and controlled by the dominant class. Therefore those who are marginalized are unable to acquire educational equality. Distance education and open source work in unison to engender balance. Equity is obtained because the system provides access (Nuvolari, 2005; Pfaffman, 2008; Stallman, 2010b) in order to transform a stagnant system.

Thus distance education and OSS use a critical lens to act as social justice allies to end oppression in an effort to promote empowerment of all human beings. Without this democratic foundation those who do not possess the habitus would be unable to acquire cultural capital so they can compete in this global society (Emmison & Frow, 1998; Jesiek, 2003; Larreamendy-Joerns & Leinhardt, 2006; Nuvolari, 2005; Pfaffman, 2008; Stallman, 2010a).

New Technology Generates Some Issues with Bourdieu's Cultural Capital Theory

Cultural capital theory can be compared to the way the majority rules with proprietary software. Proprietary software is often seen in business as the only way to employ technology. From a business perspective on an educational sphere, proprietary software is the dominant educational tool that provides instruction. Therefore proprietary software is easier for the dominant class to acquire in order to receive an education, while proprietary software thwarts those with limited means (Garzarelli et al., 2008; Jesiek, 2003; Van De Bunt-Kokhuis, 2004). OSS is slowly making fissures in the proverbial technology glass ceiling. Thus OSS is giving everyone a choice and a voice through the social justice framework, because it provides all students with access to knowledge (Caswell, Henson, Jensen, & Wiley, 2008; Emmison & Frow, 1998; Morgan & Carey, 2009; Nuvolari, 2005; Pfaffman, 2008; Stallman, 2010b).

Macleod (1987) suggests that through the process of social reproduction, schools foster a culture that promotes injustice. The dominant class within academia and those outside who influence academia, have both the brawn and brains when it comes to influencing the culture of the school. The dominant classes' attainment of cultural capital provides them with a voice. Their voice tailors the academic culture in a fashion that

enables them to be heard (Anyon, 1981; Macleod, 1987). Their voices create a cacophony of dominant sounds, which silence those who lack cultural capital. Therefore, the dominant class monopolizes the academic culture in its entirety, because their monetary power shapes the cultural capital. Students who are considered inferior often lack the habitus and perceive that they do not belong to the educational system. This system makes them believe that they are incapable of changing the static culture (Anyon, 1981; Macleod, 1987).

Open Source is a Response to the Social Justice Underpinning

In this section I elaborate upon OSS in a more in-depth manner, because it dovetails with distance education and it, too, is created through social means (Moglen, 2003). Both distance education and open source's common ground is that the Internet allows for them to act as a tool for utility (Moglen, 2003). It is a necessity to have quality open source software for a community of learners to use in a collaborative effort to increase their knowledge base (Caudill, 2008). Open source software was created in 1998 by Richard M. Stallman, an MIT programmer (Gruen, 2005; Jesiek, 2003; Samoladas, Stamelos, Angelis, & Oikonomou, 2004). Pfaffman (2008) argues that Stallman had had a bad experience with technology when he was not provided with a source code for a simple task of programming a new printer, so he decided to take a leap of faith when he wrote the GNU Manifesto.

Pfaffman (2008) notes that the GNU Manifesto emphatically stated that software should be free and all individuals who want to learn should be able to learn and should have the right and authority to use, modify, and distribute for overall empowerment and enlightenment of the masses to take place. Pfaffman further argues that Stallman wanted

to use OSS as a tool for utility, so that all individuals regardless of economic status would be able to partake in the expansion of knowledge at no cost. In opposition, Stallman (2010a) abhors the use of the term “free” when it comes to the monetary value of free software. Free has nothing to do with cost, it only relates to individuals within a community who want freedom of thought. This is the reason GNU states that open source is not tantamount with free software, because the term open does not have anything to do with freedom. Free software allows its users to exercise the following five sine qua non liberties, which are solely for the user’s intended purpose: individuals running the program for their desired purpose, individuals having the source code for their retention in order to learn how the program works, and having the ability to change the program at the user’s discretion, the individual’s ability to redistribute copies to the community in order to inform others, thus increasing those in the equation proficiency. Pfaffman purports that Stallman’s mission was to engender democratization by breaking the chains of oppressive “proprietary” efforts, meaning those entities who withhold source codes. Pfaffman suggests that this concept is for the greater good because both users and programmers benefit from the same type of source code freedom in terms of altering it for their specific purposes.

Conversely, Willinsky (2005) argues that from 1960 through 1970, software was not commercialized. The following decade, 1970-1980, commercial software started out as a technological epidemic, but later commercial software spanned globally in the same way that a pandemic does. Upon Stallman learning that MIT was going to commercialize computer software through a license, which would inhibit access to the source code, thereby denying access to higher education (Willinsky, 2005), he fought back by letting

his values prevail and wrote a letter of resignation to MIT, thus relieving him of his duties as a professor (Willinsky, 2005).

Nuvolari (2005) suggests that the operative word for OSS is “open.” Open means that the software comes with its source code. In this open cyber environment, users are able to work on the program, make revisions to the existing program, and then redistribute the program with the source code to the community for further iterations. This cyclical process keeps improvement continuous. In this process, Bergquist’s and Ljungberg’s (2001) position is that open source communities practice a gift culture. In that they develop and keep their social relationship viable by way of the gift economy through transacting gifts. This culture links everyone on a social scale. In a gift economy, the most powerful gift is the source code, shared with the masses. Therefore, the Internet makes the transactional process open. This type of peer review enables the source code to be enhanced and, at the same time, all who are involved receive credit for promoting scholarship on both individual and collective bases. This type of culture resonates, with an effective egotistic and altruistic social environment, which informs practice and lifelong learning, thus making the gift priceless (Bergquist & Ljungberg, 2001; Faldetta, 2002; Hardaway, 2005).

Similarly, Nuvolari (2005) postulates that the common thread that holds the open source tapestry together is the source code. The source code looms open source software via cyberspace. Source code sharing comes from the higher education and corporate research settings where the culture is to share the source code with like-minded individuals. Keeping this practice viable became the tipping point for Richard Stallman due to a change in his environment. He then wanted to replicate what was lost in order to

make a segue into the here and now with the Free Software Foundation in 1984. Stallman moved away from the trend of proprietary and transformed it to nonproprietary. His intent was to re-birth an open realm of thought that had existed in its former years (Nuvolari, 2005).

Stallman (2010a) notes that the GNU Project was developed with the assistance of Linus Torvalds so the group could create Linux, a kernel similar to Unix. The only difference between Linux's and Unix's kernels is that Linux is free in the sense of freedom, while Unix is proprietary. It enables users to modify and distribute the source code. In the world of information technology, Linux and GNU are inseparable terms and, to be politically correct, they should be referred to as the GNU/Linux system.

Nuvolari (2005) argues further that Stallman's GNU nonproprietary invention is universal in terms of running on the majority of Unix versions. Stallman and his colleagues worked tirelessly to protect their product from becoming proprietary, so they developed the General Public License (GPL), which is synonymous with the term copyleft. The GPL allows its users to distribute, modify, and redistribute a program that has been modified according to the prior users' specifications. There is a great sense of security, especially in reference to the GPL, because the modified version is also protected and granted all rights and privileges according to the existing GPL (Nuvolari, 2005).

In stark contrast to open source, the Unix operating system, as purported by Moglen (1999), was developed by American Telephone & Telegraph (AT&T) in the late 1960s. Unix was developed for all computers so that AT&T could monopolize the operating system on a ubiquitous scale. For users to access Unix's source code, they had

to purchase its license. Users were prohibited from redistributing the source code to other users due to the license agreement. The invention of Unix created an epidemic in the computer world because those with differing values used Unix's framework to give birth to free software projects like GNU/Linux, The University of California at Berkeley's BSD Unix, and Apache (Moglen, 1999).

Raymond (2005) contends that the Linux model is the epitome of quality; therefore, they laid the framework. The Bazaar model, which is known as OSS, is more fluid in its approach and its mantra is "Given enough eyeballs, all bugs are shallow" (Raymond, 2005, p. 7). This mantra has developed a learning community of both users and creators because the users are asked to share their expertise with the creators in order to develop a product that provides a high-quality source code that is void of bugs (Caudill, 2008; Gruen, 2005; Hardaway, 2005; Raymond, 2005). In contrast, the Cathedral model, which is better known as commercial software products, is created in a shroud of secrecy and a veil of structure. Their source code is not shared with its users in an effort to enhance quality. The Linux model is the archetype of accountability, responsibility, respect, and quality. All bugs are eradicated from the source. Therefore the Linux model adapts and is an open system that transforms in a cyclical manner (Raymond, 2005).

In terms of both the Cathedral and Bazaar models, Bezroukov (1999) has opposing views because, according to him, having a more architecturally sound product is more important than debugging the source code. Moreover, Bezroukou states that the proverbial eyeballs phrase as it pertains to debugging the source code will never develop. This is because, according to Bezroukou, debugging is an arduous process for developers

to undertake because their main premise is to program rather than test. Bezroukou also indicates that their talented developers prefer to resolve their own bugs instead of effacing the bugs of other developers.

Open Source Versus Free Software

According to the International Declaration of Human Rights, everyone is entitled to an education (Caswell et al., 2008; Ciulla, 2003). This statement supports a sound argument favoring open source and open access. Freedom is a human right. Freedom gives individuals the ability to choose (Caswell et al., 2008; Wilinsky, 2005). Wilinsky briefly argues the benefit of open access, especially in terms of scholarship and research that employs online journals and software. Open source is a frugal approach that allows those who use it to pay it forward (Caswell et al., 2008; Wilinsky, 2005).

There remains a dichotomy between the two camps that employ either free software and open source software. Stallman (2010c), the father of free software, emphatically states that free software is not tantamount to OSS. Stallman mainly wants to provide freedom to individuals who employ free software. Stallman's approach emphasizes transformation because he expresses that one should understand his concept as "free speech" instead of "free beer" when free speech is juxtaposed freedom (p. 2). Stallman indicates that the world has transformed from simple to complex. The world is now highly digital and this is the reason freedom for all as it pertains to software users should and must be promoted. Stallman postulates that the terms free software and OSS ignite a political debate on both ends of the continuum.

The two terms are often argued about where both proponents' and opponents' values lie on both social and ethical scales. Stallman (2010c) proposes that free

software's mission is to foster freedom for all program users. Stallman further indicates that this is the reason the value of social promotion is nurtured in his camp, whereas social promotion is thwarted in the open source camp. The open source camp's main focus is to only enhance the practical and technical quality of the source code. In terms of the continuum, both free software and OSS are able to come to the middle in similarity. Stallman suggests that both are governed by the GNU GPL, meaning the free software label fits most, but not all, OSS. Also, both reject proprietary values.

Moglen (1999) argues that the source code is viewed as an art form in the computer world. Thus, the source code creates a digital tango where the programmer choreographs the moves and these artful moves interface with the computer and also with a vast majority of programmers who are involved in this melodic dance. Moglen opines that this is the reason that software is often viewed as intellectual property that needs to be protected by copyright laws. Those who are proponents for intellectual property and those who are against create dissonance on the dance floor. Moglen suggests that the dissonance occurs because proponents of copyright want to monopolize the industry for monetary gain. A contentious condition for software occurs when software is viewed as property and this riveting impact is felt by all mankind who want to elevate the masses through social effort.

Open Source Software Quality

Aberdour (2007) argues that open source software (OSS) needs a foundation that encompasses four key elements that enhances its quality: sustainable communities, code modularity, project management, and test process management. In terms of sustainable communities, research has indicated that this feature is paramount when it comes to

engendering high-quality OSS. Aberdour notes further that within these sustainable communities users work together as a collective whole to quickly create a code, dismantle existing bugs in an efficacious manner, and develop current codes for the community. Intrinsic motivation of the community promotes an atmosphere of tireless, selfless volunteers who give willingly, which in turn fosters high-quality OSS.

Aberdour (2007) proposes that code modularity enhances OSS quality by increasing a competitive environment amongst programmers, especially when it comes to eradicating bugs. The competitive arena is based upon the Linux Kernel development study. Peer review and people management are essential additions to the repertoire especially when they both fall under the umbrella of Project Management, therefore, both enhance quality. Aberdour elucidates that peer reviewers are a large group of individuals working to correct bugs and other software problems. In order for people management to be effective there must first be a positive environment and a culture that welcomes and invites individuals to volunteer in their milieu in a collaborative effort to enhance innovation. This environment intricately binds these volunteers through time and space thus creating their DNA to replicate through a shared product. Lastly, Aberdour contends that the Testing process is not rigorous in itself; however, it is an iterative, cyclical process. Problems are corrected during the softwares' lifespan by a large amount of volunteers who are invested in the project's success. This, in turn, fosters high-quality software.

Open Source Software Contributors' Motivating Factors

Bonaccorsi and Rossi (2004) propose that their study's findings present contrasts that motivate both firms and individuals. Individuals are more so enamored in the

creation of forging strong alliances and are socially motivated, and firms are more so concerned with technological and economic motivations. Social motivation is sought by those who want freedom and employ altruistic means to bring their dream into fruition. Small enterprises are able to innovate by way of open source software. Innovation increases motivation, which leads to increased and high quality software. Open communication by cyclical means enhances the dexterity of the developer, user, and the software (Bonaccorsi & Rossi, 2004).

Raymond (2005) is confident when it comes to the social context of OSS because this community of learners adds strength to the working framework. Usually those within this community have a problem that needs to be resolved expeditiously. A single ripple cannot solve the impending problem. A huge tidal current of a community of learners must band together in order to make an impact. Hackers want to solve personal dilemmas that are reflected within identical dilemmas in this vast ocean current (Raymond, 2005). Stallman (2002) specifies that hackers are the representatives of pioneers in the technological domain. Hackers are investigators of the unknown and their mission is to have freedom while innovating (Jesiek, 2003; Stallman, 2002). Hackers do not value legitimate power. They avoid authority by creating their own rules in order to develop new software technology (Stallman, 2002). Hackers get a joy out of learning new processes while ensuring that the outside community partakes in a safe product (Jesiek, 2003; Stallman, 2002). Raymond posits that hackers, developers, and users navigate together to sail through their like-minded personal dilemmas all in an effort to bring about a resolution and at the same time to enhance the overall quality of the software. Raymond is fervent in his quest to create positive partnerships, equating them to a true

marriage of both egotistic and altruistic means, which give birth to impeccable software development.

Conclusion

OSS innovation and distance education are designed as a leadership model. Meaning communication, sharing knowledge with others, and teamwork are key to making long lasting change sustainable. This journey is transformational, because change definitely does occur and those within the equation elevate one another and this too, becomes moral in purpose. This chapter provides the reader with information that weaves together technological information affecting education. The chapter that follows comprises the methodology. The methodology is delineated in Chapter 3, the driving force of the dissertation. In this chapter I will elucidate my research design by providing the reader with the *how* and *why* of explanatory case study research and its impact on my dissertation. I will also expound upon the procedure that I undertook to collect and analyze my data in this study.

Chapter 3

Methodology

Introduction

My study expounds upon the faculty's experience with Open Source Software (OSS) training that was provided to them through a grant from Cicero University (CU) in order for them to test the efficacy of an open form of technology. Therefore, the purpose of my study is to explain the implementation process of OSS in a higher education setting, including any challenges that the faculty encountered during professional development, and implementation during instruction. In addition, I investigated my leadership throughout the research process.

This study addressed the following research questions:

Did the opportunity to secure free laptops motivate the faculty to participate in Summer 2010 computer bootcamp training?

What were the challenges that faculty faced during OSS training?

Why did faculty decide to change from proprietary to OSS?

How do faculty perceive OSS technology?

Context

I conducted my study on the campus of CU, which is located in the southern region of New Jersey. Cicero State College was founded in 1923 and began as a Normal School. Presently, CU has 36 undergraduate programs, 26 master's degree programs, seven teacher certification programs, and an educational leadership doctoral program. Cicero State College changed its name to CU and expanded its resources and disciplines

due to a \$100 million dollar endowment (CU website). This study focuses on CU's faculty. CU's faculty are skilled professionals who are available to scaffold students' success.

Target Population

Participants in a research study are referred to as the sample or target population. These participants are the focal point of the study and provide the researcher with the necessary data so that research may be conducted (Lodico, Spaulding, & Voegtle, 2006). The participants that were included in my study are nine faculty members from various disciplines at the university. These participants were selected because they volunteered to participate in the initial study. These participants are experts in their fields of study and all of them have had the same experience as it pertains to employing OSS. The participants also wanted instructional practices to change for the better in order for them to be able to compete in the 21st century as well as scaffold student instruction. These participants had the knowledge base that allowed me to learn from their perspectives and to bring awareness about OSS to this campus.

