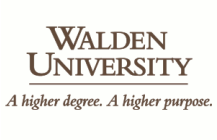

2016

Digitally Immigrant Social Work Faculty: Technology Self-Efficacy and Practice Outcomes

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This is to certify that the doctoral dissertation by

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has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

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2016

Abstract

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by

Ellen Belluomini

MA, University of Illinois, Chicago, 1993

BS, University of Wisconsin, LaCrosse, 1988

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Human Services

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Abstract

The problem addressed in this study was the lack of technology integration in social work education to meet the needs of graduate social workers in the field. The bulk of research focuses on the efficacy of online or blended learning but not on social work educators' self efficacy in delivering technology literacy. This study explored whether social work educators' self efficacy is related to their using technology in curriculum and pedagogy. Digital immigrant educators, defined as those over the age of thirty five, were chosen as participants due to research identifying this group's struggles in adjustment to technology savvy younger students. The conceptual framework for this study was a synthesis of von Bertalanffy's general systems theory and Bandura's self-efficacy to understand the relationship between social work education and technology execution. For this concurrent mixed methods grounded theory study, participants provided quantitative responses to the Computer Technology Integration Survey on self-efficacy with additional questions about technology integration in the classroom (n=396). Findings from the analysis revealed a relationship between positive self-efficacy, the number of digital tools used in the classroom, technology integration in pedagogy and curriculum, and teaching the concept of a "digital divide" in class. The qualitative data from open ended questions (n=260) and four individual interviews were analyzed using thematic content analysis. Findings revealed themes related to inhibiting technology integration including; personal motivation, time, and lack of institutional support. This study contributes to social change by proposing a technology integration model for social work educators to used as an innovative strategy for preparing future professionals in the practice of the social work.

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Dedication

This dissertation is dedicated to my mother, Karen Holub, and daughter, Caitlin Belluomini. My mother always strived to achieve higher education. She started with a nursing degree, moving to a bachelor's in nursing and a master's in counseling. She was the first member in her family to earn any degree. The example she set paved the way for me to value education and pursue any endeavor I choose. She has been with me the entire journey with unconditional love and support. Secondly, I dedicate this to my daughter who taught me the meaning of love and opened my heart in ways I could not imagine. My life and my purpose are woven with the threads created from raising this wonderful, strong, intelligent, compassionate woman. She continues to educate me and push me toward optimism and a passion for life lived. Lastly, I would like to acknowledge the younger version of my father, the late Gary Holub. He believed in me when I needed him the most, as father, protector, and champion. He is the reason I could begin my journey in the field of social work. Because he was my knight at the exact right moment, I am a social worker. I cannot express the deepness of my gratitude for the influence these people gifted me with in my upbringing and adulthood.

I am grateful for so many people during my journey. Starting with my daughter's husband, Corey, and Travis, who are always there to be supportive and generous with their time, strength, and love. My home support and prior wife Pat, and my step daughter Olivia, who opens my heart even further, taught me about perseverance. They believed in my journey and put up with the crazy schedules of working and studying. My brother, Karl and friends Valerie, Julie, Mona, Amy, Jeff, Kathy, Melissa, and the many others

who taught me I must ask for help. Thank you Don and Karen for giving me help during the times I could not see through the forest.

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Chapter 1: Introduction to the Study

Background

Advancing technologies affect the social, economic, and political fabric of people's lives in many ways. Innovation can further society's goals, but it also leaves certain sections of society behind. Over 45 years ago, economists Vatter and Will (1967) recognized the importance advancing technologies would play with society's ability to alleviate poverty. A significant theme of the advancement of technology in their forecast focused on the potential for an adverse impact of innovation on vulnerable populations.

This prediction about a technological divide accurately portrays the widening divide between socioeconomic statuses in the 21st century (Hick, 2006; Kuilema, 2012; Miller, Bunch-Harrison, Brumbaugh, Kutty, & FitzGerald, 2005; Wei & Hindman, 2011; Zhang & Gutierrez, 2007). Since 1979, income inequity for those between the bottom 20% and the top 1% increased by 152% after taxes (Stone, Trisi, Sherman, & DeBot, 2014). The inequality created by technological gains in society needs to be addressed for vulnerable populations by professionals to minimize the impact and advocate for change (Kuilema, 2012; Watling, 2012). The social work profession is one discipline where technological solutions for vulnerable populations can make a difference.

Social workers empower their client populations through an ethical code addressing the well-being and empowerment of individuals (National Association of Social Workers [NASW], 2005). The NASW and the Association of Social Work Boards expanded this ethical code to include technology by creating specific standards of practice in 2005. While the adoption of these standards is a positive step forward for the

human services professions, the standards lack specificity to practice guidelines and instead reflect a conceptual approach (Mattison, 2012).

These first technology standards developed in the context of a generalist human service practice, yet they have not been updated in 10 years (American Counseling Association, 2011; American School Counselors Association, 2010; International Association of Counseling Services, 2010; NAADAC, the Association for Addiction Professionals, 2011; National Organization for Human Services, 1996). NASW started the revision of the technological standards for future release in 2014. The failure to consistently revise the professional technology standards by the social worker profession exhibits a discrepancy in understanding the risks and benefits of technological innovation, particularly since technology is advancing at such a rapid pace, warranting consistent updating and revision.

The social work profession's mission encompasses the value of fundamental human rights of vulnerable and marginalized populations (NASW Delegate Assembly, 2008). Disparity and inequity in society is increasing, in part, due to the resource gap created by technological advances (Kuilema, 2012; Wei & Hindman, 2011). The age, ethnicity, and income of broadband users show significant disparities.

Pew Research's Internet Project (2013) reported that half of adults 45 years old or older do not have home broadband access (as cited in Zickuhr & Smith, 2013). Across the board, ethnicity is a factor in the ability to connect to broadband at home. Data on lack of a broadband connection among White (34%), Black (51%), and Hispanic (49%) backgrounds revealed this to be a significant variant (as cited in Zickuhr & Smith, 2013).

Adults with incomes less than $30,000 reported a similar inequity with 46% of low income households reporting no broadband connection in their home (as cited in Zickuhr & Smith, 2013). These discrepancies in Internet access marginalize vulnerable populations on an economic, social, and political basis, and yet practicing social workers appear not to understand how barriers to technological access and processes impact the lives of their clients (Mishna, Bogo, Root, Sawyer, & Khoury-Kassabri, 2012; Steyaert & Gould, 2009; Strom-Gottfried, Thomas, & Anderson 2014; Watling, 2012).

Several reasons exist why the social work profession may be hesitant to increase its reliance on technology in practice. One significant barrier to increasing social work practitioners' technological integration in their practices is the controversy over the ethical dilemmas technological integration might create and the lack of direction from accrediting bodies (Mattison, 2012; Strom-Gottfried et al., 2014; Thomas, & Anderson, 2014). The discourse about technology integration in social work practice and education centered on the ethics and efficacy of digital solutions, yet researchers (Gelman & Tosone, 2010; Harris & Birnbaum, 2014; Strom-Gottfried et al., 2014; Watling & Crawford, 2010) reported that in general, social workers hesitated in embracing new technologies. The movement in social work practice toward increasing integration of and reliance on technological options to empower social work client populations can only occur through education and research of students and professionals (Social Work Policy Institution, 2013; Strom-Gottfried et al., 2014).

The Council on Social Work Education (CSWE) is the accrediting body for social work educational programs in the United States. CSWE uses a competency-based

educational standard, requiring accredited programs to illustrate how social work students gain competency in practice behaviors described in the CSWE Educational Policy and Accreditation Standards (EPAS). Technology standards increased in the most recent EPAS compared to prior years, with social work educational programs now being required to interpret and implement technology into their curriculum in both their implicit and explicit pedagogy (CSWE, 2015).

The 2015 CSWE EPAS included technology use in ethical and practice standards (CSWE, 2015). For instance, institutions offering social work education must include technology in context of "new knowledge, technology, and ideas that may have a bearing on contemporary and future social work education, practice, and research" (CSWE, 2015, p. 8). The social work discipline, both as a profession or educational system, is in the early stages of addressing the impact of potential technological advancements on practice (Lea & Callaghan, 2011; Mishna et al., 2012; Steyaert & Gould, 2009).

The development and uses of technology transcends culture and politics. Evidence from researchers has supported the need for technology access and literacy of all populations (Garrido, Sullivan, & Gordon, 2012). Economists have predicted a negative economic impact on society if technology illiteracy continues (Tüzemen & Willis, 2013). A deliberate technology agenda in social work education could begin to address the inequities and barriers that inhibit vulnerable and marginalized populations from integrating technology and technological innovations into key areas of their lives (Garrido et al., 2012).

Problem Statement

Social work education cannot afford to lag behind in technology integration if the profession's mission is to be upheld. The rate of accelerating technological innovation in society affects social, health, economic, and political outcomes in people's lives (Allenby & Sarewitz, 2011; De Marco, Robles, & Antino, 2014; Geana & Greiner, 2011; Sipior, Ward, & Connolly, 2013). This rate of change in technological advances affects vulnerable and marginalized populations negatively through relationships, physical health, and economic inequality when these populations are not keeping pace with technological innovation and advances (Hick, 2006; Kuilema, 2012; Miller, Bunch-Harrison, Brumbaugh, Kutty, & FitzGerald, 2005; Wei & Hindman, 2011; Watling & Crawford, 2010; Zhang & Gutierrez, 2007).

A major component of the social work profession's mission is to address social injustice and inequality, but I have not found evidence in the literature for direction in how to include technological themes in social work education (Watling, 2012). Technology innovation within society, but without integration into social work education is a significant problem facing the profession.