Rationale

CU currently does not employ OSS. CU has an arsenal of technological amenities. The amenities that are included in the quality education that the institution provides are an enormous amount of online databases for every discipline; a superb interlibrary loan service that orders both books and articles that are not in the library's collection; workshops and tutorials for both classes and groups, and a fairly modern building with adequate seating (P.G. Rhett, personal communication, February 25, 2010). Blackboard is used to issue assignments to students and also for student-to-student and professor-to-

student collaboration. However, the only component that is missing is OSS for undergraduate and graduate students. Having this component would enable the university to be 21st century proficient and would also cultivate the university into a well-defined brand. My role as a qualitative researcher was as a participant observer. According to Stringer (2007), the participant observer is immersed in the research and ultimately becomes connected to the research in its entirety. I attempted to capture nuances in terms of setting and participants, and reflected habitually in my journal.

Research Design

The research design according to Bogdan and Biklen (2007) is imperative to the researcher in terms of the study's overall internal map. The design enables the researcher to know and understand the direction of the study as long as this guidepost is well thought out and engineered in a thorough fashion (Bogdan & Biklen, 2007). The design permits the researcher to have the itinerary as well as the persons who participate in the study in order for the journey to proceed in an effective manner, so that quality permeates from the beginning until the researcher reaches his or her final destination. This qualitative design process is both fluid and structured (Bogdan & Biklen, 2007). Bogdan and Biklen also suggest that a researcher studying an area that he or she has no direct connection to when acquiring new skills should employ this method.

This qualitative explanatory case study allowed me to act as the key researcher in a twofold manner. I examined my leadership while I acted as a participant observer. I employed qualitative case study research methods so that I could obtain pertinent information as it related to my study. Qualitative research is defined as being descriptive and subjective in nature (Bogdan & Taylor, 1975; Creswell, 1998; Thomas, 2003).

Qualitative research explores a social issue or problem and the subject that is immersed in said issue or problem is able to define that issue or problem in his or her own words, thus permitting the reader to interpret the subject's plight and develop empathy for the subject who is experiencing the issue or problem (Bogdan & Taylor, 1975; Creswell, 1998; Thomas, 2003)

Denzin and Lincoln (2000) purport that qualitative research has vast meanings according to the context. Context constructs meaning and captures the essence of qualitative research. Qualitative research provides the observer with a stage in order for the observer to perform and interact with the world. This form of interaction enables the observer to make sense of the world through dialogue, reflections, interviews, fieldnotes, and photographs. Meaning is extracted from each individual cast member with whom the observer interacts (Denzin & Lincoln, 2000).

My Chosen Methodology

The methodology that I employed was a qualitative study using a case study research framework. I employed the explanatory case study approach because I was able to ask and answer my *how* and *why* questions (Yin, 1984) that are presented in my research. In addition, I was able to provide myself as the researcher and the reader with salient research information based upon data collected from repeated observations, one-on-one interviews, and open-ended surveys (Yin, 1984). In addition, case study is used when the researcher is seeking information from the participants' perspectives in a phenomenological manner, meaning I relied solely upon the participants' lived experiences in an uncontrolled behavioral environment (Yin, 1984).

According to Yin (1984), case study research enables researchers to acquire two sources to add to their repertoire, which are systematic interviewing and direct observation. When the researcher obtains artifacts and documents and performs observations and interviews, this not only adds quality to the study, it enhances the study's foundation by making it more credible. These research methods ensure a wide range of evidence and are important for a researcher to employ. Without such regard to quality the case study loses rigor and an absence of rigor has been a common criticism amongst researchers (Yin, 1984).

Data Collection

The instrumentation that I employed was repeated observations, semi-structured one-on-one interviews, open-ended surveys, and my journal. As a participant observer I employed my five senses in order to record what stands out most. I recorded what I saw, smelled, heard, touched, and tasted. I constantly recorded what was similar, and also what contrasted between the participants within the context. I also recorded how I felt in order to make a connection to the research (Glesne, 2006). In regards to one-on-one interviews, I acted as the interviewer and recited from a script. Bogdan and Biklen (2007) posit that interviews are comprised of two or more individuals and are led by an individual who uses probes to obtain information. I also asked unstructured questions when I wanted the participant to expound upon his or her responses (Lodico et al., 2006). I employed semi-structured one-on-one interviews as my primary data source, so I was able to understand the participants' unique experiences through their lens and in their own language, so I could gain meaning.

My journal allowed me to narrate all of the events that were pertinent to my research study. For example, I recorded the actions of the participants, my actions, and my feelings at the time the events transpired. The journal also allowed me to metacognate on my thoughts and feelings as a form of reflective practice. Reflective practice allowed me to improve my leadership by making sure that my espoused beliefs and underlying assumptions complemented each other, enhanced my problem-solving ability, and enabled me to look for emerging patterns and themes within myself and with others (Osterman & Kottkamp, 2004).

I used a tape recorder to collect data, only upon having verbal and written consent (Appendix B) from my participants. I recorded handwritten fieldnotes throughout my study. If I needed further information from the participants, I interfaced with them via e-mail so that I could keep in contact and stay abreast of my study. I employed a myriad of technological data collection devices in order to capture the essence of the study so that I could gain meaning and understanding.

Employing qualitative means enabled me to act as the primary instrument to collect data. The data that I collected were in a natural setting and allowed me to converse with participants in an in-depth, one-on-one manner. Thus, over time, I created rapport (Creswell, 2007). I did not have to work hard to achieve participant buy-in because it was already present. The majority of the participants who were involved wanted to enhance their learning and instructional practice. The common refrain was “I want to learn new technology.” I only had to gain rapport with them by introducing and reintroducing myself to the group as a doctoral candidate who was using participant observation research methods to collect data for my dissertation. My honesty allowed for

me to gain their trust. I infer that my project was supported because those who participated welcomed change and wanted to be a part of the process. Most of them often stated that they “enjoy collaboration” and “sharing” their point of views. I was also able to constantly find myself in this research process because I could interpret what I saw, heard, and understood, which allowed me to make connections throughout the study. Thick and rich descriptions on my part as a researcher aided in my interpretation. My prior knowledge was never separate because it complemented my research. For this qualitative explanatory case study research project I used multiple sources of data, which entailed repeated observations, semi-structured one-on-one interviews, open-ended surveys, and a journal to ensure triangulation (Creswell, 2007).

Data Analysis

For this qualitative explanatory case study I employed pattern matching as my strategy to analyze all the data that I collected (Yin, 1984). I looked for patterns that emerged that were similar to either the “dependent or independent variables of the study or both” with the aid of multiple data collection tools (Yin, 1984, p. 104). I analyzed my qualitative data on a daily basis so I could look for emergent patterns and themes, thus enabling me to place data into categories for coding purposes. I compared and contrasted my data with the literature in order to make interpretations and inferences. I spent a lot of my time in the field so that I could observe my participants in order to gain a deeper understanding of the culture. While I was in the field I used my journal to record my fieldnotes and reflections so that I could determine my possible biases. I employed rich and thick description so the reader was be able to understand and make a vicarious connection to the participants’ experiences. These methods made my research valid and

reliable. My qualitative data was transcribed via Dragon Dictate for MAC, a speech recognition device, so I could look for emergent patterns and themes. I used Apple PowerPoint to present my findings in detail (Bogdan & Biklen, 2007; Creswell, 2009; Glesne, 2006).

Triangulation of Data

Triangulation is defined as the researcher using different methods to collect data. For example, I employed repeated observations, semi-structured one-on-one interviews, open-ended surveys, and my journal fieldnotes and reflection. This, in turn, makes certain that the researcher's credibility and the product of research are deemed trustworthy (Bogdan & Biklen, 2007; Glesne, 2006). In terms of case studies, triangulation enables the researcher to gain in-depth meaning and understanding by using a multiple perspective approach. Also, when the researcher establishes rapport with the participants, the researcher is able to observe them on a continuous basis. Continuous periods of observation help the researcher capture the participants' views through their individual lenses, so the researcher does not misconstrue the participants' reality (Stake, 2000).

Confidentiality

As stated by Bogdan and Biklen (2007), the Institutional Review Boards (IRBs) approve applications and monitor researchers' compliance with ethical and legal issues when conducting research on human subjects. IRBs are housed on college and university campuses to enforce laws that protect human subjects so they receive informed consent when they participate in any type of research study. The National Institutes of Health (NIH) Office of Extramural Research certified me and I acquired exemption from my university's IRB because I conducted research on CU's campus. I obtained exemption

and have kept all data confidential. I used pseudonyms to refer to all participants who are included in my sample. I have had the IRB consent forms signed throughout the data collection process. The consent forms and all data collection devices that I employed were stored in a safe, secured, and locked location. I protected all human research participants pursuant to NIH and CU's IRB guidelines.

Validity

Rigor was established to guarantee trustworthy research on my part as a researcher so any of my biases were identified and acknowledged and to also show that I was practicing in-depth research practices. I had multiple participants who reflected multiple perspectives. I observed my context on a habitual basis and documented my fieldnotes in a journal. I employed semi-structured one-on-one interviews, open-ended surveys, and my journal. I used my journal as a source of reflection as well. All of the selected data collection strategies ensured triangulation (Bogdan & Biklen, 2007; Glesne, 2006; Hinchey, 2008; Stringer, 2007).

Conclusion

The methodology provides the framework for producing credible research. Within this chapter I have provided the reader with the strategies that I used to both collect and analyze my data. Through this explanatory case study I attempted to find a way to ultimately enhance the use of technology for other students, myself, faculty, and future generations. I want my project to not only fulfill my dissertation requirements, I want this project to make an impact on scholarship, and I want it to be a viable and sustainable resource for the university as a whole. The next chapter presents the findings. The findings allowed me to find out if my chosen methodology was adequate for this study. I

learned how my biases may have impacted my data collection. I learned how the study limitations affected my research in a positive or negative manner or both. The next chapter allowed me as a researcher to discuss my findings through description, analysis, inference, and interpretation. The findings challenged my assumptions so I could transform my understanding and increase my knowledge base as both a leader and a researcher (Glesne, 2006).

Chapter 4

Findings

In this chapter I discuss the research findings and review and explain the results of data analysis of this qualitative case study. Findings for a case study, as explained by Yin (1984), allow the researcher to link findings with evidence based upon literature reviewed. Therefore the purpose of my study is to explain the implementation process of OSS in a higher education setting, including any challenges that the faculty encountered during professional development and implementation during instruction. In addition, I investigated my leadership throughout the research process. My sample population included nine faculty members, all from CU, who participated in the initial OSS pilot program. My role was to act as a participant observer. This study employed the following research questions:

Did the opportunity to secure laptops motivate the faculty to participate in Summer 2010 computer bootcamp training?

What were the challenges that faculty faced during OSS training?

Why did faculty decide to change from proprietary to OSS?

How do faculty perceive OSS technology?

This chapter communicates the importance of having adequate technology for educators so they are able to instruct their students properly. This point of view was executed by connecting the research that I reviewed to the qualitative data that I collected.

My Data

This explanatory case study used qualitative methods to collect and analyze data and it is descriptive in nature. This study is qualitative because it explored the collection and summarization of data using primarily repeated participant observations and reflection (Lodico et al., 2006). Best and Kahn (2003) indicate that a qualitative study is primarily interested in seeking meaning of how people make sense of their lives, experiences, and their structures of the world. The main objective is to simply describe behavior and not to infer relationship or causality (Lodico et al., 2006). This study was created to analyze the expert opinions of faculty. I employed repeated participant observation and reflection to triangulate my data. Triangulation, as I mentioned in Chapter 3, is defined as a researcher using multiple theoretical underpinnings or data sources in a study (Bogdan & Biklen, 2007).

Glesne (2006) professes that participant observation allows the researcher to broadly document the “setting, participants, events, and participants’ gestures” (p. 54) on a continual basis. This recorded information enables the researcher to collect both extrinsic and intrinsic data that concern the research. Intrinsic data relate to my feelings as they connect to participants, events, setting, and, ultimately, how I feel as a doctoral candidate, researcher, and leader (Glesne, 2006). Using an appreciable amount of introspection enabled me to interpret and use my inferential skills. In terms of extrinsic data, I described what I saw, heard, smelled, and touched while I was out in the field so I could allow the reader to gain a vicarious experience as it relates to my study (Glesne, 2006). According to Glesne, the researcher must analyze both the extrinsic situation and how he or she may feel intrinsically as it relates to what was extrinsically observed. It is

through habitual participant observation that the researcher is able to verify personal bias and also make sense of all data collected (Glesne, 2006).

Summer 2010 Computer Bootcamp

I employed In Vivo Codes as headings in order to categorize my data. Saldana (2009) postulates that In Vivo Codes are “Literal Coding” (p. 74) that manifests from the data. This process enabled me to capture and describe the major themes that complemented the independent and dependent variables of the study (Yin, 1984). The major themes that emerged from the data are “We Are All Learning”; “Owners Own It”; “Angst Towards Technology”; “No Laptops”; and “Students Are Not Independent Learners.” First and foremost, I would like to describe the faculty who participated in my study. There were nine Cicero University faculty members from various content disciplines, including Education, Physics, and The Writing Department. There were seven White women and two White men. The facilitator, Saul (pseudonym), is a White man and I am a participant observer who is a Black woman. I will discuss the major themes in the paragraphs below.

We Are All Learning

Saul began the Summer Bootcamp by stating, “I do not lecture because we are all learning together. We are the army and we are first in bringing this project into fruition.” I inferred that Saul wanted us to work together as a social unit because he constantly used the word “we” in a collective fashion. I also inferred this to mean that Saul wanted this project to be based upon the constructivist paradigm. Glesne (2006) indicates that the constructivist paradigm is an expression meaning that everyone’s lenses are valued as a whole and no individual’s worldview is superior to the other’s. All members contribute to

the construction of knowledge. Saul's words made me feel very comfortable as a researcher because I was uneasy about being a participant observer in a classroom of higher education faculty members. Using my schemata, I know that rapport is very difficult to achieve on a higher education level. Glesne suggests that gatekeepers protect their territory by filtering who is allowed to participate and who is not allowed to participate in their organization in order to conduct research. Prior to the meeting, I recorded this feeling in my journal: "I am scared and nervous, because I'm unsure about how the professors will respond to me. I'm wondering if they will think I'm intruding, will they say why is a student here? Overall I hope I am welcomed." All of my feelings of angst subsided when I heard Saul use the word "we" and also when the majority of the faculty welcomed me with smiles and hellos. Saul's opinion of OSS as it relates to "we" is similar to how the literature regards OSS, because OSS contributors view its creation as a team effort. Nuvolari (2005) suggests that, in higher education, the source code must be shared with those in the same setting. Pffafman (2008) shares Nuvolari's sentiments towards OSS, stating that it should be free to all who want to acquire this form of knowledge.

Owners Own It

Saul defined to the participants what OSS meant to him as a user of this form of revolutionary technology. Saul declared, "The owner owns it and the collaborator can make changes and it is supposed to be able to be viewed globally." In the same vein, literature has a definition that is comparable with Saul's definition. Nuvolari (2005) states that OSS and the Internet are a marriage of technology, which is presented to the world in cyberspace. Pffafman (2008) explains that the contributors of OSS have the power to

collectively use, modify, distribute, and redistribute the source code (text written in computer programming language) in an effort to improve the OSS. With this information, Saul supplied us with the address of our group's Google site, which is <http://sites.google.com/site/cicerobootcampsummer10/>. I inferred that Saul wanted us to understand OSS in a concrete manner as opposed to an abstract manner. He wanted us to have a hands-on experience with technology by making a global connection through the Internet website. I was able to understand at this moment that Saul was bringing theory into practice as it pertains to what OSS is, how OSS is employed, and why it must be shared in a pristine manner. OSS must be shared in a pristine manner because it is an "open source," meaning that the world is able to view whatever is posted. I inferred that Saul made it a point to tell us that our Google site is an "open source" so that, as scholars representing CU through a Google grant, we would utilize the software in a professional manner.