Purpose Statement

Technological innovations permeate every system of society and affect each individual in the United States in a range of ways. Each level of technological integration brings with it an opportunity for inclusion or exclusion of resources for social work's client populations. Examples of exclusion can include lack of technology skills for employment, isolation from family and friends who use technology, technology

generation gaps placing children at risk, reduction in economic representation in big data for product development and sales, or an inability to connect with online resources and discounted products.

There is an absence of social work educators in consolidating efforts to include technological solutions in curriculum, pedagogical approaches, and practice strategies (Ahmedani, Harold, Fitton, & Shifflet-Gibson, 2011; Hill & Ferguson, 2014; Watling, 2012). Social work educators do not consistently include technological practices as a component of implicit and explicit curriculum in social work education (Quinn & Barth, 2014). Institutions of higher education continue to instruct in Industrial Age methods instead of progressing to the Information Age (Aslan & Reigeluth, 2012). In my review of the literature research, focusing social work educators' efforts to address technological implications in practice strategies, curriculum, or advocacy for digital equality with social work students was largely absent from the literature. This study survey's the self-efficacy and practice behaviors of digitally immigrant social work educators (DISWE). A digital immigrant refers to people who grew up without computers and internet access (Prensky, 2001a).

Conceptual Framework

One underlying framework used by social work education is general systems theory (GST), particularly the contributions by von Bertalanffy (1968) and Bronfenbrenner (1976, 1979). Von Bertalanffy (1968) defined GST as all components together being greater than each individual component (p. 18). GST provides the

framework for exploring the relationship between DISWE and technology integration in social work education and practice.

In a society where technology progresses at an accelerated rate, the examination of social work practice competencies could determine the efficacy of the social work education system as a whole (von Bertalanffy, 1968; Watling, 2012). Self-efficacy theory tenets offer a way to recognize DISWE beliefs about their competency integrating technological resources. Bandura (1977) defined self-efficacy as "a person's awareness of their knowledge" and mastery experience as "one where individuals defined their experience in terms of ability" (Bandura, 1986, p. 194).

Self-efficacy of technology integration is a prime indicator of whether instructors will integrate digital solutions in pedagogy and curriculum (Aydin & Boz, 2010). Efficacy questions identified the DISWE level of computer technology integration (CTI) in their pedagogical approach. In the exploration of curriculum development, I examined (a) their level of self-efficacy in mastering technological innovations and (b) their belief that behaviors in relation to technology use can transform social work client systems.

Research Questions

This study's research questions were developed to combine technology self-efficacy and technology behaviors involved in social work pedagogy. The qualitative and quantitative research questions guided this mixed methods study.

Quantitative Research Questions

RQ1: What is the relationship between CTI self-efficacy of DISWE and the number of technologies used in instruction methods?

$H_0$1 - CTI self-efficacy relates to the number of technologies as measured by technology behaviors in instruction methods.

H_A1 - CTI self-efficacy does not relate to the number of technologies used in instruction methods.

RQ2: What is the relationship between DISWEs CTI self-efficacy and the number of digital options taught to students for integration into their social work practice?

$H_0$2 - CTI self-efficacy of DISWEs relates to the number of digital options taught to students for integration into their social work practice.

H_A2 - CTI self-efficacy of DISWEs does not relate to the number of digital options taught to students for integration into their social work practice.

RQ3: What is the relationship between DISWE's CTI self-efficacy of and their ability to address digital divide issues in social work practice with students?

$H_0$3 - CTI self-efficacy relates to DISWE's ability to address digital divide issues in social work practice with students.

H_A3 - CTI self-efficacy does not relate to DISWE's ability to address digital divide issues in social work practice with students.

Qualitative Research Questions

The central qualitative question was as follows; How do perceive technological processes being integrated into pedagogy, curriculum, and practice outcomes?

RQ1: How does DISWEs CTI self-efficacy impact integrating technology in curriculum development, pedagogy, and practice strategies?

RQ2: How does DISWEs CTI self-efficacy impact instruction of technological resources for social work systems experiencing digital inequities?

Nature of the Study

The structure of this research was a mixed methods grounded study design (Glaser & Strauss, 1967). Using the Charmaz's (2006) constructivist grounded theory, I explored DISWE self-efficacy with technology in the classroom and their integration of technological solutions, addressing the concept of digital divide in social work courses. The quantitative portion of this study included a closed-ended survey to measure self-efficacy of DISWE in technology integration.

Additionally, I used the Wang, Ertmer, and Newby's (2004) CTI survey as a self-efficacy measure. I applied knowledge of the issues a digital divide in systems represents in the exploration of the DISWE connection to their self-efficacy beliefs. After data analysis, a model of understanding was the result in illustrating future avenues for technology integration in social work education. Constructivist grounded theory provides an opportunity to examine the experiences and relationships of DISWE as they explore the meaning of technology development and execution (Charmaz, 2006). Representative populations of social work faculty members who qualify as digital immigrants comprised the sample for this study (Englander, 2012).

The participant sample was derived from approximately 88% or 5,190 full-time DISWEs teaching at universities offering CSWE accredited social work degrees in the United States (CSWE, 2012). The definition of digital immigrant status was any faculty members born before 1985 (Prensky, 2001). Faculty member's identification occurred

through a CSWE purchased database of social work educators who are members of CSWE. The survey format is a convergent design model to explore qualitative and quantitative portions of the survey simultaneously (Palinkas et al., 2011). I embedded data with the results from the quantitative part to provide a complementary evaluation with the qualitative portion (Palinkas et al., 2011). The results from each set of data collection were used to explore hypothesis validity (Creswell, 2015).

This study involved a quantitative survey and one purposeful, qualitative snowball sampling of four DISWE who volunteered to participate in a face-to-face interview. Wang et al. (2004) developed the CTI survey to evaluate the self-efficacy of teachers' integration of technology in education. Additional survey questions about specific technology integration behaviors provided a complementary evaluation. Participants received three contacts for the initial survey consisting of an email introducing the technology in social work practice self-efficacy survey (with a link to the survey) and questions about technology integration in their curriculum.

In the qualitative interview, I explored the technology behaviors of four DISWE who participated in answering the initial survey. The purpose of these interviews was to provide a depth of understanding into strengths of and barriers to technology integration experienced by DISWE. Through snowball sampling among social work educators volunteering for interviews in the quantitative survey, I selected four DISWE for additional evaluation. The qualitative portion of the study included three contacts with study participants consisting of an introductory contact, a primary interview, and a follow up face-to-face or Skype interview for data verification (Englander, 2012). The

interviews were completed at the office of the DISWE university or through a Skype interview.

Definitions

The following section provides definitions of terms used in this study specific to technology and social work practice.

Digital citizen: The definition of digital citizenship evolved to include the normative values society uses for appropriate activities in their technology behavior (Ribble & Baily, 2007, Chapter 1, para 4).

Digital divide: Watling (2012) redefined this term as an exclusionary phenomenon where advancement of technology practices result in social, economic, and educational disparities. The inequality of populations experiencing digital exclusion results in a widening gap of resource distribution and oppression.

Digital immigrant: Prensky (2001a) first used this term to describe a person born before 1980 who did not have access to the Internet or computers while growing up.

Digital literacy: Littlejohn, Beetham, and Mcgill (2012, p. 547) described the technological critical thinking skills needed for advancement as new types of digital formats evolve in society.

Digital native: Prensky (2001a) first described digital natives as persons born after 1980 who had access to the Internet and computers while growing up. These people are *native speakers* of technology.

Social media: Robins and Singer (2014, p. 387) identified technological advances providing communication and information over the Internet to encompass social media.

Technology: Rogers (2003) described technology as a problem, solution, outcome, or design providing acceptable stability in projected results. Each technology consists of hardware and a software component to the relationship connecting the tool and how the tool is used (Rogers, 2003, Location 529).

Assumptions

The basis for assumptions was participation of knowledgeable social workers and their correct interpretation of the DISWE online survey. The self-efficacy constructs were accurate measures of the technology beliefs in social work education. The data collected from the quantitative portion support the qualitative inquiry. The participants responded to the quantitative and qualitative questions to the best of their ability and from their world view.

Scope and Delimitations

This study's participant base consists of full-time DISWE born after 1985 from CSWE accredited schools of social work (Prensky, 2001). The faculty sample was from both bachelor's and master's level of social work educational programs. The generalization of the findings from the sample determined the number of responses and their relationship to the effect size criteria (Creswell & Clark, 2013).

Limitations

Several limitations may have affected the outcome of this study. This mixed methods research required a particular effect size for the quantitative research portion. An online questionnaire may have affected obtaining this effect size with the intended population. Due to the technological nature of distribution, DISWF with email aversion

or distrust of online questionnaires may have hesitated to participate. Addressing email avoidance was accomplished through engagement of social work program directors/deans to encourage survey completion in faculty meetings.

I diffused distrust of online data sharing by using a familiar software questionnaire program validated by higher education faculty. Qualtrics software, instead of Survey Monkey, was the questionnaire for this purpose. Timing of the survey may have affected the response rate since educator responsibilities vary at specific times of the semester. The survey distribution occurred in the month of April to maximize participation by reducing stress of beginning and ending courses.

Significance

In this study, I explored ways in which the self-efficacy of DISWE affected the inclusion of technology in pedagogy for practice. Watling (2012) expanded the definition of the term *digital divide* to include a critical analysis of exclusive digital practices in society practices (p.127). The inclusion of this exclusivity analysis addressed the multiple layers of disempowerment and marginalization occurring with each new digital practice. Technology relevant curriculum prepared social workers for a creation of solutions, addressing the digital oppression of their client populations. DISWE aware of their role in changing the exclusivity of technology would work towards social change providing curriculum addressing the levels of technology-created inequality.

The training of social workers through explicit and implicit technological curriculum addresses the ethical mandate of the profession to practice with competence and to advocate social justice (NASW Delegate Assembly, 2008). Digital exclusion

remains a critical problem, increasing the divide of socioeconomic status (Watling, 2012). Social workers practicing digital competencies can address the need of technology inclusion policies and procedures for vulnerable and marginalized populations.

As CSWE's (2015) introduction of new standards for technology integration in social work education becomes operational, social work educators need to evaluate their pedagogical content of instruction. The awareness of self-efficacy and implementation of technology-based practices provide a framework for social work leaders to address integration within their departments.

Summary

In this chapter, I discussed the background of why there needs to be significant attention to research about the technology integration in social work education by digitally immigrant faculty. Information in Chapter 2 provides a review of literature to understand the theoretical framework and constructs associated with technology, society, education, and social work. The third chapter encompasses the methodology used to inform each hypothesis and research question. Chapter 4 includes a presentation of the findings from the study with applicable supporting data. The fifth chapter's findings include an interpretation of the results integrating literature and theoretical frameworks used for analysis. The dissertation ends with how these findings inform social change in the education of social workers and recommendations for future research.

Chapter 2: Literature Review

Introduction

Chapter 1 provided an overview of this study's purpose to develop a model grounded in the data of how digital immigrants, teaching in MSW programs, integrate technology into their pedagogy and curriculum for ethical practice. The basis of this literature review is on the underpinnings of social work education's relationship with technology and the potential issues inadequate integration into curriculum poses for social work populations.

This chapter has three sections. The first involves the strategy used for the literature review. The second includes the theoretical framework for the study. The relationship between von Bertalanffy's (1968) GST and Bandura's (1977) self-efficacy principles connects the ability of social work education to integrate technology in pedagogy and curriculum development. The thirdhas the significant constructs needed to understand the effect advancing technologies have on society, education, and the social work profession.

This review encompasses the digital divide's impact on social work populations and the need for informed activism. The focuses of this divide have the narrowed to implications for social work education and practice. Exploration of generational differences and the concept of digital citizenship include the distinct challenges and strengths of technological integration in education. Research on technology and higher education provides a foundation to understand social work educators' approach to technology integration.

Literature Search Strategy

The literature search strategy encompasses a multidisciplinary examination of sources related to education, technological processes, and the impact of technology innovation on society. Academic sources for this research included books, peer-reviewed articles, Internet studies, dissertations, and online documents. I used Walden University's Online Library to access multidisciplinary, peer-reviewed materials from ERIC, Education Research Complete, EBSCOHOST's Academic Search Complete, Computer and Applied Sciences Complete, Business Source Complete, ProQuest Central, and Political Science Complete. Google searches provided a resource for Internet use of statistics.

The keywords for use in collecting research included the following terms: *technology, information communication technology, high tech, digital, digital divide,* and *literacy*. Technological terms combined with the following words provided a broad understanding of the research: citizenship, social work, education, global, economic, diginomics, commerce, gap, employment, knowledge management, human services, counseling, inequity, digital natives, digital immigrants, generational, security, law, ethics, innovation, higher education, K-12, evidence-based practices, underserved, marginalized, underprivileged, low-income, health, wellness, rights and responsibilities, rate of change, apps, social media, skills, societal progress, problems, access, practice, theory, assessments, tools, interventions, communication, advocacy, descriptive statistics, big data, faculty, illiteracy, and etiquette.

The initial search for information about technology and social work started in the summer of 2010. I conducted new searches on the same terms each subsequent year until early 2015. As little as 4 years ago, research studies about the inclusion of technology in social work education offered few results. Searching the EBSCO Academic Complete database prior to the 2009 using the terms *social work education*, *technology*, and *United States* yielded 48 peer reviewed articles compared to December of 2014 with 76 peer reviewed articles (EBSCO, 2014; ProQuest, 2014). Upon closer inspection, only four of these yielded results specific to social work practice and technology integration. The shift in CSWE 2015 EPAs to include specific technology integration requirements provided a new direction for social work programs and research.

Theoretical/Conceptual Framework

The literature for this study's conceptual framework is two theories related to technology application and competence, von Bertalanffy's (1968) GST and Bandura (1997) self-efficacy theory. This literature review is a synthesis of seminal research with present applications connecting technology, self-efficacy, education, and social work systems. Application of Bandura's self-efficacy theory was for the evaluation of technology pedagogy in social work education with integration of Rogers's (2003) diffusion of innovation model and Wang et al.'s (2004) Computer Technology Integration Survey.

General Systems Theory

This grounding of the study's mixed methods research was in the principles of the theorist von Bertalanffy's (1968) GST. GST is a systems approach to interpreting reality

as a system of connected components (von Bertalanffy, 1968, p.37). GST is a frame for all types of human/nature interactions in a system based on the whole instead of through individualization (von Bertalanffy, 1968). Integration of multiple disciplines, embracing complexity, and connecting micro with macro levels provided the association between a goal and the systems behavior (von Bertalanffy, 1968).

GST assumptions include connections of the environment and relationship aspects from a physical, biological, social-cultural, and symbolic point of view (von Bertalanffy, 1968). GST is one of the significant theories used throughout social work education. The idea of using systems started in the 1930s, but it was not specifically applied in social work practice until the 1960s (Hudson, 2000). As technological options assimilated into every level of societal functioning, GST is an appropriate lens for this study.

The advancement of technology and its connection to GST underlies the premise of a systems methodology. Von Bertalanffy (1972) emphasized the necessity of a systems approach in understanding the problems created by the interaction of technological processes with the social, economic, and ecological systems in society. GST emphasizes *reality* as a construct of systems and their interrelation. Technology is a system of a physical nature and a process involving interrelations of conceptual systems.

The interaction between individuals' reality and their relationship with a technologically progressing society was a cultural process, including values, mores, rituals, opportunities, and communities (von Bertalanffy, 1972). Utilization of technological systems can be a gap or a bridge to adaptation within society. GST allowed

a broader context to the implications of assimilating technology into a holistic examination of systems.

Self-Efficacy

The theory grounding the quantitative portion of this research is Bandura's (1994) principles of perceived self-efficacy. The definition of perceived self-efficacy is how an individual perceives his or her ability to identify and maneuver through situations in his or her environment. The concept of self-efficacy includes four judgments of self: performance accomplishments, vicarious experiences, verbal persuasion, and emotional arousal. These areas of self-judgment impact how people perceive their ability to change (Bandura, 1986).

Higher education has been in a process of radical change due to the role disruptive technologies play within the education system (Doughty, 2013). Technology adaptation in instruction content and methods only occurred with a positive judgment of self. Self-efficacy significantly affected higher education faculty's adoption and integration of technology in pedagogy (Lin & Chen, 2013).

Teaching efficacy and technology is a concept studied in many disciplines throughout higher education (Chang, Lin, & Song, 2011; Cao, Ajjan, & Hong, 2013; Downing & Dyment, 2013; Salajan, Welch, Peterson, & Ray, 2011; Ye, 2014). The connection between self-influences and construction of environments impacted the development of course content (Bandura, 1993; Lin & Chen, 2013). An assumption of self-efficacy was that the relations of the beliefs people hold about their feelings, thinking patterns, motivation, and behavior equated to a person's ability to perform (Bandura,

1994). Low computer technology information self-efficacy created a barrier for instructors in higher education (Efe, 2015; Kelly, 2014).

The basis of an instructor's choice of curriculum for technology development was their motivation and judgment of self-efficacy beliefs (Bandura, 1982; Wright, 2014). Faculty who judged their CTI skills as exceeding their competency level avoided exploring these interventions (Bandura, 1977; Rogers, 2003). Information communication technology refers to new media devices such as smart phones, computers, tablets, etc. (Ilharco, 2015). As more institutions created courses in an online learning management system, the need for understanding technology integration in education increased (Wright, 2014). A system of negative beliefs around technological improvements in higher education would cripple any progress for the institution and their student populations (Doughty, 2013).

The Bandurian (1986) self-efficacy theory augmented with the Rogerian (2003) diffusion of innovation model identified the DISWE behavior in integration of technology into the content and process of education. The Rogerian (2003) model included supports for the connection between self-efficacy levels and implementation of technology innovation. Lin and Chen (2013) developed a model where self-efficacy affected innovation behavior in higher education instructors. Identifying the DISWE self-efficacy through innovation confidence could link pedagogical ideals to behavior.

The range of self-efficacy beliefs for social work practitioners adds to the controversies surrounding technology integration into social work. The Clinical Social Work Association (CSWA) wrote a report on distance education efficacy for implicit and

explicit curriculum standards. The concerns of CSWA members centered on how students learn explicit curriculum without direct contact with (a) professional identity, (b) critical thinking skills, and (c) the context of *person in environment* training (CSWA, 2013, p. 6-7). The translation of technology usage into social work practice is an area identified, but not addressed.

Hill and Ferguson (2014) identified the "loss of message control, blurring of ethical and professional boundaries, problems with constantly changing technologies, and the decrease in ability to maintain relationships long term" as significant problems social workers associate with technological advances in the field (p. 5). Social work practitioners expressed alarm over the quality of social work education and technology integration. Privacy concerns affected both the clinician and the client's confidentiality. Videka and Goldstein (2012) identified privacy and confidentiality as a substantial contemporary social work issue.