Angst Towards Technology

As a participant observer I was able to capture a lot of the nuances that were made available to me as a researcher. I listened very deeply to a lot of faculty members' comments about their colleagues' undue "angst towards technology" and that they all agreed that their colleagues "fight change." For example, a faculty member stated, "My colleague does not like to post the syllabus on Web-Ct. He would rather make copies and handouts for students. I don't know why he keeps killing trees!" I guess this type of disconnect occurs because resistant faculty have low levels of self-efficacy when it comes to technology, thus perpetuating the status quo within the educational system (Tabata & Johnsrud, 2008). This real-world experience is similar to what I uncovered through my

review of the literature. For example, I found a text-to-the-world connection because faculty in the study resisted technological changes due to a lack of proper training. As a result, they were incapable of applying technological strategies to educate their students (Tabata & Johnsrud, 2008). I also made a connection with this journal entry: “I do not like change when it does not have a purpose or a proper scaffold. Technology is very scary when you do not have adequate understanding in order to acquire meaning.”

No Laptops

The technological glitch that I observed occurred because a few faculty members did not have the earmarked laptops needed to participate in the instructional activities. However, most of the faculty received laptops, allowing them to participate. I view this as a social justice issue because all faculty were not treated equally and fairly. This lack of equality not only affected the faculty’s practical learning experience, it also affected their instructional practices because they were then behind in learning how to develop an adequate technological experience for their summer school students. Maybe this was simply an oversight on CU’s part. For example, perhaps a signature was missing or the company had a shipment delay. There had to be some sort of communication disconnect among university administration, Technology Hall, and the computer company. This bootcamp was created based on a grant supplied by Google. Another issue that comes to mind is context, meaning CU is just coming into OSS technology and may not have a protocol in place to handle the situation. Maybe CU is learning as it goes. These are just a few interpretations that came to mind; however, the reason was never disclosed to me. I noticed that the faculty members who did not receive laptops were very disappointed when they found out that they did not have the laptops that had been promised to them,

because their smiles turned to frowns and it seemed to me that their intrinsic motivation plummeted due to a lack of extrinsic motivation, namely the laptops. I heard them retort, “The department does not have the laptop for me.” Tabata and Johnsrud (2008) and O’Quinn and Corry (2001) revealed identical situations when it comes to faculty not having adequate tools or resources to impart instruction. This inadequacy can be a very onerous experience for anyone. I had a similar experience because my laptop crashed during bootcamp and this loss made it quite difficult for me to gain proper practical experience during instruction. I journaled this thought: “I will persevere despite these challenges that are at hand.” As a leader, I know that challenges are endless and it is up to me to continue to move forward regardless of the situation, especially when technology is employed. I say this because, even though I rely on technology, it is not the panacea for everything. Leaders must prepare to have additional resources at hand because technological glitches are inevitable.

Students Are Not Independent Learners

Intrinsic motivation on the students’ part appeared to be a major concern for a few faculty members. A faculty member stated,

Students need to learn the process. They are not independent learners, because they do not have to be. They need to see and we all need to be able to show them how to transfer the skills from here to the future. The students do not bother learning how and it should not be about accountability; they should want to learn how.

As a student, this comment made me feel a little uncomfortable because, as a strong-willed learner, I prefer to learn independently. As an educator and researcher I could also empathize with her comment. For example, research revealed that quality has remained an issue when instructors with limited knowledge about technology teach their students.

If faculty are not knowledgeable, this proves a disaster and may ultimately ebb an unskilled student's intrinsic motivation (Chang & Smith, 2008; Clark, 2003; Cox, 2005; Heerema & Rogers, 2001). Research also reveals that the Millennial Generation present another challenge for instructors because they want information right away, especially at the click of a link. This mindset is deeply embedded in the Millennial Generations' culture because they grew up with technology being readily accessible with loaded applications as opposed to learning the process (Falciani-White, 2008).

My Biases

I did not think that I could record sufficient information from a short period by employing participant observation methods. I was never really interested in learning about technology at all, especially in an in-depth manner, because I use technology solely for purposes that are pertinent to my specific need. I did not think that I could use a case study research method based solely on qualitative data. I always believed that a mixed-methods approach using both quantitative and qualitative methods yielded more useful data. I definitely did not anticipate that most faculty were still learning when it came to using technology, because I thought that they would be a lot more knowledgeable than I. I did not want to work with individuals whom I did not know because, through experience, I have learned that rapport is difficult to achieve with subjects on a higher education level. I thought this experience would be futile.

My Assumptions

I did not expect any type of technological glitches to exist because of the university's existing grant with Google. I did not expect that some of the meetings would be hit and miss. I thought that we would have long and continuous meetings as opposed

to a combination of short and scattered ones. I definitely did not expect to be welcomed by the participants without gaining rapport prior to the meeting.

Implications Regarding Theoretical Framework

I will reiterate for the reader my chosen theoretical framework for my study, which is symbolic capital. I chose Pierre Bourdieu's symbolic capital because it dovetails with the social justice framework and the two work in unison to give voice to OSS. This voice spoke about mutual group respect through collaborative efforts. I will begin with our success as a group. Our brief meetings allowed us to work collaboratively on the Google website. In this sense, we superficially satisfied the goal of symbolic capital because we increased our knowledge base together. In contrast, the social justice framework was not fully developed because some faculty received laptops, but a few did not. Access for all was not satisfied under the social justice framework and this caused a negative ripple effect in the pool of learning. Not only were the faculty at a disadvantage, so were their students, and my research was thwarted, as well, due to unequal access.

Conclusion

OSS is cutting-edge technology, especially at CU, because we are just sailing into this tidal wave of technology. I believe that this project will benefit our university in a dynamic way because OSS has benefited the world by employing a social justice framework. For example, Saul told us during a meeting, "I am confident that Google will take off." I have confidence in his statement because much of the world uses Google. Also, Saul let us know that we will make technological history as a learning community because we are implementing this cutting-edge technology at a four-year university where we are integrating our educational framework with OSS technology. In the

following analogy of a pencil, Saul motivated the group by explaining how important our roles are in this project. Saul purported that,

We are the leaders, because we are the sharp ones. The points of the pencils are the ones who follow and refine. Then there are the woods, because they would do it if they had the technology or if they knew the process. The others are the stubs who ignore, and lastly there are the erasers, because they work against it.

The analogy mentioned above is a revelation to me because leaders must persevere to be effective agents of change so that sustainability is achieved. We are leaders on the verge of reaching the tipping point in technological advances in the sense that Malcolm Gladwell (2002) articulated. We must keep in mind that learning communities are made up of the Mavens (information providers), Connectors (socializers), and Salesmen (negotiators). This type of interdependent leadership as users and creators enables us to influence a technological revolution in order to reach a tipping point. This is the essence of OSS. We have the power to use, modify, and distribute the source code (Pfaffman, 2008) because we have been “given enough eyeballs” to make sure “all bugs are shallow” (Raymond, 2005, p. 7). This is not only experimentation; we may also have a chance to change educational policy, because we are infusing OSS into our curriculum instead of solely being dependent upon proprietary software. This type of forward thinking provides a strong framework for diversity in technology, the student body, and student learning styles.

SurveyMonkey Open-Ended Questions

This section explains my next method of data collection and data analysis for Spring 2011. I decided to use OSS technology to the fullest by employing SurveyMonkey, Facebook, Delicious, and Twitter open source networks. I had never used SurveyMonkey, because I had always collected my data the old-fashioned way, on

foot and in person. I wanted to immerse myself in various forms of technology. I wanted to become proficient with OSS considering that technology is my topical area. I decided to join the 21st century revolution of social networking, which I have never before done in the past. My form of social networking has been limited to using e-mail and BlackBoard.

How I Got Started

The first form of OSS that I decided to employ was SurveyMonkey, because I knew that time was of the essence in terms of collecting my new data. SurveyMonkey's Basic Plan is an open form of technology that is free to licensed users who are creating various forms of surveys (SurveyMonkey website). However, this OSS also charges its user for more in-depth data collection and analysis through its Pro Plan (SurveyMonkey website). Spring 2011 was when I started to create my open-ended online survey by opening a new account with SurveyMonkey (Appendix D). It was a fairly easy 20-minute process, requiring me to input basic information, for example, username, password, and contact e-mail. I later noticed that SurveyMonkey had a Google icon so that I could link accounts and I decided to do so because I wanted easy access in case I forgot my SurveyMonkey password. Next, I began to input my questions for the respondents and I also created a restricted password for the Summer 2010 Bootcamp group. I thought that a restricted password would create an anonymous environment so respondents would feel more at ease when answering the open-ended questions. When I finished setting everything up, later on the next day, I metacognated and employed a technological journal, which was my Apple Notes. I stated, "SurveyMonkey was very easy to set up! I cannot wait to get some responses. I am so elated that I have a wealth of open-ended survey questions and one-on-one interview questions."

The next method of OSS technology that I joined was Facebook. I registered with Facebook on February 3, 2011. Everything on the site was easy for me to manipulate in order to set up my new account. For example, I inputted my first and last names, my e-mail address, my desired password, my gender, and my birthday (Facebook website), and I was logged in. Once logged in, I set up my profile page, which asked for basic information for example, education, work, my philosophy, etcetera. I made sure that what I put on my Facebook account made me feel comfortable. I am still very leery about what I put out in cyberspace due to the crime that I read about on the news as it pertains to Facebook and other social networking mediums. For that reason I made my account private, which allows me to invite who I want in my social circle. I only intended to use Facebook as a journal for reflective purposes while I was out in the field collecting data.

I became a member of Delicious, a social bookmarking site (Delicious website), on February 6, 2011. I utilized Delicious to house academic websites and journal articles to help me stay organized for the remainder of my study. All I had to do was use my Yahoo ID, which is my e-mail address and my password, to get started (Delicious website). Out of all of the social networking sites that I had joined, Delicious had the quickest process in order for me to create my account. I signed up with Twitter on February 6, 2011. I used Twitter as another form of journal for my reflective practices while I was out in the field. The only information that I needed to supply Twitter with was very basic -- for example, my full name, my username, my password, and my e-mail address. I accepted Twitter's terms of service and then clicked on "create my account" (Twitter website). I linked my Twitter with my Facebook account in an effort to learn how to use technology in a variety of ways. Again, I chose not to be found in the public

domain because of my security concerns. I found all of the social networking sites to be beneficial in learning how to use technology and also how to creatively apply it to my educational practice.

Backgrounder On CU's Laptop Initiative

CU has worked tirelessly to make students, faculty, and staff more comfortable by developing an environment more conducive to learning. It is important for all members to have access to knowledge through technological means and to also become proficient in using technology. For example, administrators have almost finished making CU a “wireless-computing campus” and have suggested to all incoming freshmen that they should have a laptop upon matriculating into their chosen field of study (CU website). In order for each member of the freshman class to have a laptop, CU has partnered with Apple and Lenovo. Apple will provide MAC OS-based laptops and Lenovo will provide Window-based laptops. Both Apple and Lenovo will sell their laptops to CU students at a reduced price, which will consist of back-to-school rebates (CU website). Even though this laptop initiative is a great concept, the majority of freshman students find even the discounted prices that both Apple and Lenovo charge to be too expensive for them to afford. According to a faculty member, “Most freshman students cannot obtain a laptop through this laptop initiative because they cannot use their financial aid toward the purchase of either an Apple or Lenovo laptop.”

Data Collection

Spring 2011 I created a letter to invite the potential participants to the SurveyMonkey link. I e-mailed the invitation (Appendix C) letter to each of the faculty members' CU e-mail accounts because I know that the CU account is secure. I e-mailed

this letter because I wanted the faculty to know that my research and data collection are legitimate. Even though I had spent three sessions with the faculty as a participant observer by attending Summer 2010 Bootcamp, I was not taking anything for granted. For instance, I did not take for granted that they remembered me, remembered my study, or that they were still interested in participating in the Computer Bootcamp. Upon sending out my invitation letters, I received rapid responses. I immediately logged onto my Facebook account to reflect and this is what I wrote on my wall:

I am so very thrilled, because I have two responses to my SurveyMonkey Implementation of Google Pilot Group!! I really love how technology works! I sent my surveys off today in the early AM and received my first response almost two hours later and my second response was recorded about seven hours later. Knowing what I have learned from my previous research experiences, these were the fastest responses I have ever collected. I also love how I am able to copy and paste the responses in order to analyze my data. So far, technology is my friend and not my enemy.

The next week I did not receive any responses, so I decided to e-mail a reminder invitation letter to all nine faculty members. After I e-mailed a reminder invitation letter, about two hours later I received a response and I tweeted, "I just received another response to my SurveyMonkey. I only need six more."

Data Analysis

I did not receive any more SurveyMonkey responses. I then decided to move forward with the data that I currently had. Even though I did not receive the 100% response rate that I wanted and expected to obtain, I am extremely grateful for what I have because I have four out of nine responses. That is 44% for my first attempt using SurveyMonkey. In my opinion, this is very decent for any outsider to obtain. In the next section I will expound upon my analysis of my data through In Vivo Coding and Evaluation Coding. I used In Vivo Codes that I thought had the most impact on my study.

In Vivo Codes are defined as using the participants' own words to express their perspectives and the researcher then encapsulates the participants' views in quotation marks. Evaluation Codes allowed me to explain the several themes that I discovered while perusing the responses. Evaluation coding allows the researcher to qualitatively express the participants' views of what was most beneficial, relevant, or what did not work for the participants while partaking in a project (Saldana, 2009). The emergent themes are: Technology is CU's Primary Route for Campus Communication, Enhancement of Technological Skills, Dichotomy of Attendance, Overall Buy-in Not Achieved, Varying Levels of Understanding, and Faculty Are Divided.

Technology is CU's Primary Route for Campus Communication

The majority of the faculty members who responded to my SurveyMonkey questionnaire indicated that they were informed about Summer 2010 Bootcamp via their Cicero e-mail accounts. I infer that CU wants to make sure that their faculty and other staff members receive adequate inservice training in order to enhance their instructional and or job-related skills in an effort to meet the needs of the campus community. I infer this because one of the faculty stated, "They e-mailed events for faculty and staff." That was how this faculty member discovered the Summer 2010 Bootcamp. It also appears to me that no one was excluded from participating in the Summer 2010 Bootcamp because it was open to all employees of CU. An inclusive learning community appears to be a goal that CU is trying to achieve through its advancement of employees' 21st century technological skills by providing access to knowledge.

Enhancement of Technological Skills

Overall the majority of the faculty viewed attending Summer 2010 Bootcamp as a positive educational strategy to broaden their instructional practices. One faculty member purported, that she “wanted to improve my teaching online. Needed new ideas.” Another faculty member expressed his reason was “to learn new technology.” The other faculty member had a desire for enlightenment and said, “Teaching Educational Technology courses --wanted to update the course syllabus.” Two faculty members felt that the only way they could elevate their level of becoming technologically proficient was through receiving the laptop that CU provided to faculty. One faculty member reported, “Having a laptop provided let me have more flexibility.”

Dichotomy of Attendance

The majority of the faculty members had incompatible schedules and it was very difficult to get everyone together. For instance, one faculty member indicated, “I went to the physical meeting but many email collaborations with Saul.” Another faculty member attended “about six times.” However, prior commitments prevented another faculty member from actively participating in Summer 2010 Bootcamp, which only allowed this individual to attend “two sessions.” This faculty member wanted to emphatically express that, due to circumstances beyond the faculty member’s control, total commitment was futile, but the desire and intrinsic motivation were there and never waning. This faculty member responded, “I wanted to attend more, but had scheduling conflicts.” I wonder if that faculty member’s response may be due to course overload. I am also concerned about overall communication because, as a participant observer, I only knew about three meetings. I was not contacted about the other Bootcamp meetings. I infer that there is a

dichotomy with attendance due to a breakdown in dialogue and also because most faculty members did not have the necessary time to commit to Bootcamp.