Literature Review Related to Key Variables and Concepts

Digital Divide

The social work profession is dedicated to addressing the fundamental challenges created by societal disparities, stress, trauma, and inequity. The dilemmas of a changing society create a need for the mission of social work. Social work is a profession growing exponentially. The U.S. Department of Labor Bureau of Labor Statistics (2014) projected a 19% growth in the profession within the next decade (para. 1). As the demand for social workers grows, the educational system for the profession must adapt to meet the need for technological practice. One area of significant growth within society is the information

brought upon by technological advances. These technological advances affect the populations who social workers serve on various levels. The *digital divide* is a concept addressing inequity of access, education, and resources in society (Watling, 2012). Digital disparity is creating an increase of roadblocks for effective electronic communication, economic opportunities, and knowledge gain for those without digital resources (van Vokom, Stapley, & Amaturo, 2014; Watling, 2012; Wei & Hindman, 2011).

The definition of digital divide in research differs depending on the discipline and phenomena being studied (Bruno, Esposito, Genovese, & Gwebu, 2011; Epstein, Nisbet, & Gillespie, 2011). In 1995, Webber and Harmon, journalists at the Los Angeles Times, asserted themselves as the initial source of the simplified term's description being the separation between people using technology and people not using technology (as cited in Servon, 2002). The same year, Moore (1995) defined digital divide as the separation between advocates and deniers of ICT value. The definition of digital divide shifted to a question of access in the early 21st century, specifying the lack of access to broadband Internet connection (Servon, 2002). Mossberger, Tolbert, and Hamilton (2012) identified a second divide as difference in abilities using the Internet (p. 2495).

As technological processes progressed, the term's definition expanded (Bruno et al., 2011; Epstein et al., 2011). The digital divide's current definition can include lack of access to ICT, digital literacy deficiencies, the economic, political, and social implications of an absent digital footprint, or inequities in the advantages technology affords individuals with technology savvy skills (Epstein et al., 2011; Watling, 2012) .

Watling (2012) discussed the digital divide in terms of social work practice as *exclusive digital practices* (p. 127). The broadest definition by Smith (2010) includes the digital divide simply as the disparity between those who can use digital technology for success and those who could not be successful with digital technology uses (para. 1). The definition of digital divide for this study is as the gap experienced by one segment of society not having access, education, or digital tools to experience the benefits of ICT creating a divide in resources.

The research on digital disparities can be divided into seven specific gaps over multiple disciplines: economic/socioeconomic, generational, global, health, political, and social/ relationship (Bach, Shaffer, & Wolfson, 2013; Bruno et al., 2011; De Marco et al., 2014; Kuilema, 2012; Lea & Callaghan, 2011; Mossberger et al. 2012; Sipior et al., 2013; Smith, 2010; Stone et al. , 2014; Tüzemen & Willis, 2013; Watling, 2012; Watling & Crawford, 2010; Wei & Hindman, 2011). Hilbert (2011) cautioned not to focus on access or digital tools, but to view the digital divide as the need for the expected gains of technology to be inclusive of all populations. If citizens are not part of the knowledge economy, equality in a digital culture will continue to evade the disenfranchised (Bach et al., 2013, p. 253).

Digital Immigrants, Digital Natives, and Digital Citizens in Higher Education

The advances in technology during the 21st century create generation gaps of information more broadly than at any other time in history (Prensky, 2001a). The population in the United States ranges from people who saw the invention of the television and rotary phones to growing up with television access on mobile phones. Born

before the 1980s, digital immigrants' introduction to ICT's occurred later in life; whereas digital natives are born into a digital world.

K to 12 quantitative educational research is particularly focused upon an effective integration of technology in pedagogy and understanding learning behaviors of digital natives (Guo, Dobson, & Petrina, 2008). The teaching model known as technological pedagogical content knowledge (TPACK) connects technology integration to effective instruction (Mishra & Koehler, 2006). TPACK is a well-researched framework to increase technology instruction efficacy throughout secondary education garnering over 452 peer-reviewed articles in the EBSCO Host database alone. High school students, the college students of tomorrow, evaluate their teachers on self-efficacy with technology (Dornisch, 2013). Students advancing into higher education with a digitally enhanced childhood differ in their approaches to learning from their digitally immigrant professors.

As digital natives become college bound, an emphasis on integration of technology in pedagogical development is becoming a significant part of strategic planning in higher education. Models using variations of GST prevail when administrators from higher education plan technology integration into their universities (Hope, 2014; O'Connor, McDonald, & Ruggiero, 2014; Sahay & Kumar, 2014). Innovative educational professionals understand the necessity of change, but some universities remain skeptical of technology's place in education. Allen and Seaman (2013) reported perceptions of chief academic leaders about online learning being critical to their long-term strategic planning. Only 69.1% of academic leaders viewed online learning as a perpetual goal.

Digital immigrants make the decisions about technology's role in their university even if they have low self-efficacy in using technology. These technology decisions impact the future of their institution. Significant concerns exist about the future of higher education and the role technology will place in these systems. Enrollment for online courses increases every year with 32% or 6.7 million students using technology to meet their educational needs (Allen & Seaman, 2013). Technology's impact on higher education will only continue to increase.

Most university faculty and administration fit the digital immigrant status of being born before 1980. Translation of technology used outside of the classroom does not necessarily translate to technology utilization in the classroom (Skidmore, Zientek, Saxon, & Edmonson, 2014). Innovations in the last twenty years (most in the last decade) for education include social networking, smartphones, tablets, webcams, whiteboards/smart boards, learning management systems, and the list continues (Allen, Bracey, & Pasquinig, 2012).

Seasoned educators receive education for integrating these technologies in their classrooms if they seek out the information (Skidmore et al. 2014). Younger generations of faculty embrace alternative technologies, where older generations remain hesitant to develop new digital tools (Skidmore et al. 2014). This hesitancy creates a divide between digital immigrant faculty and digital native learners.

Technology integration in social work education is explicitly discussed as a needed area of improvement in research and understanding of digital natives (Ahmedani, et al., 2011; Hill & Ferguson, 2014, Watling, 2012). While digital natives grow up in the

world filled with digital options, critical thinking about the uses of technology remains an area of concern. The term *digital native* does not necessarily include competence in digitally literacy. A continuum of ICT skills with digital natives exists with demographic and socioeconomic status being factors in digital literacy and behavior (Federal Communications Commission, 2012; Joiner et al. 2013; Mukherjee & Clark, 2012).

Digital natives primarily use ICT for entertainment and communication (Joiner et al. 2013). Technological behaviors of digital natives do not equate to digital responsibility in social work practice. Efficacious learning for digital natives in social work education needs to include implementation of effective self-regulated learning skills and the ability to validate knowledge in curriculum development (Green, Yu, & Copeland, 2013; Nasah, DaCosta, Kinsell, & Seok, 2010).

Digital citizenship is an evolving term similar to the term *digital divide*. Schuler (2003) initially introduced the term "digital citizen" through exploring the impact of technological systems with people or digital citizens (para. 12). As technological progress garnered momentum, other researchers expanded the meaning of a digital citizen. Ribble and Bailey (2004) defined the concept of digital citizenship as acceptable behavior in the utilization of technology. The definition of digital citizenship by researchers evolved to include normative practices and digital behaviors parallel to societal etiquette.

Digital citizens exhibit nine digital competencies: access, commerce, communication, literacy, etiquette, law, rights and responsibly, health and wellness, and security (Ribble, 2012, para. 9-17). Research in digital citizenship of social work students is absent from literature. Connecting DISWE technology self-efficacy with technology

and curriculum development is needed to explore the divide between digital natives and digital immigrants in social work education.

Technology Research in Learning Environments

Technology is permeating every sector of societal functioning. No greater example of this shift towards a technological system is the United States' educational system (Dornisch, 2013). The pace of this shift affects students and faculty in different ways. Instructors born before 1980 teach technology-savvy students and experience discomfort or anxiety when using technological processes in courses (Dornisch, 2013; Pan & Franklin, 2011).

Students, on the other hand, while technology-savvy, may not exhibit the ability to apply critical thinking to technology literacy (Murray & Pérez, 2014). An imbalance in technology levels created a paradox between generations. Specifically, digital immigrants intimidated by technological applications, yet complex problem solvers along with digital natives immersed in technology. Furthermore, these immigrants were unable to connect higher order learning with their digital skills (Murray & Pérez, 2014; Nasah, CaCosta, Kinsell, & Seok, 2010).

Research in technology education continues to focus on the technological methods of teaching, not in the practice of using this technology. Online learning efficacy remains a predominant area of research for education (U.S. Department of Education, 2010). Educational studies support the effectiveness of online learning and face-to-face instruction. Learning outcomes of blended learning surpass both online and face-to-face pedagogy (Furlonger & Gencic, 2014; Means, et al., 2010; Safar & Alkhezzi, 2013).

The emphasis of technology research in social work continues along similar paths. A concentration on instruction techniques and the effectiveness of online education continues this pathway(Aguirre & Mitschke, 2011; East, LaMendola, & Alter, 2014; Fort & Root, 2011). Even with the validation of evidence-based practices in learning online, the focus of research continues to be concentrated on online instruction efficacy (U.S. Department of Education, 2010).

Self-efficacy is a strong determinant of technology acceptance (Holden & Rada, 2011; Kelly, 2014). Teachers exhibit higher self-efficacy and better learning outcomes if they differentiate their instruction methods (Dixon, Yssel, McConnell, & Hardin, 2014). Self-efficacy and motivation of faculty members entwine in a complex reasoning to include or reject online pedagogy (Edwards & Bone, 2012; Johnson et al., 2012; Kirkwood & Price, 2013; Wright, 2014).