Overall Buy-In Not Achieved

Some faculty did not see the benefit of employing Google software as an alternative to Blackboard. Two faculty members stated, “I did not use Google.” A faculty member also perceived that Google is not a part of CU’s curriculum, because this faculty member expressed, “I stuck with Bb WebCT since that is what Cicero supports.” This is a very bold statement to me because I infer that most faculty believe that solely proprietary software is what is expected of them in order for them to facilitate learning. As this statement struck a dissonant cord within my being, I had to explore further by e-mailing a couple of informal questions to a technology expert from CDE. This expert informed me of faculty’s uninhibited approach to instruction, meaning that faculty are allowed to employ various types of strategies, be they open source, proprietary, or a combination of the two. By way of illustration, the technology expert said,

YES- faculty can use OSS for instruction, but... CDE has the right to refuse support for certain products, which is typically decided on a case-by-case basis. Due to an instructor’s rights given under Academic Freedom, CDE cannot prohibit a faculty member choosing to use ANY software for instructional purposes. However, if a faculty member decided to use an OSS product that CDE cannot support, then the faculty member must support the product his/herself. If CDE refuses to support a product, we always offer a supported alternative to the faculty member. Reasons for not supporting a product include (but are not limited to): lack of knowledge of the product operation, lack of resources (personnel), lack of funding, and timing (i.e., has the instructor given us a chance to prepare to support the product, or have they decided to add it to their course last minute?), know issues with the product, and poor previous experience with the product in question or similar products. To the best of my knowledge, there is no written literature regarding CDE’s use of open source software.

For the most part it appears that faculty at CU are allowed to think for themselves unless the political frame rears its head, creating challenges such as scarcity issues or just lack of

planning on the faculty's part. Also, OSS appears to be a policy issue at CU, considering that CDE has no directive for implementing it. Case in point, CDE's technological expert posited,

CDE uses very few open source software applications at this time. I think you would find this to be the case on campus, as well, but don't quote me on that. The primary issue with using open source software (OSS) to run an enterprise is that OSS is self-supported. For example, to deliver online courses, CDE could choose between commercial software -- Blackboard or OSS: Moodle. The advantage of Moodle is that it's free. However, it's difficult to install, maintain, and operate. There is no tech support other than the programming community, who has no requirement to respond to an emergency. CDE chooses Blackboard because we have a contract with Bb that obligates them to provide 24/7 tech support and ensure system up time.

As a leader this is where I interpret this faculty member's comment to mean that CU is not ready to support OSS as of yet because more "slow learning" (Fullan, 2001, p. 122) is needed.

Varying Levels of Understanding

As with any evaluation, a researcher always finds a range of experiences and perceptions within a diverse group of individuals. As a researcher, I must peel back the layers in the same fashion that I would pare the translucent skin of an onion in order to present each individual's unique perspective in an efficient manner (Glesne, 2006). Let me refer to the following statement in which one faculty member indicated that more time is needed to implement Google software, because Google proficiency has not been achieved and the faculty member is still learning. Therefore, the faculty member asserted, "I've used the Calendar but I need more instruction on other features." In opposition, another faculty member expressed, "I now teach my course from a Google class site and all of my students (130) create Google sites as their signature assignment/professional portfolio." This faculty member is not the only one who has been transformed from

employing solely closed source software. This faculty member proposed that her use of OSS was employed to the fullest because Google technology is used “in my other activities for campus work.”

Faculty Are Divided

Instructional practices differ among faculty at most educational organizations. This, too, remains the case at CU. As a follow-up question I wanted to dig even deeper in order to find out if Google software application had Malcolm Gladwell’s (2002) stickiness effect on the faculty’s ongoing instructional approach. One faculty member indicated that her use is “just the calendar” and another stated that Google is in her instructional repertoire “every single day!” The other two had no comment and indicated this by leaving the question blank. When it comes to continuing with Google software, a few of the faculty suggested that they will do so. Two propounded, “Yes, good way to share information when working cooperatively” and the other said, “Most certainly! Why -- It is a perfect setup for sharing files and managing calendars, bookmarks, and other items, especially between phones and computers.” In contrast, another faculty member is on the fence because this faculty needed some type of supportive scaffolding in order to persist, stating, “I want to, but I need some assistance.” I interpret this to mean that this faculty member has a more structured learning style. This faculty member needs more guidance through one-on-one interaction before this faculty member feels that their self-efficacy is high.

Open-Ended Surveys from Google Docs Training Session

My next data collection began with an open-ended survey (Appendix E), which evaluated both Summer 2010 Bootcamp and Spring 2011 Google Docs Training Session

that was held on February 23rd at Technology Hall Training Room A. When I walked in Training Room A I noticed that there were a lot of new faces and most of the individuals appeared to have friendly facial expressions. Some of the individuals even had their own laptops. A few of the faculty members had Thinkpad Laptops that were supplied to them from last summer's Google grant. When the class was settled and the facilitator was ready to begin, I did a head count. At first it was 17 people seated, including myself, and then three more showed up five minutes apart. There were three African American women, one Asian American woman, eight Caucasian women, seven Caucasian men, and one Indian man. I was interested in finding out if the initial individuals who participated in Summer 2010 Bootcamp decided to participate again, because I felt that their input would strengthen my study.

Based upon my observation, what I noticed during Saul's brief overview of last summer's computer bootcamp was that Saul had asked those who had attended Summer 2010 Bootcamp to "please raise your hands and share your experience." I raised my hand along with two other individuals. The two women faculty members decided to raise their hands in order to enlighten the group about how they employed Google to facilitate their students' learning. The first woman faculty member stated, "I used Google to create theoretical frameworks in educational leadership for the class to synthesize and post." The other woman faculty member indicated, "I had difficulty with 80 teachers participating because a lot had difficulty logging in with their e-mail because they were using their school accounts as opposed to Google accounts." Saul told her that a way that she could remedy this type of technological glitch the next time that she decides to implement this approach would be to "Specify a Tech leader to lead each group for the

Google Docs in order to differentiate instruction, because each student is on a different level of understanding when it comes to technology.”

I decided to evaluate the professional development so that I could gain a clearer understanding of the faculty and staff members’ attitudes toward Google’s OSS. In terms of attitudes, what I gathered from both observation and evaluation was that, overall, the attitudes were positive towards Google. As I perused the open-ended surveys and coded my data, I thought to myself, “Eureka!”, because various themes surfaced very easily. The themes that I thought were most applicable to give voice to my study were Outsiders, Awareness Through Technological Means, Engaging to Most, Basic At Best, Most Beneficial Strategies, Majority Will Move Forward With Google, and Most Will Register Again.

Outsiders

The majority of the respondents did not participate in Summer 2010 Bootcamp. Most simply were not informed: “No, did not know about it.” A few had other summer obligations, “No, could not fit it into my schedule” and “No, I was away.” However, what intrigued me the most was that some felt as though Summer 2010 Bootcamp was not meant for them, meaning they felt that they were not welcome. For instance, one of the participants said, “No, I’m not in the target audience.” Another stated, “No, not faculty and was not aware of the Bootcamp.” An additional participant suggested, “No-did not feel it was appropriate for me.” One more participant posited, “No. Why? Not aware of it. Teach online since 1998.” What I infer based upon the previous faculty members’ comments is maybe only a select portion of the faculty was invited to Summer 2010 Bootcamp because it was the pilot program. Also, maybe the staff felt as if there was a

hierarchy at CU and they perceived that they were not allowed to partake of the same experience as the faculty. It also appears to me that the departments operate as isolated silos without familial interaction across various disciplines.

The human resource frame has a huge gap at CU because information is not shared between departments or between faculty and staff. As a leader I think that the human resource frame can be strengthened through engagement in order to build and fortify communication across disciplines and employees. According to Tatum (1997), engagement is defined as engendering dialogue by giving a voice to those who have been silenced in order to resolve issues that keep individuals apart so an inclusive community of learners can be built.

Engaging to Most

Most of the faculty and staff enjoyed the Google Docs Training Session. They all felt as if a learning community was built due to the interaction with a diverse group of lifelong learners. For example, one of the participants indicated, “This is a great collaboration tool.” A couple of the participants were even willing to tell others about their experience with the Google Docs Training Session in an effort to promote awareness. One of the participants stated, “I’m interested in a number of ways we can implement this.” The collective word “we” suggests to me that this participant may share the newfound knowledge of Google software with his or her department. This statement makes me think about Gladwell’s (2002) word of mouth epidemic. Just maybe, if others who are interested had this same type of attitude, a technological tipping point could come into fruition on this campus. Being that OSS is such a new concept for instructional practices at CU, more training sessions are needed for both faculty and staff. A few

faculty are interested in having an active role in learning the process of applying Google software as part of their instructional strategy. In fact, one participant said, “Introduction of concept will encourage me to use the software.” I infer that faculty and staff have a need and desire to learn how to use OSS because they need to be able to support the Millennial student. Millennials are individuals who were born between 1982-2002. The millennial generation was born at a time when technology became very prevalent. Technology became a part of their habitual processes both professionally and personally (Falciani-White, 2008; Keeter & Taylor, 2009). My inference can be validated through another comment that I jotted down during my observation, because a faculty member retorted, “The faculty whole model of instruction must change in order to meet today’s students’ needs.” I guess that this change is taking so long due to “institutional inertia,” as one participant remarked. Looking through my lens at CU on a global level, I have learned that technology is far more advanced than policies (Falciani-White, 2008).

On the contrary, a few of the participants found that the session presented a challenge to their individual learning style. For example, a participant posited, I “would prefer a demonstration (interactive).” Two other participants indicated that they “would like more step-by- step.” One of the participants took an outlier approach because the whole concept of OSS appeared to act as an obstacle that thwarted the participant’s intended goal for the session in terms of engaging this participant. The participant purported that the training session did not really help “because I would have liked more specific ways to build a project.” The training session was entitled, *Explore Google Docs New!* “see how these apps can be used as tools for the classroom” (IR Training Services, 2011). I infer that the training session’s title and its description led this participant to

believe that this training session would be more intense in order for the participants to leave the session with a finished product to share with their students or coworkers.

Basic At Best

Prior to the Google Docs Training Session, most faculty and staff did not employ Google software at all on an everyday basis. As it pertains to instructional practice faculty members indicated that proprietary software was their first choice. For example, a couple of faculty contended, “Everything I use is on Blackboard” and “Always used Microsoft.” In addition some have used Google either in a learning community or at their leisure. For instance, a participant declared, “Used Google Docs in a group” and another participant professed “Gmail only.” One participant disclosed how Google Docs was used outside of academia when this participant worked with “older adults at church class” with “non- computer users.”

Most Beneficial Strategies

The Google Docs Training Session appeared to work as a model to bring faculty and staff together in a cohesive fashion. This professional development provided the framework that engendered inclusion among faculty and staff across disciplines and departments. Through this diverse group of learners the lines of communication may open more across the campus. Some faculty and staff shared the sentiment of building a learning community for themselves, their coworkers, and their students alike. To illustrate, a participant articulated that Google Docs fosters “the ability to share collaborative tools.” Regarding Google another participant stated, “hope to use to share with department.” An additional participant decided to give voice that Google Docs is “Easy to use, easy to access, easy to share.” As OSS relates to instruction it appeared that

a couple of faculty members believed that Google Docs taught them how to interact with their students better so the students will have the ability to work together better as a group of diverse thinkers. In particular, a participant learned “how to promote collaborative group work among my students in a more efficient manner” and a faculty member said that “using Google Docs to build group assignments” will be employed as an alternative in her teaching practice.

In opposition, a participant could not find the benefit in using Google as an alternative strategy and this participant felt as if something were missing during the lecture because this participant inquired about “Checking out Google intellectual property/security” and this participant also verbally recommended that Saul should take the time “to look into intellectual property issues” related to Google’s efficacy.

Majority Will Come Back

Based upon my observation and my evaluative open-ended survey, the Google Docs Training session was successful. The majority of the participants are looking forward to the next professional development, which will be held Summer 2011. Being that this inservice meeting was an informal overview of what Google Docs offers to its users, Saul was able to whet the participants’ appetites just enough to leave them hungry for more. The participants now have an insatiable desire to learn the process of manipulating Google Docs in order to use as an alternative approach in their professional lives. For instance, one participant stated that returning is definite in order “to learn more about the software” and another participant indicated, “Yes,” that I will attend because “I’ll be in a better position to contribute.” This participant is certain because “it’s a great group of thinkers to hang out with.” However, one participant emphatically specified that

their return is a “No” because “the message is obviously do it yourself. I don’t think another training session on that would be useful.” Another participant was undecided on coming back to any more Google Docs Training Sessions because “it depends on how well I teach myself.” Obviously these participants need to “receive feedback” and have support in order to move forward with this new form of technological medium. I infer that feedback will enable these participants to have higher levels of self-efficacy so that they can utilize Google Docs in their classrooms.

Conclusion

I have been able to have the privilege as a doctoral candidate to obtain a bird’s eye view of faculty and staff interaction during very valuable inservice meetings. I have also been able to both listen to and read very intimate feelings that faculty and staff have expressed as these feelings pertain to their attitudes toward technology at CU.

Superficially it appears to me that the majority of faculty and staff that I have observed want to become more competent in employing OSS. Faculty and staff also want to forge closer relationships with one another and I gather that they think that this will come into existence by having more professional development together built upon a constructivist framework.

Semi-Structured One-On-One Interviews

This section focuses on my last method of data collection. I employed semi-structured one-on-one interviews (Appendix F) because I wanted to gain an in-depth understanding of faculty members’ perceptions of the organization’s overall culture. As participant observer I decided to employ Values Coding and In Vivo Coding to analyze my data. Values Coding is the qualitative data that are taken solely from the participants’

perspectives, so that the researcher can understand the participants' lived experience in order for meaning to be acquired (Saldana, 2009). In this sense, values are what individuals consider to be significant to their overall life (Saldana, 2009). In this chapter I explain the faculty members' attitudes and beliefs as they pertain to technology on intrapersonal and interpersonal levels (Saldana, 2009) at Cicero University (CU). I am using In Vivo Codes to find emergent patterns and themes that are essential to elucidate the participants' points of view (Saldana, 2009). In Vivo Codes are data that are taken verbatim from the participants so that both researcher and reader are able to understand what is vital to the participant (Saldana, 2009).

Context

CU's structural frame is considered to be the primary frame when it comes to operating the university. The majority of the faculty whom I interviewed via semi-structured one-on-one interviews referred to CU as being "very transactional" and "very complex." Bolman and Deal (2003) postulate that the structural frame establishes the protocols, policies, positions, and objectives in order for any organization to function properly. In turn, according to the seven faculty members, CU is viewed as being "very politically charged." I infer that the political frame is CU's secondary frame. As stated by Bolman and Deal (2003), the political frame views organizations as being zealous where those who are employed by said organization struggle relentlessly for power and scarce resources.

At the commencement of this phase of data collection, I had invited 10 faculty members to participate; however, only seven responded. I decided to get a macroscopic view of Cicero's organizational culture in order to understand Cicero's microscopic level.

Therefore, I interviewed faculty members across various departments and disciplines who were not a part of the initial pilot program. Three of the faculty members work in the Education Department, one faculty member is employed in the Computer Science Department, one faculty member holds a technology position at the Distance Education Department, another faculty member is a technology expert and is assigned to Love Library, and the last faculty member is from the Physical Education Department. I am a firm believer in the Gestalt theory, which asserts that the “whole is greater than the sum of its parts” (Burke, Lake, & Paine, 2009, p. 592). Fullan (2001) posits that change will happen only when individuals communicate with groups of people unlike themselves. In this sense, change becomes transformative because this is the beginning of unfreezing individuals’ mental frameworks (Burke et al., 2009; Freire, 2000; hooks, 1994; Schein, 2004; Tatum, 1997; Watzlawick et al., 1974) I used this portion of my study to build relationships with a diverse group of experts. I succeeded in gaining both rapport and an understanding of their perceptions and in creating sustainable change across disciplines and departments (Fullan, 2001).

My participants’ years of experience range from 13 years to one year. It was important for me to have this type of range because I think that all of these faculty members have not only the mastery in their area of study, but they also have ability to gauge CU’s culture from its past to its present. This was important to me because culture is made up of what is shared, valued, and believed. Therefore culture is what is fixed within any organizational system (Schein, 2004). Understanding the rich history of CU as it pertains to change provided me with the information that I needed to understand CU’s current environment. The faculty member who has an administrative lens was significant

because her perspective provided me with a window to gain meaning of the political and structural frames so I could understand the culture. The faculty members from the Education Department were important because they enabled me to understand how technology impacts the classroom. Lastly, the faculty members who hold technology positions were critical because they allowed me to understand the *how* and *why* of technology implementation and the importance of various forms of technology. The technology departments also have a pulse on the faculty's and staff's challenges because they often work to mitigate technological difficulties.

CU's Value for Technology

The majority of faculty members have favorable beliefs when it comes to CU valuing technology, because they informed me that their departments have access to forms of technology. Based upon my observations at various departments, I can concur that CU has supplied them with a myriad of artifacts. Schein (2004) defines artifacts as things that are observable within the organization's culture, for instance, what an individual who is an outsider "sees, hears, and feels." These are the tangible and intangible products like technology, jargon, group interaction, emotions, and the values that are disseminated (Schein, 2004). One faculty member commented on the available technology,

I think we're doing okay. The building was built like six or seven years ago, so it's very equipped. The building was organized in a way to accommodate the technology that we have here today. We have two smart boards in the building and we have to document cameras that we lend out. We have our equipment like camcorders, Flipcams, computers, laptops. We are setting up for everyone to buy the iPad, we have iPods, we have IClickers. So I think we are doing good with technology. When it comes to technology we have it.

Another faculty member shared a personal view about Cicero's commitment to technology in education.

Cicero is pretty much committed to technology and...this commitment was developed as part of the Middle States Review back in I think 1998. There's been two Middle States reviews...during that time period over the time I've been here for 13 years and the first Middle States review...was when they actually looked at how technology was a part of our mission and our goals so technology has basically been integrated into our mission statement and our strategic goals and the second Middle States review basically revisited that commitment so Cicero is committed to using technology in education. A lot of our classrooms- just about all of our classrooms-are what's called the smart classrooms so technology is being integrated into teaching and pedagogy so we are committed to it and it's a big part of our mission and our strategic goals.

It appears to me as a researcher that CU does a great job with staying true to the structural frame of the organization, especially when it comes to fulfilling its goals and technology requirements. I infer that CU supplies the faculty with what they need on a tangible level in order for the faculty to meet the needs of their students.

Faculty Members' Value for Technology

I will now explain the faculty members' perceptions of how their colleagues' attitudes relate to their value of technology. As I combed through the data, I noticed that the faculty members' perceptions were split when it came to their individual departments. For instance, half of the faculty members affirmed that their colleagues do value technology. One respondent purported, "I think that they definitely value technology" and the other agreed by saying, "I think they do." Another faculty member explained the role that technology plays in a few departments.

In the computer science department, yes, and the engineering department. Most of the STEM majors' technology plays a large role... in the curriculum that we deliver and outside of the STEM majors other departments are also embracing technology I know that the arts department is doing like web design and graphics using technology ... A lot of the other writing departments are using technology

to assist students in learning... the subject matter... so again technology plays a large part in our overall delivery of education.

Most Faculty Do Not Value Technology

In contrast, the remaining faculty members believe that their colleagues do not value technology when it comes to their instructional practices. These faculty members provided me with lengthy responses. One respondent declared,

I think that the problem with technology is kind of like Social Justice. It's kind of a buzzword. People talk about it a lot, but they don't actually live it... Technology is one of the buzzwords in education right now.

As a leader I infer this statement to mean that some faculty espouse that they value technology. However, their theories-in-use are to avoid technology when it comes to walking the talk (Schein, 2004).

Comfortable With The Status Quo

The other faculty member indicated to me,

You'll have faculty and staff members who just want the status quo and who have no interest in what technology can do for them in terms of making their lives easier. They just see it as some other cumbersome thing that they have to learn. I can't say hands down -- yes, everyone accepts it.

I interpret this comment to have a lot to do with some faculty avoiding technology because change challenges competence. Often people refuse to change because change is a very emotional process (Evans, 1996). Some faculty members without adequate technological prior knowledge prefer status quo because this is where they feel comfortable. Thus organizational inertia may develop (Evans, 1996).

Resistant to Change

Concerning resistance to technological change a faculty member said,

As far as to get e-mail, I think that's the common usage and the word processing piece of it,... but thinking we probably do more online here, because of the hybrid

courses, but I have no sense that faculty particularly value that. They see it as an obstacle.

I interpret this statement to be related to Evans' (1996) change as loss theory, because some faculty view technology as the death of the old organization. Their basic underlying assumptions are what they value greatly and they have become a part of their personas. Technology infusion is seen as a threat because it challenges their antiquated assumptions. This is a major reason for resistance (Evans, 1996; Freire, 2000). I validate my interpretation based upon a faculty member's additional comment, "From a faculty perspective it's hardly used. You have a significant minority...who really does a good job of integrating it and embracing it." This comment is very similar to Argyris' (1990) Model I defense theory of action, which is counterproductive to the overall university becoming proficient with technology. This creates a defensive theory of action, which is the reasoning of malaise. Organizational malaise occurs when individuals do not believe that they also contribute to the existing problems within an organization because they are guided by their theories-in-use. Therefore they decline to work as a team to become committed to transforming the culture (Argyris, 1990).

Fear of Change

One of the faculty members goes even deeper as it relates to human emotions and why they think that faculty resist.

The faculty always don't really take the initiative to find out. They kind of just wait and say tell me how to integrate technology and tell me now. Instead of taking the initiative and say O.K. you tell me to use technology, well I am going to take the initiative and integrate it into my class. I think its partially fear. Education is kind of funny. Education in general talks about change, the evolution of knowledge, and the sharing of new things, but it is the single most resistant entity that I have ever come across and witnessed in my entire life.

A faculty member from the Education Department explains that the faculty espouse that they are open to learn about new types of technology, but their response is to not employ technology in their classes. For example, “The Education Department was kind of resistant; they are interested, but they never implemented it.” Another faculty member gives his perspective about the reason change is thwarted and organizational inertia remains persistent.

I think at Cicero there’s sometimes... a fear of technology- a fear of how it will change your job possibly for ill,... you know or just the fact as we dive into technology Cicero will become a Phoenix University,... and that’s a really big fear... you know to be afraid of it. It also stifles a lot of successes... and I agree that there need to be checks and balances... But some programs are hanging in the balance because of fear of if we put it online, if we use the technology... you know the in person program is going to disappear all together and in some cases that may happen in some cases. It’s just peoples’ fears.

I interpret this statement to mean that some of the faculty feel disempowered because they think that technology will take away the traditional in-person programs.

Disconnect Between Departments and Disciplines

In terms of CU supporting faculty members with technology, I received some interesting responses. CU’s espoused belief is to support faculty, staff, and students with technology, but the theory-in-use is to ignore requests for help. A faculty member explained her ordeal.

You have the actual technology department from IT, the Instructional Technology services they kind of provide technology for the University. They’re a mixed bag. They are kind of dysfunctional. They aren’t very service orientated even though their title says Instructional Technology services and you kind of have to make some inroads if you want to get stuff done.

A faculty member told me that the Distance Education program’s technical department provides their online faculty with a lot of assistance when it comes to training them to set up their online classes. This faculty member is an outsider looking in so this faculty

member tries to compare and contrast the online support team with CU's technical support as a whole. This faculty stated,

The online tech people do a lot of handholding, literally handholding from the time they walk in the door from the time their course gets logged. That's separate from the general university technology support, because they may not help you when you call...they may or may not come to your classroom when you need help and stuff like that. There's definitely a gap at the University. I think that it's a people gap. It's not necessarily a technology gap. Obviously we have the ability to buy all of this technology. We have new revenue that's coming into the University and that's all fine and good but if you don't have the people connection; if you don't have communication and if you don't have, how do you better integrate this into the curriculum? It's kind of pointless.

I infer that there is a disconnect, because faculty are not supported the same way across departments and disciplines. This is also a social justice issue because the faculty are not treated equally as it relates to instructional support. Ultimately the students who do not take online classes suffer. They do not get the full benefit of being immersed in technology during instruction because their instructor has had limited training and support. This may also be the reason that some faculty resist implementing technology; they do not receive the proper training and support. They may also know that one department gets more support than their department and this creates conflict, like an us versus them situation. This is where injustice creates a political battle between departments and disciplines and conflict becomes evident (Bolman & Deal, 2003). Resistance also becomes fixed due to the conflict and buy-in cannot occur within the culture because the faculty may feel that they are being silenced because their cries for help are going unanswered (Freire, 2000; Schein, 2004).

An Ethic of Care Emerges

Due to a lack of University technical support, one of the departments had to find its own way to provide support for its faculty members. The department's reasoning for this

was that they want to provide their faculty with training. They believe that their faculty should not become frustrated. This faculty member stated,

The problem is most of them here as I find them say that they are overwhelmed with working with technology. They will need training and time so that they can get used to it and that's the biggest issue. When I did a training session, they said it's very good but one session is not enough for us to know how to do it. They want some of them, not all of them, like the older generation that has been here. They really haven't got introduced to a lot of technology. They feel that they need step by step and they want you to be with them and show them how to do it. We are trying to do a lot of that.

This type of support is like an Ethic of Care for their community of learners. The Ethic of Care is defined as care, concern, and connection (Shapiro & Stefkovich, 2009).

Another faculty member shares this same sentiment because her belief is that inservice training is only effective when knowledge is shared with the entire University.

This faculty member asserted,

We started to offer trainings to all of the Cicero community instead of just in-house and I've been surprised with the amount of responses I've had. I thought I originally wanted the trainings to be geared more towards students but I'm actually having more specifically staff members attend with faculty being the second, you know, runners and the students last which is fine. I mean you know I'm trying to cater to everyone but I found that kind of interesting that the staff are responding more so than anyone else perhaps because their work is requiring them to do that to a certain extent.

OSS's Benefit

The majority of faculty in this study are aware of Google being used in different departments and disciplines. Google is being used on campus because it is not difficult to use and what is most appealing is that it is free to faculty, staff, and students. According to one of the faculty members that I interviewed about OSS,

It definitely helps any free software is perfect and we are using. I will talk about the Google calendar. I am using it in my office and it is perfect, it saves us a lot of money, and it is very easy and I like it. I think that it definitely contributes to the dissemination of information and it's good because students do not have to pay

for it. A lot of software the University has to charge the students and the students pay for it. I think that it has a lot more to do with Social Justice.

The faculty's comment in regards to the social justice piece is very important because this has to do with the University acting like an open system to share knowledge with all students. Also, through the social justice paradigm, OSS does not prevent those who are financially challenged from being included in the learning process. This makes Google beneficial to CU because no one is excluded from the use of using technology.

Google Docs seems to be the most popular form of OSS that this University provides.

OSS is in its infancy stage here; however, a few departments are using it as a supplement to proprietary software. One of the faculty revealed,

There are a couple of initiatives that I know about that are underway on campus... the instructional technology department is starting to explore open source software in the form of the different packages that Google offers. I know our search engine is based on Google... we're starting to explore the Google Docs where you can share and upload download documents across the Internet and I do believe that's open source and they are offering training on this...these initiatives I think are putting us on the road towards becoming really... frontrunners, I would say, in the use of open source software and we also use a lot of open source software in the computer science department... with like... Open Office that's an equivalent to... Microsoft Word or PowerPoint. All of the Microsoft products are open-sourced packaged that we use quite a bit here. We actually have integrated them into one of our classes that teaches computer literacy.

Proprietary Software Versus OSS

I investigated the faculty members' perceived reasons that OSS is not as prevalent throughout CU as proprietary software. The majority of faculty value OSS because it is free. One faculty member stated, "Open source is very good, but it also has certain limitations." I decided to dig even deeper so that I could understand what made commercial software a more reliable choice than OSS. One faculty explained that,

There are open source alternatives to Blackboard...while we consider them every time that it comes up for debate, we kind of shy away and move to the

commercial product, mainly Blackboard, and the open source product might be like Moodle...and the reason for that is the commercial products are guaranteed in place with our service and support contract. For example, there is a 99.9% up time guarantee to our hosted system. There is...guarantees of how the product will work. There is a guarantee of corrections, issues, or glitches found with the product...it doesn't necessarily make the product better than the open source product, but with open source, now we have to consider, are we going to support it ourselves? If you want to be self-supporting and really get the full benefit of free, you need the expertise in house who could be dedicated to that and has the knowledge base for that and you are probably going to have to pay for that anyway...so what does it cost to have a service like that anyway. To have a tech to do that for you, you know, can you pay this person \$30,000 a year? Probably not...you are going to have to pay this person closer to \$75,000 a year. Probably what will it cost you to license the software -- anyway, maybe less than that. Personnel is a very expensive commodity.

What I infer from this statement is that OSS places a lot of restrictions on faculty who do not have the resources to support the product and this could make implementation prove quite difficult. There appears to be a major scarcity issue because there is not enough technical support. CU cannot afford to pay many technicians, either. Obviously commercial software is more stable to use campus wide. Most importantly, commercial software may be more affordable when computer techs are not within the budget.

OSS As An Alternative to Proprietary Software: A Time Frame

I wanted to get a time as to when OSS would be accepted across CU as a whole. I wanted to understand why only one OSS product was used campus wide, namely Google software. I was interested in learning what made the implementation process so difficult. The majority of the faculty could not give me a definite date. One faculty member told me that any type of software implementation takes a lot of time and a lot of teamwork. This faculty member posited,

It's really tough because you really want to be careful that you're not setting yourself up for failure. You want to be careful that you're working within your budget and you are working within your resources and your means and you also have to stay competitive and that you put out a product that's at a reasonable pace

that everybody else is offering...that it also helps deliver a quality product for a quality education and a quality experience for the students so at the end how to utilize any of the software especially the open source stuff just because of the limited support the limited knowledge of how well it's going to work. We must be very careful of how we are going to integrate these things and how they work... and something that's a core product like Blackboard...not just an ancillary product or supplemental product that would mean a great deal of testing and before we move to a new version of Blackboard we were operating on Blackboard, which was originally the WebCt product for about three years. Then we gave ourselves over six months before we switched to the new product...because there were a lot of unknowns and that was a commercial product and that's lots and lots of unknowns ... that's been out over a year when we switched to it and we were still considered early adopters... the big push for it the end of life is actually Fall 2012. That's when most institutions countrywide will move to Blackboard.

Based upon this faculty member's response I now understand that software implementation is very difficult. If it takes CU computer techs six months to put proprietary software in place that is supported based upon the license agreement, I cannot imagine how long that it will take for the techs to implement OSS being that it is self-supported. I guess that OSS will take extensive slow learning (Fullan, 2001) in order to develop OSS into a quality product that will benefit the students that attend CU. A faculty member explained that he was unsure about when OSS would be more readily acceptable at CU because buy-in from the faculty and staff is essential. This faculty member said,

I can't give a specific timeline. It's all about what we want if it's going to be in an environment that's stagnant in terms of those 21st-century literacy skills, you know. Then we'll probably be in the same place in five years -- it just depends.

I also discovered that context is key because all departments do not operate in the same fashion. Context may be a reason that an exact date cannot be determined (Fullan, 2001). Some departments may be more advanced than others. The advanced departments may use a variety of software products. The faculty member stated,

I can't really put a timeline on it, because it all depends on the department and what the department's mission is...you know, some departments may move in that

direction sooner than others, so I really can't pin down a specific timeline for any of that.

Again context is a major issue based upon this faculty member's answer,

Well, on a University scale, I think that it will take considerable time. It's very transactional, top down, hierarchical at Cicero, so there's a lot of bureaucracy to cut through. Certain departments obviously embrace it and it's also a part of their profession...Education -- I don't think it would be different whether it's open source or proprietary matters, it's whatever works. If open source works that's great, but it's a lot of training.

I infer that this faculty member's reaction means that OSS may be easier to be self-supported based upon the level of experience that the faculty have in the more advanced departments. Also, the structural frame has a major influence on how CU is operated as a whole. So the structural frame makes it difficult for change to happen and this may be the reason that policies do not change. Lastly, scarcity is yet again the challenge because CU cannot afford additional training when it comes to OSS.

Human Resource Frame Revisited to Foster Organizational Change

I was interested in finding out if faculty members communicated with each other. I think that communication fosters transformation. I wanted to know if the faculty members invited their colleagues to professional development that had to deal with technology integration or support, especially OSS. The majority of faculty believed that the culture does not support interaction across departments when it comes to educating one another. One faculty member indicated that it proves to be onerous when trying to bring everyone together. I interpret this to mean that there are subgroups that are doing their own thing because they have values and beliefs that are different from their colleagues. There does not appear to be a guiding coalition because most do not work together as a group. This type of culture definitely does not support a learning

community. I infer that if a community of learners is not embracing technology on a united front, the constructivist model is in jeopardy. One of the faculty purported,

I think that it is very fragmented, honestly. I think that each department works good with each other, but I think that it's very fragmented. We don't share ideas or work together and we are trying to do that. Like we try to reach out to all faculty with events. I think that people are very busy and stressed out with work and I don't think that we work as the human resource frame. I think that it's more of groups, it's more of cliques, it's more political than the human resource frame.