Quantitative investigations in education technology efficacy focus upon surveys for student outcomes, faculty behavior, and attitudes. A literature review by Tsai, Chuang, Liang and Tsai (2011) found most studies of self-efficacy and online learning included a questionnaire or survey for measurement. Yet only a small portion of the studies included mixed methods or a qualitative approach.

Mixed methods research provides a quantitative look at self-efficacy concepts. Qualitative interviews offered explanations for their technology integration behaviors (Wright, 2014). Qualitative researchers seek to understand the nature of integrating technology with academic assessment and outcomes (Barberà, Layne, & Gunawardena, 2014; Martin, Parker, & Allred, 2013).

The discourse about online efficacy and assessment concerns continues throughout higher education. A meta-analysis of online learning studies by the U.S. Department of Education (2011) revealed similar outcomes for traditional and online course delivery with blended learning exhibiting a minor advantage. A question unanswered by academia remains: If a section of educators identified as digital immigrants delay integrating digital tools, how do these same educators develop higher order thinking skills of a digital world with students?

Social Work Education's Approach to Technology

The use of technological advances for instruction of social work students has evolved over the years. Twenty years ago social work education used card catalogues in research, overhead projectors to supplement lectures, and the beginnings of computer processing for typing papers. Researchers found role plays in class and field education presented the best methods for integrating social work theories and practice (Dickson & Mullan, 1990; Shorkey & Uebel, 2014; Vayda & Bogo, 1991). As technology advanced, methods in how research is pursued changed from hours of reading microfilm in a university library basement to Internet research database access at home. Global research findings and practices are now accessible to all students with Internet access. (Sangeeta Namdev, 2012).

The availability of digital tools and applications in education advanced pedagogical options. Social work educators took the opportunity to expand options for learning and assessment of students in practice situations (Shorkey & Uebel, 2014). Audio/visual recordings and filmstrips for training and skill building became popular

starting in the 1970s. In this study during the late 20th century, the use of social work audio/visual educational material effectiveness compared to other professional schools was the results.

The social work profession did not create the uses of progressing technologies, adopted by social work educators. Audio/visual material developed by other professions (i.e., psychology, health fields) held an alternative for faculty of social work courses (Shorkey & Uebel, 2014). Educators translated other professions' content to reflect the field of social work.

The next technological advance, interactive television, offered a new method of course delivery: distance education. Social work education could be offered in rural areas or communities too far away from colleges offering social work degrees (Horvath & Mills, 2011). Distance education using interactive television and synchronous communication in social work education has existed since the late 1990s. The prevalence of interactive television remains prevalent today even with the more cost effective digital options available (Quinn & Barth, 2014).

The switch to asynchronous learning remains a contentious debate between social work educators. Outcome and assessment of online learning receive much attention in research studies of education efficacy. Two decades of research on the effectiveness of distance education versus on campus learners continues to reveal evidence of the validity for each approach (Coe & Elliott, 1999; Cummings, Foels, & Chaffin, 2013; Freddolino, & Sutherland, 2000; Petracchi & Morgenbesser, 1995; Pots, 2005; Forte & Root, 2011). Even with the extensive research on the efficacy of online and blended learning, social

work educators remain focused on educational delivery methods instead of moving forward to address technology innovation in practice (Shorkey & Uebel, 2014; Watling, 2012).

The state of social work education reflects a variety of options from virtual experiences, online or blended learning, and the use of digital tools for educational purposes (Dearnley, Taylor, Laxton, Rinomhota, & Nkosana-Nyawata, 2013; Reinsmith-Jones, Kibbe, Crayton, & Campbell, 2015). Digital tools to enhance the classroom experience include: (a) software programs, like Power Point and (b) hardware options like-smart boards, mobile devices, and classroom electronic simulators. The tools of video posting of student counseling simulations on YouTube or in course management systems make methods of evaluation such as the two-way mirror in a classroom almost obsolete.

Even with the plethora of options technology provides for curriculum and pedagogy for social work education, innovation is slow to be initiated (Watling, 2012). Technology self-efficacy perceptions and a reliance on older technologies inhibit the integration of technology uses by social work educators (Quinn & Barth, 2014). The difficulty people experience with change is no different in the education arena.

Social work educators struggle with two major aspects of technology in the classroom: integration of digital options into practice and the digitally native students' relationship with technology (Cwikel, Savaya, Munford, & Desai, 2010; de Boer, Campbell, & Hovey, 2011; Duncan-Daston, Hunter-Sloan, & Fullmer, 2013; Edmunds, Thorpe, & Conole, 2012; Gelman, & Tosone, 2010; Watling, 2014). A study by Berzin

and O'Conner (2010) on how social work education needs to change in the school social work setting exemplified a disconnection of technology education in a practice context. Researchers identified multiple levels of change to school social work education. Effective practice in a school setting uncovered one significant omission: any type of technology issues related to students and systems.

Most bachelor and master schools of social work in the United States hold an accreditation by the Council on Social Work Education (CSWE). Schools of social work earn accreditation based upon four areas: program mission and goals, implicit and explicit curriculum, and assessment. Implicit and explicit curricula and assessment form the base for social work education certification (CSWE, 2008).

CSWE's implicit curriculum referred to the "learning environment" in a school of social work (CSWE, 2008). Studies on social work education's use of implicit and explicit curriculum rarely qualified technology as a component unless distance education (Bogo & Wayne, 2013; Petracchi & Zastrow, 2010a; Petracchi & Zastrow, 2010b; Peterson, Farmer, & Zippay, 2014; Quinn & Barth, 2014). The one area of implicit content mentioned in the standard focuses on program processes and communication with technology including hardware needs (Grady, Powers, Despard, & Naylor, 2011). Once implicit curriculum became outlined, the focus of social work education efficacy turned to the delivery of explicit curriculum.

Explicit curriculum refers to the flow of curriculum design through social work courses, field placement, and delivery of content (CSWE, 2008). Explicit curriculum studies failed to include technological integration as an area of practice or evaluation

(Miller, Tice, & Hall, 2011; Petracchi & Zastrow, 2010a). The lack of specific guidelines in standards for technology in explicit curriculum teetered on the concept of digital cultural ignorance.

Assessment, the last of the areas identified for an integrated curriculum design, centered around the efficacy of learning and executing social work knowledge with practice (CSWE, 2008; DeLong Hamilton et al., 2011; Williams & Bolland, 2011) The review of literature for CSWE assessment practices revealed no references to technology, except in the evaluation of online learning outcomes (Cummings, Foels, & Chaffin, 2013; Forte & Root, 2011; Hash & Tower, 2010; Manion & Selfe, 2012; Means, et al., 2010). The new 2015 CSWE accreditation standards include technology standards focused on ethical standards in practice but not specifically as a needed function in implicit curriculum development.

A literature search, initiated by this researcher, for criteria in social work education, technology, and United States, an EBSCO complete/ProQuest Central, peer-reviewed, gathered a macrocosm of research areas within the profession. The EBSCO Complete/ProQuest Central search revealed four distinct categories of technology articles for social work education: distance education, instruction methods, ethics, and technology uses in social work practice. Division of research article topics based on the most predominant content area avoided duplication of themes.

Efficacy of using technological instruction techniques in course delivery produced 58% of peer-reviewed articles. Online/blended education yielded 29% of the focus for social work outcome efficacy. The last two categories of peer reviewed articles had a

focus on technology ethics and integrating technological practices into social work curriculum, tied at 6.5% each. Research on technological practices focused on types of technology integration in curriculum and practice at specific universities and a study on technology content in social work education (Shorkey & Uebel, 2014; Youn, 2007). The majority of studies in social work education center upon online efficacy and instruction methods with the use of technology.

A review of research methods provides an indication of where educators focus the importance of studies on technology and social work education. Mixed methods research is a common design for social work education (Chaumba, 2013). Survey research and qualitative information via groups or open-ended questions provided a broader view of efficacy with online curriculum and pedagogy for social work education (Aguirre & Mitschke, 2011; East et al., 2014; Fort & Root, 2011).

Efficacy survey results were a blended learning approach to social work education and offered a more successful method to deliver content and improve learning outcomes (Aguirre & Mitschke, 2011). Social work researchers (Aguirre & Mitschke, 2011; East, Quinn, & Barth, 2014; LaMendola, & Alter, 2014; Fort & Root, 2011; Quinn & Barth, 2014; Vernon, Vakalahi, Pierce, Pittman-Munke, & Adkins, 2009; Watling & Crawford, 2010) recognized the need to develop research studies measuring technical development of the profession and education. Two significant limitations in research include: (a) small sample size in qualitative studies with limited reach, and (b) questions about the definition of valid learning assessments with technology implementation (Allen &

Seaman, 2013; Allwardt, 2011; Cwikel et al., 2010; de Boer, Campbell, & Hovey, 2011; East, LaMendola, & Alter, 2014; Friedline, Mann, & Lieberman, 2013).

A theme among administrators in social work programs centered on the difficulty introducing innovation into closed systems (East et al., 2014). Only 36.7% of BSW programs and 50.9% of MSW programs offered at least part of their program online (CSWE, 2013). A drastic reduction of fully online degree programs offered resulted in only 2.1% of BSW programs and 8.1% of MSW programs engaging in this format (CSWE, 2013). Difficulty with faculty engagement in technology priorities surfaced as the second most significant obstacle to innovation of technologies (East, LaMendola, & Alter, 2014). Even with20 years of efficacy studies about social work distance education, educators persisted in their hesitation to integrate social work and technology into an online format (Vernon et al., 2009).