I was interested in finding out from faculty why they thought that faculty did not work well together. This was important for me to find out because I think that collaboration is vital when creating any type of change, especially when an organization must achieve buy-in from the people. One faculty member informed me that the organization must create Model II type of change, which changes people's mental frameworks by unfreezing their old behaviors (Schein, 2004). The faculty member suggested,

No! I think it's because of the hierarchical, transactional, top down sort of situation. I have to also think that it's part of the culture that's evolved at the University. I think it's the animosity that's been built between faculty and administrators. It's the distrust, and there's no type of rationale for the distrust. I just think the environment, it has to be a major culture shift for any sort of positive human resource frame collaboration to happen at the University and I do not see that changing anytime soon.

Another faculty member agrees that communication and interaction between people are key to creating a new culture that is healthy and progressive. When I asked about the existence of collaboration, this faculty member said,

No. The isolation... I would say that this used to be a very open, friendly, accessible place, but now people are either in their offices or don't have time to talk. People are overly busy and...I think the morale is very low.

I infer this statement to mean that the CU once was an open system; however, now it is a closed system, meaning CU is not willing to accept input (Birnbaum, 1988). I think that everyone is trying so hard to keep up with the forces of change that the human resource

frame has now been forgotten. Now everyone is trying to adapt and cope with change alone, as opposed to working as a team with a diverse group of learners.

I think that in order for CU to return to its former years of working as a team, it must revisit the human resource frame and it must also reexamine the framework of the open source movement. A faculty member succinctly expressed the benefit of the combined action of a dedicated group of people who all have the same values and beliefs. I interpret that a rededication and recommitment to CU's mission will foster transformation, which will then become moral in purpose. This interpretation can be validated based upon one of the faculty members' responses,

I'm all about sharing and collaborating with others in terms of anything that I do here at Cicero or, you know, outside of Cicero...that's the whole mantra of open source. It's the whole idea of community and sharing and building in order to obtain an ideal goal which is obviously in this environment is to educate our students as well as possible, so collaboration is key.

I infer that this faculty member is dedicated to the true meaning of the constructivist model. This type of attitude is moral in purpose because she is committed to the learning community through an open form of learning.

My last phase of data collection proved quite interesting to me because many gaps were revealed. Gaps were presented to me in the forms of communication, scarcity issues, a lack of value for technology, and fear of change. I was aghast when I found out that there was a lack of communication across departments and disciplines during these one-on-one interviews. When I made this observation in the other section it was not so bad, but when I confirmed my inferences I was shocked. As a leader I know that communication is paramount because it is important for building relationships. The scarcity issues pertaining to supporting and training faculty members really concerned me

because I could empathize with their plights. As an educator I have had to use my own money to purchase materials because the school where I was employed did not have enough money in the budget. Technology is definitely moving forward on a continuous basis. However, it is very difficult to keep up when there are clogs in the educational pipeline. I think that the human resource frame needs to be restructured to help faculty gain trust of one another and the organization. Trust provides the framework for most relationships (Bolman & Deal, 2003; Lencioni, 2002). Moreover, this commitment to the human resource frame will foster value within the learning community. Hopefully this new commitment may erase the fear of change because this, in turn, will show that the human side is valued. If training and support were factored into this equation, the faculty may begin to value technology even more.

Chapter 5

Summary, Conclusions, and Recommendations

Summary

This chapter allowed me to attempt to answer the research questions. This is important because these questions are the driving force of the study. They enabled me to mitigate any areas in the research that remain unclear or unanswered so that, in the end, I am able to have a quality piece of research. I will explain the significance of the research based upon time spent in the field. I will also explain to the reader the process that I will take so I can follow up with the study in an effort to advance scholarship.

This research is very important because it reveals how in time OSS was implemented at a medium-sized, mid-Atlantic, four-year university in a more in-depth manner. This research explains why OSS is an empowering form of technology at Cicero University (CU). Also, this research matters because technology is revolutionizing the world, especially in the way we educate ourselves and others. Moreover, at this medium-sized, four-year, university we need to keep abreast of all forms of technology because we teach a diverse set of students with diverse learning styles and diverse socioeconomic statuses (SES). If we are to espouse that our university fosters diversity through race, gender, self-identification, learning styles, and disciplines, we also need to satisfy diverse students' needs with diverse forms of technology, especially OSS, so access for all is not only an espoused belief, it is also a theory-in-use on all levels. In addition, our faculty have diverse learning and instructional styles, so diverse technology would empower their learning and teaching in order to translate their knowledge to the students and vice

versa. Thus students can also be empowered. Diverse technology complements our educational goals for all students and faculty to learn in a manner conducive to their specific needs.

This project has the potential to change our university's policy for online, hybrid, and traditional education. The university may then move away from employing solely proprietary software. If this OSS project is successful, we may employ more diverse forms of technology, which may also encourage other colleges and universities to do the same. I see this research as Model II, which changes people's mental frameworks. Educational policies may change, but most importantly the university's schemata may change as well, so we can both unfreeze and refreeze as a whole in a collaborative effort (Schein, 2004). My perspective on how CU faculty may embrace and understand change is through moral purpose. In this sense a collective purpose must be embraced. This may be achieved by having open dialogue where everyone's voices are heard and respected so no one is silenced. In this way positive relationships may be formed and rapport may be built so trust fosters positive engagement. This type of transformative process may engender commitment on an intrinsic level so old habits are reshaped and new behaviors are learned on a positive level (Freire, 2000; Fullan, 2001; Lencioni, 2002; Schein, 2004; Tatum, 1997).

My Research and Aims Achieved

My study attempted to address the following research questions:

Did the opportunity to secure free laptops motivate the faculty to participate in Summer 2010 computer bootcamp training?

What were the challenges that faculty faced during OSS training?

Why did faculty decide to change from proprietary to OSS?

How do faculty perceive OSS technology?

The first research question was: Did the opportunity to secure free laptops motivate the faculty to participate in Summer 2010 computer bootcamp training? Based upon my observations, open-ended surveys, and one-on-one interviews, I think the opportunity for faculty to receive free laptops was a motivating factor. This professional development fostered extrinsic motivation so that the faculty would have some type of intrinsic motivation, which would encourage faculty to participate. This initiative brought together faculty from various disciplines and departments in a collaborative effort. I infer that most of the faculty were having a tough time with technology. The faculty were finding that technology proved to be quite challenging because their technology and instructional practice was rather dated. The faculty wanted to receive up-to-date technology in the forms of a laptop and Google Docs software. The faculty were also looking for an environment that they found safe so they could enhance their instructional practice through social means, as opposed to an isolated environment.

The next research question asks: What were the challenges that faculty faced during OSS training? The challenges that the faculty encountered were that a few did not receive laptops when the training began, most did not have enough time to attend the training sessions, and some were not being provided with enough one-on-one support with Google Docs. The few faculty members who did not have their promised laptops had difficulty keeping up during training because they did not have hands-on experience. Engagement is very important for various learning styles, especially for those who are visual and tactile learners. Time was another factor, because faculty who were unable to

attend did not have the ability to have active engagement with the Google software. This left them stuck because they did not have the understanding to move forward with Google Docs in a proficient manner. I infer that they were afraid to experiment because they did not understand the process of Google Docs. They felt that they needed more one-on-one support so they could learn the process in an effort to become proficient.

The question that states, Why did faculty decide to change from proprietary to OSS? can be answered in the following statement: I infer that the faculty made this decision due to CU's offer of both free instruction and the lure of free laptops. I infer that most people, especially educators, rush to obtain what is free because, most of the time, educators have to fund their own education and instruction. Therefore, this bootcamp was very tempting to those who decided to participate. I also infer that the faculty wanted to improve their technological instruction by infusing technology into Blackboard. The faculty wanted to learn a new form of technology because they grew tired of using their proprietary Computer Management System (CMS). They wanted to be more creative and less restricted in terms of their instructional practice. What I gathered from observation was that the faculty wanted overall technological empowerment for themselves and for their students.

The last question is: How do faculty perceive OSS technology? I infer that faculty at CU perceive OSS technology to be quite challenging, the same as anyone would view any other form of technology that is unknown or that is not taught through professional development. If technology remains challenging, most individuals become resistant towards it, because they experience undue angst. Even though technology is beneficial to some faculty members with access to it, they also find technology to be challenging due

to a lack of support. A lack of support creates a dissonant environment and this causes resistance when it comes to achieving overall buy-in. What I have also gathered from my observations is that most faculty had been passive when it came to technology, but now they truly understand that they must be active participators in order to receive the benefits of OSS technology. For example, one faculty stated, “I am teaching a class. I have a lot of questions and I know I will not have them all answered today. I just have to get used to this collaborative effort.” From this response I infer that most faculty may have received instructional manuals in the past, leaving them with total autonomy, but now through the OSS model the actor must participate with others to learn how to use the applications. In order to achieve the goal of learning the process, Saul told us, “Time, patience, and do not get frustrated. Keep plugging away, don’t stop.”

Conclusions

Based upon the findings of my study, I have made the following conclusions:

Faculty members needed incentives to increase their intrinsic motivation.

Faculty members needed time to cultivate their understanding of technology.

OSS trainings brought faculty members together in a collaborative effort.

Recommendations

CU needs to work on creating a more inclusive learning community for all faculty and staff.

CU needs to have workshops that focus on building trust so that communication is more positive.

CU needs to find alternative approaches to support faculty and staff through technology.

Scarcity issues prevail on CU's campus and these issues are in the form of resources. For example, there was a lack of much-needed funding for trainers and resources. I think that graduate students need to be utilized more to support faculty and staff with technology. These graduate students should be given work-study credits or internship credits to train faculty members who are not yet proficient. I suggest this because many Millennials are very proficient when it comes to using technology. In an interview, a faculty member stated,

The new cohorts, the new graduates that are coming here to Cicero are very good and they know a lot of things. The new generation comes here and they have a lot of new ideas when it comes to technology; they want to use a lot of technology. I think that they even add to the culture of technology. Whereas some of the faculty are not very savvy, some of them who have been here are not used to the technology. They didn't graduate recently from college and all of our new graduates are very supportive of technology.

I think that this quote is most appropriate because students and faculty are already learning from one another, so this would provide another teachable moment for both. Another way to improve scarcity issues that relate to training is to utilize the few faculty members who are proficient. The proficient faculty members should be able to apply for adjusted workload in an effort to mitigate CU's financial burden. O'Quinn and Corry (2002) discussed the importance of incentives for faculty members because incentives foster buy-in. In addition faculty members should also write grants or seek funding from local business owners or from organizations that they are professionally affiliated with to promote fund raising initiatives.

Conclusion

I felt honored to have been able to participate in this OSS study. As a doctoral candidate I have been able to experience the faculty's and staff's lived experiences

through a cutting edge form of technology. I hope that this research project was able to transform the schemata of faculty and staff of CU as it relates to technology. As a result of this project my leadership has been transformed because I have really gained an appreciation for different forms of technology. I know that technology must be incorporated in every aspect of my life on a daily basis. I have learned what OSS is all about from a wealth of peer reviewed research articles. I hope to apply what I have learned both inside and outside of academia. I also aspire to merge what I have learned with others as a lifelong learner in this technological social revolution in an effort to advance scholarship and foster sustainable change at CU.

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Appendix A

Leadership Theory

Leadership Defined from My Perspective

My definition of leadership is unifying the whole. I relate this to the gestalt theory, which contends that the whole is greater than the sum of its parts. Unifying the whole is not easy because everyone must be of the same accord. This can only come to fruition by way of transformation. Transformation changes frameworks/schemata of all involved in the leadership equation. Transformational leadership is when individuals unite in such a way that they are elevated to higher levels of morality (Burns, 2003). Individuals change by the whole being unified through shared beliefs and values. Building relationships is key to leadership (Burns, 2003).

Moral purpose should always be the compass throughout the leadership journey. The means are more important than the ends (Fullan, 2001). When the whole is unified based on a moral purpose everyone benefits due to the positive nature of the leader-led equation, which is paramount for long-lasting relationships. Leadership is built upon strong and positive relationships, which are key to survival in all systems (Burns, 2003). Transformation of schemata must begin with self. I must be transformed first to foster change in others. To do this I depend on emotional intelligence. Metaphorically speaking, emotional intelligence is the lens of transformation (Goleman, Boyatzis, & McKee, 2002). According to Goleman (2001), the four dimensions of emotional intelligence are self-awareness, self-management, social awareness, and relationship management. I will

discuss the four dimensions of emotional intelligence further in my theories in use section.

My Core Values

I am molded based on the core values of spirituality, love, close relationships, lifelong learning, dedication, persistence, accountability, compassion, empathy, integrity, honesty, and being fluid. My core values are the framework that I stand upon. I will expound upon how these core values have shaped and continue to shape my persona. Spirituality and love was formed at a very early age. I was always taught to honor and revere God and His Son my Lord and Savior Jesus Christ. I was taught that God the Father and Jesus are the center of my life and everything else surrounds them.

My strong Christian values have been my light through both good and bad times. This was the establishment of my moral purpose as a leader. Love comes from faith and my spiritual connection with my Father in heaven. I have always held close relationships near and dear to my heart. Family is very important to me and so are friendships. My love for relationships started at home and blossomed throughout my life. Lifelong learning is important to me because I must receive all forms of knowledge and decipher what is credible and not credible. In order to do this I must remain open to knowledge and share knowledge because knowledge is only powerful and important when it is shared.

Dedication and persistence complement one another and these are especially important qualities to complete challenges like the dissertation. I am compassionate, empathetic, and honest, and I practice integrity in all aspects of my leadership. I have been successful at practicing all of the aforementioned traits by remaining fluid in all situations.

My Role Models' Qualities

My mother and my late grandmother both possess transactional and transformational leadership qualities. Transactional Leadership is when one individual makes a connection with others for the purpose of exchanging something of value. Transformational Leadership is when one or more persons participate with others in such a way that everyone in the equation raises each other to higher levels of morality and motivation (Burns, 2003; Wren, 1995). In terms of transactional leadership I was always taught that I must work hard in school to achieve good grades. At home I must be respectful and do my chores to get some type of reward. When I did right I was always rewarded and when I did wrong I was always punished. My grandmother's saying was "Life is hard but it is fair." In regards to transformational leadership I was taught that love for self, family, and others is unconditional, that my word is my bond, and that I need to stay devoted to what I hold near and dear (Wren, 1995).

My mother and late grandmother were both relentlessly devoted to me during my childhood. Education was always the topic for discussion in our household. My grandmother would often talk about her late uncle who was a dentist in Nashville, Tennessee. My grandmother would often say, "You must go to college and try to get your master's degree." She would say, "An education is one thing that can never be taken away from you." I always enjoyed her motivating refrains. Then my grandmother would tell me that her uncle Dr. Lemuel Arthur Bowman became a dentist during very challenging times because he had graduated from Meharry School of Dentistry with a doctorate of dental science in 1912. My grandmother also told me, "He was also a God fearing man." As a young child his legacy inspired me because I learned to always stay

humble and that I, too, could achieve anything as long as I have faith. His legacy, as well as my grandmother's legacy, inspired me to become a member of Zeta Phi Beta Sorority, Inc., because he was a member of Phi Beta Sigma Fraternity, Inc. Phi Beta Sigma Fraternity and Zeta Phi Beta Sorority are the only constitutionally bound brother/sister organizations.

As a child my learning also came in all forms like cooking and baking together, going to church, attending plays, crocheting hangers and lampshades, making pottery, gardening, taking trips, and participating in different cultural events. I always did something with both my mother and grandmother that related to gaining knowledge and transforming all of us as a whole. Whenever I participated or completed something of value my grandmother and mother were taken to a higher level of appreciation. My mother's desire to become a funeral director further influenced my decision to choose funeral service as a career. My grandmother's background as a certified teacher also shaped my mind to choose the educational career path. These two women exemplify transformational leadership.

The servant leadership role was further molded when I would assist my grandmother in the church's kitchen. We would help bake and prepare meals for church functions like the anniversary, and women's and men's day. I was also taught to help elderly neighbors by raking, shoveling snow, and going to the store for them. All of these duties were performed without pay. I was taught that I was not always going to get paid for everything I do, but that I should offer help to those in need. I was always told to be of some type of service to others.

Leadership Theories that Inform My Practice

Based on my upbringing I identify with emotional intelligence and transformational and servant leaderships. I will expound upon how these leadership styles connect to my careers as both a licensed funeral director and as an educator. Emotional intelligence is defined as the way leaders cope with themselves and how they manage their relationships with individuals. Self-awareness is a competency of emotional intelligence that connects with me very well (Goleman et al., 2002). I agree with the Delphic oracle recommendation, which is an individual must “know thyself” (Goleman, 2001, p. 6). Also the suggestion of William Shakespeare’s Hamlet that resonates with me is “This above all, to thine own self be true, and it must follow, as the night, the day, thou canst not then be false to any man.”

I am self-aware because I am genuine. I love to always be myself in any situation whether at home or in my career. As a licensed funeral director I am always honest and trustworthy with my clients, or as I love to refer to them as, my families. I let them know if I am knowledgeable or unsure about an aspect of funeral service. I never pretend that I know something and I never use covert means when it comes to serving their needs, I always exercise overt means.

I know that word of mouth can make or break any business and businesses are based on relationships. I need to have positive relationships with my families, coworkers, the state, federal agencies, and other organizations. My moral compass demands that I do right by the families that I serve. Falsehoods tear relationships to pieces and jeopardize the growth of the funeral home and will ultimately place the industry in a bad light for all funeral directors. Falsehoods create dissonance. I have found that being authentic has

helped me grow as a leader in funeral service. As a leader at the funeral home where I work I am always self-aware as it pertains to my colleagues. I have always been genuine in terms of my strengths and weaknesses because when we are all working a funeral service there are no dress rehearsals. Everyone is watching and this is the families' final farewell that will be indelibly imprinted upon their brains. If I look bad or if they look bad under my guidance we all fail as a team. I communicate and have open relationships with my colleagues at all times. I never let them feel bad, especially if they make a mistake, because I always share with them some of my blunders and this lessens their fear, pain, or embarrassment. Self-awareness has been key to maintaining relationships in funeral service.

As an educator I am self-aware because I always instill my own values into the young minds that I teach. The children always have told me that they, too, love reading because they can tell that I enjoy it. The children told me that they know that I enjoy teaching, because I am always prepared; I always have models, and props. Teaching children and learning from them enables me to constantly create a vision for the future and also articulate it to them.

According to Goleman et al. (2002), self-management allows leaders to use introspection to regulate emotions. This competency is very beneficial to me as a funeral director because families come to the funeral home with a myriad of issues relating to death. I never treat families rudely, especially when they may be rude to me. I am always able to handle them with kid gloves. Before I had suffered a loss I always tried to put myself in their shoes. Now that I have suffered a loss I think back to my loss and I

intensify that by infinity and this allows me to manage my emotions and to answer sensitive topics when I am asked what I would do by grief stricken families.

My transparent nature also fosters hope to families when I am asked how I made it through the agony. My transparent persona gives families hope at their darkest hour of need. In my career as an educator I must exercise self-management with the children that I teach since I am their role model. Whenever they become unruly I never yell at them. I always think back to when I was a child and ask myself what do children really want? The same question always comes to mind and the answer is praise. I praise the ones that are on task and the ones that are off task usually respond to the positive stimuli and get back on course.

Social awareness is another dimension of emotional intelligence. Social awareness is the leader's pulse on the group. Empathetic leaders listen to others with their eyes, ears, hearts, and always speak with kind and loving words. Empathy is the vehicle for resonance (Goleman et al., 2002). In funeral service, arrangements must be made for bereaved families. Even though this is the business aspect of the profession, I understand their plights and save the casket selection for last because I know that this is the most important part of the funeral ritual and I know that families must take their time and select carefully. The casket symbolizes finality. I put myself even deeper in the bereaved families' shoes and I listen, love, and hug a lot more. A dimension of social awareness is empathy, which allows the leader to pay attention to the spoken and unspoken messages of the group. A leadership competency of emotional intelligence is self-awareness and its dimension is service; that is when an individual must meet the client's needs (Goleman et al., 2002). As an educator I take my time with all children; however, I am more partial to

the strugglers. I am partial because I do not like to see anyone left behind and become frustrated. So I pay very close attention to my students' body language and demeanor. I always encourage and praise their efforts. I am truly empathetic to their wants and needs.

An emotionally intelligent leader always models the last of the four competencies to their colleagues and that is relationship management. Relationship management is understanding how to handle the emotions of others by encouraging change and developing camaraderie. At the funeral home, meetings are encouraged even though time does not always permit due to the busy schedules and demanding workload. This does not stop me from finding out what is wrong with my colleagues and I try to find a way to mitigate the situation. I always find it necessary to edify others intellectually, spiritually, and through uniting my colleagues by building positive relationships among the group. Where there is chaos within the relationship I try to transform it by encouraging open communication.

Working with children has helped me to further see my transformational leadership ability. I started in the teaching profession as a substitute teacher in 2004 at a Federally Funded Title I school in Philadelphia. This is when I learned and believed for the first time that my English background was important. I found out that many children and their parents could not read or write. Their lack of knowledge saddened my heart; however, it pushed me to continue my education to eradicate illiteracy in low-income communities. I have always been passionate about reading. My passion for literacy is something that I want to share with others so they, too, can become lifelong learners. Kouzes and Posner (2007) state that transformational leadership enables individuals to unite in order to develop into a whole by elevating one another through moral and ethical

means. Motivation is developed, both intrinsically and extrinsically, for both the leader and the led and the shared vision comes to fruition.

This is why I started working in the public schools more, and much less in the funeral industry. When I started transforming children's lives my life transformed, too. The way I began transforming children's lives was when I worked as a literacy teacher in grades kindergarten through sixth. I taught the children that they could learn how to read and write while playing games, creating plays, reading more in groups, and reading independently. The children were no longer afraid to learn. Transformational leadership is moral in terms of raising the leader and the led to higher levels of motivation and engagement (Wren, 1995).

The children became active in their learning process. Some children even developed metacognitive strategies like working independently and using higher order thinking skills for their assignments. Metacognition further allowed children to help their peers who were struggling. These successful readers helped the struggling students make text-to-text, text-to-self, and text-to-the-world connections. Vacca and Vacca (2003) express that metacognition is thinking about thinking and knowing about knowing, being aware of and controlling the learning process during reading and writing. The children started to believe that books were their friends. This friendship built much-needed confidence in the children.

I also tutored, without pay, struggling children in the morning. Their parents often asked me for strategies and books so they could continue to help their children at home. Some parents who struggled even asked me to help them with their reading so

they, too, could help their children. The special education kindergarten through second grade class that I had taught was a positive experience as well. These children showed me how differentiated instruction was beneficial to children's learning. I learned a lot from them. I watched them grow academically and emotionally. Servant leadership is listening to the needs of others and serving those in need (Wren, 1995).

I really was able to teach them how to read across the curriculum by using differentiated instruction and Dr. Howard Gardner's Multiple Intelligences. Differentiated Instruction recognizes that children come to the classroom with varying backgrounds and competencies. It enables educators to engage in similar educational processes with the anticipation that individual answers will be varied (Strickland, Ganske, & Monroe, 2002). Multiple Intelligences is a theory of intelligence that characterizes human intelligence as having multiple dimensions that must be recognized and expanded in education. The theory of multiple intelligences is based on the work of psychologist Howard Gardner, who identifies eight intelligences: linguistic, mathematical, spatial, musical, kinesthetic, interpersonal, intrapersonal, and naturalist. The theory has been applied to education where an attempt is made to provide learning activities that build on learners' inherent intelligences (Wlodkowski, 1999).

My life was further transformed in 2005 when I decided to go back to school to work on my master's in reading at Lincoln University located in Philadelphia, Pennsylvania. I chose reading because it encompasses all subjects. I plan to continue working in urban areas because illiteracy is rampant in these areas. I am currently certified as a Teacher of Reading and I will continue to transform more children's lives. Upon graduation I plan to use my doctor of educational leadership degree in the fields of

reading and leadership. I am determined to enable struggling children and adults to achieve proficiency in literacy for lifelong learning to be achieved. I will accomplish this goal by creating a non-profit reading clinic that will be opened year round in an urban community.

I remain committed to opening a reading clinic because I know that this will help struggling readers and give them a part to play in this ever-changing 21st century global society. I will also instruct at both undergraduate and graduate levels in the field of reading, in hopes to impart and ignite the same burning desire that I have in regards to literacy. I believe in becoming “The Talented Tenth” that W.E.B. Dubois discussed, practiced, and wrote about. The Talented Tenth is ten-percent of people who are willing to offer themselves as servant leaders. These leaders are willing to love and serve all people for the elevation of the masses to come to fruition (Wren, 1995, pp. 78-80). I will also publish my collection of children’s books that are based on my mom’s Yorkshire terrier that died six months after my grandmother had died. I want to publish my collection of books to start youth on the road of success in terms of reading. I also plan to help others improve on their leadership because I want to create leaders of leaders. I will do this through scholarship and training.

Greenleaf (1991) posits that the servant leader’s desire is to make sure that other individuals’ needs are being met. It is paramount that other individuals are served and cared for in a proper fashion. Servant leaders have an innate ability to serve others first. Serving others enables the individual to then ultimately lead. The servant leader also serves first by listening, enabling, developing and supporting others. As a funeral director this connects well because I truly provide a service to my families. Whatever they need I

work tirelessly to provide. I make them feel very safe and comfortable. I let them place their confidence in me. I never make promises that I cannot keep (Giuliani, 2002).

I have noticed that by humbling myself to my families I am able to lead them. They listen and are not skeptical of my intentions. The families that I become close with are like an extended family. Within this extended family we share a lot. This sharing entails love, strength, encouragement, spirituality, and moments of catharsis that bring us closer. The funeral profession is deeply rooted in spirituality and unconditional love for others. This field helps me find balance. This balance comes from knowing that even though death is viewed as a cessation of life it also brings new beginnings in terms of relationships and self-renewal. I want to hone in on this transformational and servant-leader ability and make an even bigger impact for years to come. I am able to establish these long-lasting relationships with families because I treat them like human beings who have needs and feelings. The symbolic frame focuses on meaning, belief, faith, ritual, and ceremony, which comprise the heart of the organization's culture. I believe that moral purpose is important, because the means are more important than the ends (Bolman & Deal, 2003; Fullan, 2001).

My Research Connected to my Leadership Theory- in-Use

A leader is anyone who wants to help others and be a catalyst for change. I want to help and work with others to try and mitigate illiteracy. Illiteracy is very prevalent and very dangerous (Lytle & Botel, 1998). I want to try to help people transform themselves. Educational leadership will further enable me to achieve all of my desired goals. Educational leadership will give me the tools that I need to become effective in leading others, while also allowing me to learn from others because the world is a classroom.

Reflecting upon epistemology and ontology: what is knowledge and how do I know what I know? My core beliefs and values answer those questions. I have been an emotionally intelligent leader throughout my research project. I have employed the following four high emotional intelligent leadership styles: Visionary, Affiliative, Democratic, and Coaching. Visionary leaders inspire and create a clear perspective and some type of structure for all who contribute. I have gained the visionary leadership perspective from the data that I collected from the faculty and staff. I have been able to make an empathetic connection to what the faculty and staff all need based on some of their shared values. I have been able to be extremely empathetic to their needs, desires, wants, and values because as a participant observer I have witnessed and experienced some of the challenges that they have articulated. I have been capable of listening to them through observation not only with my ears, but also with my heart. My heart sees, speaks, and understands from all of their perspectives (Goleman et al., 2002). This is the essence of the human resource frame, because I must honestly express the needs of the participants through written language (Bolman & Deal, 2003).

My affiliative leadership style allowed for me to focus on how the participants were doing emotionally throughout my dissertation journey. I constantly used an empathetic lens to try to locate both the spoken and unspoken language of the participants (Goleman et al., 2002). The symbolic frame is tantamount to affiliative leadership because it encourages individuals to converse about stories, myths, and rituals. When I conducted my research, I expounded upon their stories that gave voice to their perspectives through the data (Bolman & Deal, 2003).

I have always appreciated the law of the few; however, I am now able to recognize, appreciate, and apply it as it pertains to my dissertation. I now know who are the mavens, connectors, and salesmen on Cicero's campus. The law of the few deals with a minute amount of people who have the finesse to evoke change. Mavens actively collect and share their plethora of knowledge with others. Mavens like to connect people with information to edify others as well as themselves. Connectors join the world together and they are surrounded by a variety of people from myriad backgrounds. Connectors believe no world is separate. They truly know how to synthesize the world. Salesmen have the gift of gab and are quite confident in their approach. Salesmen have the talent to persuade others who often have doubts. Mavens, connectors, and salesmen are all able to ignite word-of-mouth epidemics on the social level to build strong relationships and to spread knowledge (Gladwell, 2002).

I noticed that by having mavens, connectors, and salesmen allowed for our bootcamp to have shared leadership. We all shared our leadership on our own terms, because we were willing to come out of our comfort zones. Everyone took charge in their own way to learn how to use Google Docs. Our synergy was even more evident when everyone was engaged in group discussions. This bootcamp further allowed me to appreciate John Donne's *No Man is an Island*, which also gave voice to the "Law of the Jungle," because the strength of the team comes from the team members and the team members' strength comes from the team (Stowell & Mead, 2007, p. 38).

My Connection to Social Justice

As a human being I was always taught to value the Golden Rule, which is to do unto others as you would have them do unto you. I have definitely internalized the

Golden Rule so that I can remain human by constantly being empathetic to others. I perceive social justice as being similar to the Golden Rule, especially in terms of equality for all. I also see equality as the bridge to freedom. Without freedom, inequality remains evident to those who are often marginalized, especially within an educational setting (Emmison & Frow, 1998; Jesiek, 2003; Larreamendy-Joerns & Leinhardt, 2006; Nuvolari, 2005; Pfaffman, 2008; Stallman, 2010a). As a human being, as an educator, as a leader, and as a researcher I maintain a duty to promoting equality for all by being a voice for those where equality is void. As a researcher for this project I wanted to capture the wants and needs of the participants so change may occur someday. I also have a vested interest in the social justice paradigm, because I have been very fortunate to be able to advance my education and to also have access to technology. I will reiterate that if I have freedom I want others to have freedom as well. Also being that I intend to have a career in higher education, I thought that it would be paramount for me to learn more about technology in order for me to infuse technology into my instruction. I want to be able to model the behavior that I expect to see from my students and I also would like to make sure that all students learn through the use of technology and I also want to make sure that all students have access to technology.

My Change Philosophy

I will incorporate Michael Fullan's (2001) Five Components of Leadership, which entail Moral Purpose, Understanding Change, Relationship Building, Knowledge Creation and Sharing, and Coherence Making. I need this author to guide my efforts to produce change within self and to also understand my current research context as a

participant observer. The change that I want to see in myself is to know if I am continuously walking the talk. The change in my context is to learn if technology is valued amongst faculty, and if change is not valued, I hope that my research will provide a framework for change.

Moral Purpose

As a participant observer in this research project I know that my purpose was indeed moral. I took a risk studying technology because I really did not know much about the topical area. I used positive means to improve my understanding of technology. As a leader I was dedicated to transforming my schemata so that I could welcome and accept change. I had to first unfreeze my schemata in order to get rid of the fear and the resistance that I had when it came to learning about new types of technology. Next I had to refreeze my schemata by incorporating new types of technology into my daily life. I will now be able to share what I have learned in the bootcamp with my students (Schein, 2004). My means were to research intensely, so I could learn and contribute to scholarship by sharing a sustainable research document with the educational community that may enhance the quality of educational delivery for future students.

Understanding Change

The way that I was able to understand change when it came to implementing OSS was to view it from a bottom-up perspective. I knew prior to going into the bootcamp that buy-in was key in order for change to occur and for change to be sustainable. This is the reason that I listened attentively to the participants and worked hard at empathizing with them at all times. I took the time to understand and accept that change is very complex and very emotional. In terms of complexity I knew that resistance would play a huge part

throughout my data collection. This may have been due to change occurring so quickly that the participants did not have the time to implement a Google website for their classes. Change is also viewed as loss, so the participants may have been highly emotional because they had to learn new technologies at warp speeds. This may have been the reason that some of the participants resisted when it came time to give responses. I appreciated the participants who expressed resistance towards OSS because I think that their voices should be heard, too. They are not trouble-makers. I think they may be saying that they need to learn more about OSS, that they need more support, or that they need more time to implement OSS into their instruction. This resistance is diversity at its best, because varying perspectives must be heard and respected for buy-in to be achieved, and they are essential to transforming organizational culture (Evans, 1996; Fullan, 2001).