Implications for Integrating Technological Solutions in the Social Work Profession

Examples of digital evidence-based practices and technological solutions increased as technology progresses in mainstream society. The most prolific example was the United States Federal Government (Office of Management and Budget, General Services Administration, Mobility Strategy Task Force, & Web Reform Task Force, n.d.). The United States Federal Government created a Digital Government Strategy addressing issues related to digital citizenship, resource access, and digital services (Office of Management and Budget et al., n.d.).

Writers of this plan developed the needed infrastructure for citizens to use technology effectively, such as work with applications to health, wellness, mental health,

economic access, and political education (USA.gov, 2014). Apps related to social work practice were available, but lacked formal educational support in their use. The disconnection between understanding the relevance of technology in social work practice was apparent in continuing education requirements.

A condition of social work licensure in the United States is the accumulation of Continuing Education Credits (CEUs) for every cycle's certification procedure. Continuing education topics mirrored the current interests of social workers in practice. The NASW (2011) Continuing Education Portal topics did not include technology as a specific category. Reviewing research on the needs of continuing education for social workers provided results not addressing any areas of technological evidence based practices, ethical issues connected to technology or technology based practice solutions (Cochran & Landuyt, 2011; Congress, 2010; Quinn & Straussner, 2010; Weisenfluh & Csikai, 2013).

Among those surveyed by Cochran and Landuyt (2011), cyber bullying and Internet Addiction surfaced as hot topics in CEUs. Both of these topics reflected a consequence of negative behavior in technology use. The lack of continuing education for how to ethically integrate technology into social work practice was an issue.

Not unlike other professions, controversy exists for the ethical and appropriate integration of new practices. Goldstein (2007) emphasized a micro approach of focusing on clinical practices skills, while Videka's (2012) macro level view evolved through change and systems work toward an actualized profession. The dehumanization of social work, a risk of dual relationships, privacy, confidentiality, inappropriate boundaries, and

concern about technology challengers in the field held significant influence over opinion (Duncan-Daston et al., 2013; Goldstein, 2007; Hill & Ferguson, 2014; Judd, & Johnston, 2012; Strom-Gottfried et al., 2014).

Studies on the efficacy of learning social work theory and practice in an online format do not support naysayers. Practice skills are the foundation of micro social work practice, and some educators resisted a fully online instructional approach (Cummings, Foels, & Chaffin, 2013; East, LaMendola, & Alter, 2014). Comparing traditional and online coursework in social work education provided a gateway to understanding the controversy (de Boer et al., 2011; East et al., 2014). Social work educational directors and deans identified resistance to online education by faculty due to skepticism of efficacy, lack of willingness to change, and a view of technology as a low priority (East et al., 2014).

Recommendations for improvement of technological approaches in social work practice included: (a) educational digital literacy for social workers in school and practice, (b) an appreciation of generational differences in students, recognizing the consequences a digital divide presents, (c) continuing ethics trainings, and (d) an improvement in social work education strategies addressing technological advances (Duncan-Daston et al., 2013; Eamon, Wu, Moroney, & Cundari, 2013; Goldstein, 2007; Hill & Ferguson, 2014; Judd, & Johnston, 2012; Kay, 2011; Lin & Chen, 2013; Strom-Gottfried et al., 2014). The dissonance between technology's purpose and digital literacy with faculty and students detracted from the advancement of the field.

Social work faculty and practitioners ran the risk of not appropriately implementing technology, but students also brought varying skills in the implementation of technology in assignments. Students not equipped with digital citizen qualities became confused by the technology or software, hindering their ability to appropriately learn from curriculum (Allwardt, 2011; Duncan-Daston et al., 2013; Judd & Johnston, 2012; Kay, 2011). Digitally literate professors increased engagement and successful outcomes with students experiencing digital divide problems.

Eamon et al. (2013) evaluated the need for social work educators to teach technology related skills effectively to address the technology barriers prevalent for clients needing public assistance. Addressing the technological divide gap in social work pedagogy through technologically qualified instructors provided student guidance. The increase of mutual learning through tensions of technological processes and generation gaps was through detailed assignment specific rubrics (Eamon, Wu, Moroney, & Cundari, 2013; Manion & Selfe, 2012; Lin & Chen, 2013).

Summary

While recommendations in current literature often included the need for technology integration into social work education, the predominant focus of research was on efficacy of instruction strategies. A literature search revealed the disconnection between social work education and the integration of evidence-based practices or processes involving technology. Using search engines from EBSCOhost and ProQuest Central, no articles linked to how social work education addressed technological integration of practice into the educational setting.

The need for educational integration of technological processes, literacy, and applications for practice has been well documented globally (Cwikel et al., 2010; de Boer et al., 2011; Duncan-Daston et al., 2013; Edmunds et al., 2012; Gelman, & Tosone, 2010; Watling, 2014). A division exists among researchers' viewpoints in the United States regarding technology practices. This division occurs between ethics and practice considerations. Technology advances divide between descriptions of obstacles or tales in cautionary areas of practice (Duncan-Daston et al., 2013; Goldstein, 2007; Hill & Ferguson, 2014; Judd, & Johnston, 2012; Strom-Gottfried et al., 2014).

Self-efficacy of personal technology uses may include the biases in using technological practices with social work populations (Bandura, 1977). The needs of the profession may begin addressing the digital divide only by addressing the controversy about technology through information, education, and validity.

The first chapter involved identifying a need for technology integration into social work education. Results of the literature review continue to support this study's purpose in needing evaluation of technology's role in social work education. The third chapter identifies the process for collecting information to examine the efficacy of current pedagogical and curriculum practices by social work educators.

Chapter 3: Research Method

Introduction

Vulnerable populations addressed by the social work profession experience oppression and marginalization by the increasing digital divide in the United States (Steyaert & Gould, 2009; Watling & Crawford, 2010; Wei & Hindman, 2011). In my literature review, few studies addressed the behaviors of DISWE on integrating technological principles and solutions in social work education (Watling, 2012).

The purpose of this mixed methods study had two goals:

1. The quantitative part of the study developed an understanding about how DISWE view their self- efficacy with technologically integrated learning (TIL).
2. Survey questions and the qualitative part of the study identified how TIL is being used within social work education by DISWE.

The collection of quantitative data occurred by collecting survey questions for demographics, technology beliefs and behavior, and TIL self-efficacy. The Computer Technology Integration Survey (CTIS) was sent to all DISWE full-time faculty members in the CSWE database of accredited universities for part of this measure. Determining the awareness of DISWE TIL regarding interventions with social work populations expands an understanding of the second goal through qualitative data. Survey data were informed by the results of open ended questions and interviews.

A snowball sampling continued the data collection process for non-CSWE members not represented in the purchased database. Qualitative data were collected using

two open ended questions in the survey and four in-depth, semi structured, face-to-face (or Skype) interviews using snowball sampling. The qualitative data focused on the second goal, to understand the details of DISWE's use of TIL.

Research Design and Rationale

The design for this research started as a qualitative method study using grounded theory for exploring digitally immigrant social work educators' perception of technology in social work education. As my research progressed, it was clear I needed to change both the population and methodology. I expanded the population focus to be inclusive of all social work educators instead of only faculty at the MSW level. Social work programs have a unique advanced standing program for social work students with a BSW (CSWE, 2008). Advance standing placement is an inclusion of a student's BSW education as credit for the foundation year of MSW studies.

Many social work faculty members instruct at both foundation and advanced levels (CSWE, 2012). Not including faculty members teaching in BSW programs might affect the validity of this research because of their integral part of master's level preparation for advance standing students. I felt it appropriate to include all levels of social work faculty members, adding to the ability for generalization with all DISWE (CSWE, 2012; Johnson & Onwuegbuzie, 2009).

My rational for a methodology shift from qualitative to mixed methods occurred to increase the validity of the study. The need for change became evident during the literature review. Innovation in technology and its relation to social work education is a complex topic needing more depth for validity of research results (Longhofer & Floersch,

2012; Rogers, 2003). One method over another does not provide adequate attention to this research. Qualitative research alone is not generalizable to the behavior of all social work educators (Creswell, 2015). A quantitative research method does not offer the variety of personal perspectives technology integration presents.

Using a pragmatic mixed methods approach to researching technology integration remains consistent with the exploration of conflicting philosophies for DISWE (Johnson & Onwuegbuzie, 2009; Mishna et al., 2012; Steyaert & Gould, 2009). A mixed methods approach provided participant enrichment and significance enhancement by increasing the number of participants to maximize the data for interpretation (Greene, Caracelli, & Graham, 1989; Onwuegbuzie & Leech, 2006). A mixed methods approach opened the door to explore diverse world views or assumptions, even if they may conflict with one another (Creswell, 2009). In this research, I explored behaviors and beliefs of DISWE in their approach to technology integration practices of social work education.

Grounded theory underlies this mixed methods research to develop a model for understanding the DISWE implementation of technology in social work education. Grounded theory offers a pragmatic viewpoint in understanding how systems theory and diffusion of innovation theory impact social work educators in their technology integration (Bronfenbrenner, 1976; Charmaz, 2006; Johnson & Onwuegbuzie, 2009; Rogers, 2003). Pragmatism and interpretive constructs offered by a grounded theory approach support an encompassing perspective to the multidisciplinary theories social work education provides to their students (Charmaz, 2006). This research, guided by

grounded theory principles, included identification of the roles of DISWE and how this identification connects to the whole of technology integration in social work education.