Relationship Building

As a leader, I am continuously working on developing meaningful relationships. I tried to talk with everyone individually in order to learn their personalities and learn from their perspectives. Communication is key to building relations and relationships are the linchpin to both individual and group success. Relationships are extremely important in order for me to lead with excellence. I know and understand that skillful leaders need to surround themselves with individuals and groups from diverse backgrounds who are unlike themselves. As a leader I possess high levels of emotional intelligence and I know that I must be tactful, sincere, compassionate, and have respect so the collaborative efforts of the team can be achieved. Again, I use the lens of both egotism and altruism, because that is paramount for relationships to grow and sustain (Fullan, 2001).

Knowledge Creation and Sharing

During my research project I learned the real importance of creating and sharing knowledge within a community of learners, because sharing is moral in itself. In order to share knowledge, individuals must be committed to transforming themselves as well as others. In order for this to occur one must remain open to change as a leader. Therefore, the organization's culture must also invite knowledge creation and sharing. I saw this occur within our bootcamp that was built upon a constructivist framework. Moral purpose helped to cultivate this environment because trust had to be built in an effort to foster a culture of sharing. I enjoyed observing and working with people from diverse backgrounds, because I was able to appreciate different viewpoints. I also learned that we have one thing in common and that is being committed to lifelong learning for ourselves and for the students that we teach (Fullan, 2001; Lencioni, 2002).

Coherence Making

As of this time I see the initial bootcamp and the beginning Google Docs training session as a bit chaotic because everything was very informal. Looking through my leadership lens I observed many unknowns and I was left with a lot of uncertainty. I became morally committed to "slow knowing" because I wanted to find balance. This is the reason that I delved deeper into my research by seeking more in-depth responses from participants, so I could take my time to understand the faculty's diverse dilemmas. My dissertation is the archetype of me learning in context in an effort to refine my leadership, because through this experience I was able to really value my tenacity and to also stay true to who I am (Fullan, 2001).

Burns (2003) indicates that relentless transactions over an extended time can create transformation. In terms of leading, a leader must exercise relationship management. First and foremost, a leader must be authentic. Authenticity in this regard refers to leaders being aware of their vision, wants, and values that are then connected to the group's emotions, thus their relationship management allows them to connect in such a way that initiates resonant behavior for all involved (Goleman et al., 2002). Morris, Brotheridge, and Urbanski (2005) assert that emotional intelligence, supportive relationships, socialized power, and participative leadership are the essence of predicting higher levels of humility in a leader which produces effective and long lasting change. Wheatley (2006) indicates that fostering authentic relationships leads to ownership. Individuals always embrace what they create.

If a leader exercises four of the highly emotionally intelligent leadership styles and really focuses on the visionary, democratic, affiliative, and coaching styles it will have the stickiness factor. Gladwell (2002) suggests that the crucial component in all epidemics is the nature of the messenger. The messenger knows that the content of the message and the approach aid in its success, enabling the stickiness factor to make a positive impact. This stickiness factor fosters buy-in for accountability and sustainability to come to fruition.

My Project Strengthened/Challenged Leadership Platform

My project strengthened my leadership platform. I found strength because I continued to focus on my leadership styles in both good and bad times. Overall I continued to maintain the same values and beliefs that have been instilled in me from birth. Gaining newfound knowledge throughout my dissertation strengthened me. I definitely believe that I am the leader that I espoused myself to be. I am only improved

and stronger due to my perseverant nature in the face of the many challenges that came my way. My leadership was strengthened because I have learned throughout this journey that I must be both fox and lion (Burns, 1956). As a lion I had to speak up more for myself so I could complete my project. As a fox I was able to avoid the many snares that tried to entrap me while I tried to complete my dissertation (Burns, 1956).

My faith enabled me to stay strong when challenges came my way. I made a pledge to myself, which was to stay active throughout my research journey and to never be passive. As a dedicated educator I knew that I had to change my method of instruction by overcoming my fear of technology in order to learn the importance of technology, and I had to learn how to infuse technology into my repertoire. I allowed for my mental framework to change when I journaled, “Globalization is moving full throttle. Globalization has impacted the world with great force. All I can do is to adapt by embracing change.” My leadership changed even further because I conquered my fear of technology by becoming immersed in it. I transformed my understanding of technology by “being open to learning how to use different forms of technology” even though I often “felt like a salmon swimming up stream.” My leadership changed for the best because I let go of my fear and I still succeeded.

My challenges allowed for me to embrace my vulnerability. My vulnerability was often revealed when I journaled. My journal enabled me to pay close attention to self-awareness, which is a component of emotional intelligence. My journal allowed me to express feelings that I was unable to express out loud while I conducted my research. My journal was a device that I used to incorporate self-management in a much better way instead of hiding my feelings. My journal also permitted me to let others know exactly

how I felt when I needed to do so. Reflective practice was the best part of journaling, because I learned about my leadership throughout my process in order to remain true to myself. I will not express my vulnerability in an in-depth manner because I am a very private person. With that said, I know that this dissertation will be open to the general public in an online format so my biases prevail once again. Even though I live in a world that thrives on sensationalism I do not believe in being that open. I will only express my vulnerability on a superficial level.

Becoming more vulnerable with those that I trust helped me to appreciate the beauty of relationships. I was able to receive love and support from those that wanted to see me succeed, therefore, I truly know now who my true friends and supporters are in the time of crisis. Through positive relationships I really know that I can ask for help from those that I trust. As an only child I never really have asked for help because I have always wanted to be very responsible and independent. I now know that it is fine to be vulnerable with those that I can trust when I need assistance. I understand that being vulnerable with those that I trust does not make me dependent or weak but makes me stronger because positive and nurturing relationships have made me stronger as a leader. I know that in the leadership equation everyone is dependent upon one another, so true independence prevails within the whole system of positive human beings in order for the system to remain open so transformation can occur.

As I reflected I noticed that I became even more aware of my vulnerability when I was abruptly told that my initial research project had to change and my research projects were changed again two more times. I was unsure for the first time in my life if I was really going to be able to have a viable and sustainable project. As I moved forward with

my coursework I was given my fourth and final project, which was OSS. I definitely took a major risk with this project because researching technology as my topical area was out of my area of expertise. The overall project was also very fluid, meaning I did not walk in with a plan. Not having a plan was a challenge for me because I am a very organized person and I have always had a plan. The facilitator also did not have a set plan that was made readily available to me, because the plan was to learn solely by doing in a collaborative way. As a Christian I walked by faith and not by sight. I knew that technology was my leadership challenge. I journaled,

I feel empowered because taking chances and risks make me vulnerable. Vulnerability is an emotionally-charged word so I must embrace it because I do not know when my chance or risk will end in success. All the other chances and risks were just takes in order for me as a leader to move on to the next scene. My prior acts are my foundation for change.

When I recognized my vulnerability through journaling I had noticed that my leadership had changed. I became stronger and I relied on my leadership to guide me. I especially allowed for moral purpose to act as my compass, because I wanted to learn from each participant so I could understand their truth solely from their perspective. I was challenged to be even more empathetic to capture the participants' plights to allow their voices to be heard through written word. At the same time I could connect my journey with the participants' journey, which allowed me to see transformation on a social level. Ultimately, I have learned that relationships have built my dissertation through the constructivist approach and I have learned that this positive and open relationship has changed my schemata when it comes to trusting trustworthy individuals to bring about transformation.

Reflective Practice

I used introspection throughout this process. I depended on my journal to guide me so I could truly find out if my espoused leadership and my theory-in-use complemented each other from my perspective. I used introspection during this journey to further define my leadership platform. I would like to emulate Mahatma Gandhi by continuing to be the change I want to see in the world. I will not let negative life experiences or the environment color my hope for the world. I will remain positive and optimistic in regards to myself and others, so I can become an even more effective leader. I want to make this kind of difference, because compassion for others has almost become nonexistent in our society.

Compassion is almost nonexistent because some people are very selfish. Some people may lack compassion because they were not taught about the importance of compassion towards others. If selfish behavior continues to run rampant and if people are not taught compassion, the world's moral fiber will continue to fray and may break to our own detriment. The emotionally self-aware leader is authentic, converses about his/her emotions openly, has a clear vision for both the present and future, and possesses a framework to articulate the goals. The servant leader serves first by listening, enabling, developing, and supporting others (Goleman et al., 2002; Wren, 1995).

The Leader I Aspire to Become/Motivations

I aspire to become a more devout servant leader. I plan to mainly focus on leading like Jesus. I want to lead and follow in love. Relationships need love to grow. Love engenders resonance. I need to practice love at all times, because leadership is a course of action that influences others. I must be mindful to true altruistic values so the process of leadership can develop and be accepted by all who are involved (Blanchard & Hodges,

2005). I am motivated to continue building my leadership skills because my leadership and my core values and beliefs complement one another and allow for me to transform into the leader that I was molded to become.

My Continued Learning Goals

My learning goals will continue to entail lifelong learning throughout my journey. I love to look at myself as both student and educator for the rest of my life. My dissertation has allowed for me to appreciate my *voice* in research. I understand that through research I have found myself in every phase of data collection. I am not disconnected from the research. I am a part of the process. My goal is to create a new synthesis of the research. I must contribute something new in order for the advancement of education to take place (Clandinin & Connelly, 2000; Hinchey, 2008).

Appendix B

Informed Consent Form

Participants over the age of 18

I agree to participate in a study entitled “Open Source Software As Applied in Higher Education: At One Four-Year University,” which is being conducted by Muneerah Wakeel who is a doctoral candidate of the Educational Leadership Department, Rowan University and her dissertation is being chaired by Dr. Virginia Doolittle.

The purpose of this qualitative explanatory case study is to gain an understanding of the process of Open Source Software (OSS) implementation, challenges that faculty/staff may have encountered while implementing a new form of technology for instruction, and the reason OSS is beneficial to faculty/staff at one four-year university. The data collected in this study will be combined with literature that was reviewed from previous studies and will be submitted for dissertation publication.

I understand that I will be required to attempt to share my expertise based on my perspective as an individual. My participation in the study should not exceed one hour.

I understand that my responses and all the data gathered will be confidential. I agree that any information obtained from this study may be used in any way thought best for publication or education provided that I am in no way identified and my name is not used.

I understand that there are no physical or psychological risks involved in this study, I know that my participation is voluntary, and that I am free to withdraw my participation at any time without penalty. I understand that I do not have to answer all questions.

I understand that my participation does not imply employment with the state of New Jersey, Rowan University, the principal investigator, or any other project facilitator.

If I have any questions or problems concerning my participation in this study, I may contact Muneerah Wakeel at (215) 555-5555 or Dr. Virginia Doolittle at 856-555-5555.

(Signature of Participant)

(Date)

(Signature of Investigator)

(Date)

Please indicate whether you do or do not choose to have your voice electronically recorded during the semi-structured one-on-one interview or focus group by checking and signing below in the spaces provided.

I grant permission to have my voice electronically recorded for the purposes of this study.

I do not grant permission to have my voice electronically recorded for the purposes of this study.

(Signature of Participant)

(Date)

If you have any questions about your rights as a research subject, you may contact the Associate Provost for Research at:

*Rowan University Institutional Review Board for the Protection of Human Subjects
Office of Research
201 Mullica Hill Road
Glassboro, NJ 08028-1701 Telephone: (856)-555-5555*

Appendix C

Invitation Letter

Muneerah Wakeel

Dissertation Title: "Open Source Software As Applied In Higher Education: At One Four-Year University"

RE: Online Open-ended Survey

Dear Sir/Madame,

I would like to reintroduce myself. My name is Muneerah Wakeel, and I am a doctoral candidate at Rowan University in the Educational Leadership program. My dissertation chair is Dr. Virginia Doolittle.

Over the summer I was a participant observer for the Summer 2010 Computer Bootcamp. I would like to invite you to participate in my explanatory case study, which is designed to gain an understanding of the process of Google Technology implementation, challenges that you may have encountered while implementing the newest form of technology for instruction, and the reason Google Technology is beneficial to you. You are selected as a participant, because you are an educator who participated in Summer 2010 Computer Bootcamp. Any report that might be published as a result of this study will not include any information that will make it possible to identify you. Therefore, please complete the survey at <http://www.surveymonkey.com/s/JPCMNHW> and enter the password: Summer2010Bootcamp.

In the near future, I would also like for you to participate in an one-on-one interview and a focus group. I will keep you abreast of the upcoming events. Thank you in advance for your immediate attention in this matter.

With kind regards, I remain,

Sincerely,

Muneerah Wakeel

Appendix D

SurveyMonkey: Open-ended Questions for Dissertation

Dissertation Title: “Open Source Software As Applied In Higher Education: At One Four-Year University”

Please Check Box Below:

I understand that my responses and all data gathered will be confidential. I understand that my participation is voluntary and that I may withdraw my participation at any time without penalty. I agree that any information obtained from this study may also be used in any way thought best for publication or education provided that I am in no way identified and my name is not used. I understand that I do not have to respond to all questions on this survey form. I also understand that all recorded data will be maintained in a secure location.

PLEASE DO NOT SIGN YOUR NAME

Please note, this survey should not take more than nine minutes.

My name is Muneerah Wakeel, and I am a doctoral candidate in the Educational Leadership Department. My dissertation chair is Dr. Virginia Doolittle. You are hereby invited to participate in a study designed to explain your overall experience with Open Source Software (OSS) implementation while attending Summer 2010 Computer Bootcamp on the campus of Cicero University. You are selected as a participant, because you enrolled in the Google summer professional development and therefore I consider you an expert on matters that relate to OSS implementation. Once you answer the questions that you want to respond to on this survey form, please e-mail it back to: wakeel@me.com. If you have any further questions or concerns you may contact me at 215.555.5555 or you may contact my dissertation chair at 856-555-5555. Thank you in advance for your immediate attention in this matter.

1. How did you learn about Summer 2010 Bootcamp?
2. Why did you decide to participate in Summer 2010 Bootcamp?
3. How many times did you participate in Summer 2010 Bootcamp?
4. How did you think that Google is beneficial to your instructional practices?
5. Were you able to implement a Google Technology?
6. What did your Google Technology look like?
7. Are you still using Google Technology?
8. Did you expand your use of Google Technology?How?
9. Do you plan to keep using Google Technology?Why?

Appendix E

Google Docs Training: Open-ended Survey Questions for Dissertation

Muneerah Wakeel

Dissertation Title: “Open Source Software As Applied In Higher Education: At One Four-Year University”

1. How did you learn about today’s Google Doc Training Session?
2. Did you attend Summer 2010 Bootcamp? Why? If not why not?
3. Did you find today’s Google Doc Training Session engaging? Why? If not why not?
4. Prior to today’s Google Doc Training Session, what forms of Google have you used for instruction? Why? If not why not?
5. What have you learned today that is most beneficial to your instructional practice? Why?
6. Did you learn more from today’s Google Doc Training Session than you learned from Summer 2010 Bootcamp? How? Why? If not why not?
7. Are you going to be able to create your own Google technology (website, calendar, etc.) based upon today’s Google Doc Training Session? Why? If not Why not?
8. What type of Google technology (website, calendar, etc.) will you create? Why? If not why not?
9. Do you think that you will attend future Google Doc Training Sessions? Why? If not why not?

Appendix F

One-On-One Interview Questions for Dissertation

Muneerah Wakeel

Dissertation Title: “Open Source Software As Applied In Higher Education: At One Four-Year University”

Participant please understand that your responses and all the data gathered will be confidential. Any information obtained from this study may be used in any way thought best for publication or education, provided that you are in no way identified and your name is not used. Please understand that your participation is voluntary and you have a right to withdraw your participation at any time without penalty. Please understand that you do not have to respond to all of my questions. You also understand that all recorded data will be maintained in a secure location. Lastly, this interview will not last longer than one hour.

1. What is your present position here at Cicero University (CU)?
 2. How long have you worked at CU?
 3. How would you describe CU’s current technological context?
 4. Do you think that faculty and staff value technology? Why? Why not?
 5. Do you think that it is possible for CU to become 21st-century proficient as it pertains to using alternative means of technology (i.e.: OSS)? Why? Why not?
 6. How long do you think that it will take for CU to become 21st-century proficient when it comes to employing OSS as an alternative means for instruction?
 7. Do you share pertinent information that relates to professional developments with both faculty and staff? Why? If not why not?
 8. How many contacts do you have outside of your department or discipline that you work collaboratively with? Why? If not why not?
- Do you think that faculty and staff at CU function like a family across disciplines and departments? Why? Why not?