The quantitative and qualitative results of this study concurrently provide information to develop a model of understanding for integration of technology into social work education. The quantitative method addresses standardized data collection of demographics, close ended survey questions, and self-efficacy of DISWE integrating technology while the qualitative method of open-ended questions and face-to-face interviews offer an exploration of the theory-to-practice gap with social work students (Johnson & Onwuegbuzie, 2009; Longhofer & Floersch, 2012).

Research Questions

Quantitative Research Questions

RQ1: What is the relationship between CTI self-efficacy of DISWE and the number of technologies used in instruction methods?

$H_0$1: CTI self-efficacy relates to the number of technologies as measured by technology behaviors in instruction methods.

H_A1: CTI self-efficacy does not relate to the number of technologies used in instruction methods.

RQ2: What is the relationship between DISWEs CTI self-efficacy and the number of digital options taught to students for integration into their social work practice?

$H_0$2: CTI self-efficacy of DISWEs relates to the number of digital options taught to students for integration into their social work practice.

H_A2: CTI self-efficacy of DISWEs does not relate to the number of digital options taught to students for integration into their social work practice.

RQ3: What is the relationship between CTI self-efficacy of DISWE and their ability to address digital divide issues in social work practice with students?

$H_0 3$: CTI self-efficacy relates to DISWE's ability to address digital divide issues in social work practice with students.

$H_A 3$: CTI self-efficacy does not relate to DISWE's ability to address digital divide issues in social work practice with students?

Qualitative Research Questions

The central qualitative question is as follows: How do DISWE perceive technological processes being integrated into their approaches to pedagogy, curriculum, and practice outcomes?

RQ1: How does DISWE's CTI self-efficacy impact integrating technology in curriculum development, pedagogy, and practice strategies?

RQ2: How does DISWE's CTI self-efficacy impact instruction of technological resources for social work systems experiencing digital inequities?

Mixed Methods Design

The central phenomenon explored in this study was how DISWE perceptions of technology self-efficacy impact their integration of technology, in pedagogical approaches and practice solutions, with students. This complementary mixed method study had an embedded type of approach to gather data concurrently for support in the findings of both designs. The non-experimental, quantitative, deductive method in this

study was a measure of the phenomenon of academic technology self-efficacy of MSW faculty.

The analysis of quantitative survey data paralleled the qualitative analysis of open-ended survey questions and face-to-face interviews (Collins, 2010). The results from the convergent design analysis provide research with equal weight to each method's results (Creswell, 2009). The relationship between the samples consisted of an identical sample for the survey and a nested sample for the face-to-face interviews (Collins, 2010). Generalizations and transference of research results of an identical sample minimized compromised findings. Results from the data collection informed the qualitative face-to-face interviews throughout the research process (Charmaz, 2006; Glaser, & Strauss, 1967).

I chose a mixed method design over a qualitative design to explore the phenomena of social work education and technology integration from multiple perspectives. Triangulation of data offered validation of the research question from different perspectives (Greene et al., 1989). The mixture of these methods added cross validation during data analysis in describing meta inferences (Collins & Onwuegbuzie, 2013).

The CTI self-efficacy survey, open ended questions about the DISWE approaches and beliefs about technology integration and face-to-face interviews offered a complementary mixed methods opportunity (Hesse-Biber, 2010). The mixed methods approach overlayed the concepts within the study to provide an enriched understanding of

the phenomenon with more depth than each design separately could contribute (Greene et al., 1989).

Data Collection and Analysis

The data analysis for this study integrated quantitative and qualitative data aligned with the research questions. The focus of the data analyzed from the survey was on academic technology self-efficacy and technology behaviors, combined with the interview questions. This focus made provision for triangulation of data, which increased validity and reliability of the study (Greene et al., 1989). Each quantitative and qualitative data set informed the other for a concurrent design (Creswell, 2014).

The statistical analysis of the CTIS helped draw conclusions from DISWE perspectives through exploring the relationship between data points. The qualitative portions added specific narrative to increase the understanding of the DISWE perspectives on technology integration in their pedagogical approaches and offered insight into the quantitative data. The data collected for this study drew benefits from a larger sample size and developed the context for the DISWE relationships with technology integration in social work education.

The use of a convergent design was to merge the data sets in order to validate the findings of each method of collection (Creswell, 2014). The triangulation of data from quantitative and qualitative methods provided credibility and internal validity in the results of the research (Greene et al., 1989). The exploration of grounded theory principles incolced data collection as a complex system of information gathering and

encouraging the development of ideas and concepts throughout the research process (Charmaz, 2006).

Qualitative and quantitative data collected concurrently began the parallel process of investigation. Mixing occurred after the data analysis stage. I merged the data to combine the qualitative and quantitative results for interpretation (Creswell, 2011, p. 67). Equal priority was given to each method in this data analysis phase. Methodological triangulation of gathering, linking, and coding occurred throughout data collection for the analysis phase separately between methods (Kuckartz, 2014). I merged coding of open-ended questions with quantitative results at the final stage (Creswell, 2011).Later, I merged closed questions with qualitative results after initial and focused coding phases (Charmaz, 2006). After analysis of the inferences from both data sets, I performed a meta inference process to integrate the results of both qualitative and quantitative collections (Onwuegbuzie & Johnson, 2006).

Role of the Researcher

I have been a member of the social work educational community as a field instructor, consultant, instructor, and practitioner for over 25 years. I am a social work lecturer at Dominican University in their Graduate School of Social Work department. As a practicing social worker and a digital immigrant in a digital age, I am aware of the opportunities and risks technology may bring to the profession.

My role as a researcher required an unbiased attitude in the development of questions for the qualitative section and analysis of the results (Creswell & Clark, 2013). My numerous years of experience integrating technology, education, and social work

practice contributed to a bias of addressing the need for technology integration in the profession. I screened my multiple professional relationships and personal experience as a DISWE for bias.

As a social work field instructor for the past 20 years, I have had contact with various social work educators in the Midwest. Similar to this scenario is my process to obtain a full time faculty position in the Midwest. My applications and interviews for social work positions by social work faculty in the last 3 years may have influenced participants. The last is my involvement as a social worker in professional development. I regularly meet social work educators as a presenter, conference attendee, student, as an online presence with my social work blog and participation in online social work communities. I did not have any power relationships within these contexts. As I am a full-time instructor in a MSW program, the faculty within my program did not receive a survey.

Prior relationships with social work faculty remained professional. Information obtained through the survey process maintained anonymity in data analysis. I used a snowball sampling to identify DISWE for qualitative interviews. A specific spot in the survey provided an opportunity for DISWE to volunteer for the qualitative interview.

Methodology

This mixed methods study employed four data sets to evaluate hypotheses: demographic data, survey questions, self-efficacy results, and face-to-face or Skype interviews. Demographic data collected included basic identifying questions and information about the DISWE current career status. The survey involved identification of

DISWE technological behaviors in the classroom through checklists. These survey questions included types of technology used in the classroom and pedagogical behaviors in technology integration.

Selection of Participants

The basis of participant selection included two inclusion criteria. The first characteristic was the status of being a full-time faculty member at a BSW or MSW, CSWE accredited university. Secondly, participants needed to be over age 35.At the time of the study, full-time social work educators in the United States consisted of 5,031 faculty members (CSWE, 2012).

Prensky's (2001a) date for the birth of a digital immigrant was prior to 1977. Those born after 1977 did not qualify as digital immigrants. A digital immigrant was a person who grew up before the widespread use of digital technology. Using CSWE (2012) reporting data on social work programs, around 87% or 4,377 of full time faculty members qualified as digital immigrants. This number was an estimate based on age ranges from CSWE (2012) demographic categories.

Purposeful sampling informed the quantitative section and the theoretical sampling. Theoretical sampling methods were an evaluation of the homogeneous population of the hypothesis first, with data derived from this sampling compared to the heterogeneous data results (Creswell, 2007). Participation contact occurred through solicited email. A purchased list through CSWE established the list for social work directors or deans and CSWE members.

I sent an email request of participation to each social work program director or dean and CSWE faculty members for participation in the study. The participation request included an appeal to forward the survey to colleagues not CSWE members, who qualified as digital immigrants. Qualifying demographics for this study included a birthdate before 1977 and holding a position as a full-time faculty member of any rank in an accredited school of social work's BSW or MSW program. The survey software eliminated social work educators born after 1977.

In the initial email I identified digitally immigrant educators over the age of 35 to participate in the study. A second measure, asking for a birth date in the survey software, eliminated those born after 1977. The survey questions identified part-time faculty with a request for faculty rank. Data for part-time educators who filled out the questionnaire, I sorted into an isolated file, not used in analysis.

Sample Size

There were 5,031 full-time MSW and BSW educators in the United States (CSWE, 2013). DISWF members account for 95%, or 4,221, of the BSW and MSW faculty populations. Based on a sample size of 4,221 reported BSW and MSW faculty, the sample size for ±5%, Precision Levels where Confidence Level was 95% and P=.5. The sample size would be 352 participants by using a confidence level of 95%, a confidence interval of 5 and the population of 4,221 eligible DISWF.

The open-ended questions of the survey and interviews represented the qualitative sample size. Saturation of the open-ended questions occurred through analysis of responses in 20-30 participants (Creswell, 2011; Onwuegbuzie & Leech, 2007b). I

selected these responses randomly with the use of SPSS. Using a nesting sampling design, a self-identifying question elicited volunteers for four DISWE to participate in thirty minute interviews face-to-face, through Skype or in person at their university office.

Instrumentation

Quantitative Self-Efficacy Constructs

The CTI Survey (Wang et al., 2004) was a measure of the self-efficacy beliefs of technology integration for teachers. Wang et al. (2004) developed and validated this tool in a study to measure pre-service teachers' self-efficacy with technology integration. I obtained permission from the authors in the use and modification of the survey (See Appendix A). I made modifications in the Likert scale, question phrasing, and a change to the second factor scale to address technology integration in coursework. The tool contained three sections: (a) demographic and deductive questions, (b)the CTI survey and (c) open-ended questions. The Likert scale modifications changed from rating their level of agreement:

SD = *Strongly Disagree*,

D = *Disagree*,

NAND = *Neither Agree nor Disagree*,

A = *Agree*,

SA = *Strongly Agree*

to a scale more aligned with the diffusion of innovation theory as described below:

Totally Agree: I am an innovator in this area of using technology (5)

Strongly Agree: I am an early adopter in this area of using technology (4)

Fairly Agree: I am in the early majority in this area of using technology (3)

Agree a little: I am in the late majority in this area of using technology (2)

Disagree: I am one of the last in this area of using technology (1)

Slight wording modification to address social work educators' terminology occurred in the fifteen factor one questions measuring computer technology capabilities and strategies. The six factor two questions were measures of the social work educators' self-efficacy with instruction of technology integration into social work practice, clarifying the initial scale questions through external influences of computer technology use. (See Appendix F for details of survey changes).

Qualitative Components

Online survey open-ended questions and four face-to-face interviews offered qualitative data from the participants. I collected data in the interviews by using the following tools: (a) an observation sheet, (b) interview protocol, (c) detailed notes, and (d) a video and/or audio taping for later transcription. Concurrent face-to-face interviews occurred during the collection of data from the online survey. I recruited interview participants through a question within the Qualtrics survey about participation and a snowball sampling from other social work educators. DISWE had the opportunity to meet in person or through a video chat.

Quantitative Components

This section includes information about the instrument details used in the collection of quantitative data. The selection of the Computer Technology Integration

Survey (CTIS) (See Appendix C) provided the self-efficacy measures based on sufficient content validity of previous researcher studies (Al-Awidi & Alghazo, 2012; Crittenden, 2009; Farah, 2011; Haight, 2011; Krause, 2010; Wang et al., 2004). The CTIS populations in each sample reflected higher education environments (Al-Awidi & Alghazo, 2012; Crittenden, 2009; Farah, 2011; Haight, 2011; Krause, 2010; Wang et al., 2004).

Instrument 1. A survey including demographic, descriptive, Likert style and closed questions in validated participant status, provided identification of DISWE, their professional social work educational criteria, and identified behavior integrating technology in social work education. I collected these variables at the start of the self-efficacy survey. These variables included: age, use of technology in the classroom, teaching technology for use in practice, and education about the impact of the digital divide. The establishment of content and construct validity were through distribution of the survey questions to ten social work colleagues for participation and feedback (Creswell & Plano Clark, 2011).

Feedback from colleagues identified several initial concerns in the survey. This feedback offered suggestions for altered content, wording, survey structure and ease of use. (See Appendix F for details of survey changes). Responses for the self-efficacy survey reflected more definition of the concept.

Instrument 2. Wang, Ertmer, and Newby (2004) created the Computer Technology Integration Survey (CTIS) by identifying the self-efficacy beliefs of teachers' technology integration. The identification of self-efficacy of teachers was through 21 positively

worded statements about confidence levels of technology integration. The establishment of CTIS's content validity was through a panel of six self-efficacy experts reviewing literature to address definition appropriateness. Experts used a rating sheet for feedback on each statement. The reliability calculated for this factor resulted in a .94 rating and Cronbach's alpha coefficients determined .94 reliability in the pre-test model (Wang et al., 2004). The analysis of construct validity and reliability occurred through factor analysis and reliability coefficients with acceptable measures for use in future research.

I received permission to use and slightly modify the CTIS from the study authors (See Appendix A). I addressed issues of trustworthiness by using CTIS as a valid and reliable tool (Tashakkori & Teddlie, 2003). I used the information from this research tool in the Qualtrics online survey software for data collection.

The CTIS (Wang et al., 2004) had been previously published in measuring educators' technology self-efficacy beliefs. Farah (2011) examined the factors leading teachers toward their self-efficacy with technology. The CTIS was useful in identifying participants for the qualitative study. Haight (2011) completed a mixed methods study investigating the technology self-efficacy of educators with the CTIS. The study identified the lack of technology integration in the pedagogical practices of educators.

Al-Awidi and Alghazo, (2012) studied CTI self-efficacy of student teachers before and after their practicums. Skoretz's (2011) mixed methods study found significant differences in CTI with educators when trained in computer literacy through job development and grade level of teacher. Data analysis of the CTIS in these studies supported the validity and reliability of the instrument (Al-Awidi & Alghazo, 2012;

Farah, 2011; Haight, 2011; Skoretz, 2011). These researchers' focus identified the connection between instructor CTI self-efficacy and their use in classrooms.

Recruitment, Participation, and Data Collection

I contacted the Counsel on Social Work Education (CSWE) to purchase the CSWE Masterfile of current member email addresses. The current CSWE database had 2,147 members with contact information. I saved the database of potential participants on a password protected computer. My email contact information through Walden University's email system disseminated the letters for participant recruitment. Each CSWE member received these emails. Walden University and Dominican University in Illinois did not receive requests due to a conflict of interest.

Qualitative Components

Participants obtained informed consent on their first contact with the online survey system, Qualtrics. The consent form started the process of participation for the survey. Participants did not progress further unless they electronically acknowledged their interest. Participants were able to forward the survey to other DISWF through snowball sampling.

Survey participants exited the study with the option to be sent a link to the published results and an option to participate in the in person interview. The in-person interview question included contact information for follow through with an interview. If the volunteer for the study was not one of the four chosen, then I sent a thank you email for their interest with information about not being selected for the in person interview.

Participant interviews took place either at the subject's university or, if travel time exceeded 60 minutes, through an online video call. The participants in the face-to-face surveys received their transcripts for any feedback or clarification they wished to provide. I sent each interview participant a note of appreciation note. Other than the follow- up, the interview contact for internal validity, the option to obtain a link to the final dissertation, or a participation denial/thank you, no follow- up took place with participants (Zohroabi, 2013).

Quantitative Components

The quantitative data was electronically collected by the survey instrument, Qualtrics (2014). Participants accessed the survey through a link in their study recruitment email. The data obtained from the survey was downloaded to a password protected computer for confidentiality. Data collection for the survey portion occurred over one month to ensure an adequate window for participation during the academic semester.

Participants completed the CTIS instrument, nominal and ordinal survey questions, and open-ended questions in a 20–30 minute time frame. I established content validity of the survey questions by developing and disseminating the tool in Qualtrics. I distributed the initial survey to 10 social work colleagues, not eligible for participation in the current study. Feedback from this test group became integrated into the final version of the survey questions. The sample size was met in the month timeframe.

Three weeks into the data collection process, I identified four DISWE as participants for the face-to-face or Skype interviews. I selected the interviewees for this

qualitative portion through purposeful sampling. A question on the survey allowed participants to volunteer for an in-depth, open-ended interview. As there were no volunteers, then a snowball sampling took place to obtain the interview participants. I asked colleagues to identify DISWE educators, who would participate in an interview. Interviews lasted between 30-40 minutes each. The recording of the qualitative interviews were on either a voice recorder or a computer program. I stored interviews on a password protected computer and a password protected cloud storage program, Carbonite.

Data Analysis

Quantitative Plan

I examined the relationship of DISWE status and CTI self-efficacy with technological behaviors in curriculum delivery methods, practice behaviors in pedagogy, and the dissemination of digital disparity education of social work populations in the classroom. The data analysis for this study included statistics from quantitative and qualitative information. The data derived from DISWE responses to survey and interview questions.

Quantitative analysis of data occurred to evaluate the bivariate correlations for each hypothesis's independent and dependent variable. A regression analysis of data provided data evaluating studies with multiple research factors and the correlation among their relationships (Cohen, Cohen, West, & Aiken, 2003). I examined ordinal regression analysis if the Independent Variables (IV) of age and self-efficacy scores were predictive of survey responses in the Dependent Variable (DV) technology integration behaviors.

A factor analysis validated results for each survey category. Self-efficacy beliefs, technological practices used in instruction, technological social work practice options taught, education on ethical integration of technology, and specific curriculum addressing the impact of the digital divide on social work populations included variables being used during ordinal regression statistical analysis.

I analyzed the collected data by using ordinal regression analysis. The age categories of DISWF and CTIS self-efficacy scores served as independent variables for exploration of the relationship to each DV. Specific assumptions needed to be tested for use of ordinal regression in data analysis (Osborne, 2015). The independent and dependent variables were measures at an ordinal level. I tested the IVs for multi-collinearity and proportional odds. I completed the statistical tests for the appropriate use of ordinal regression analysis with SPSS as the software database. Qualtrics and SPSS for quantitative and MAXQDA 11 for qualitative analysis identified significant data outcomes.

I identified multicollinearity, homogeneity of variance, normality, outliers, and missing data during data screening. During data analysis, I identified each suspected outlier as having a value of 1.0 or higher, when data cleaning through identifying missing data. I sorted this missing data into three categories: (a) missing not at random (MNAR), (b) missing at random (MAR), and (c) missing completely at random (MCAR) determining the significance for inclusion or exclusion in the results (Osborne, 2015). Data in the missing categories explicitly detailed inclusion or exclusion. I performed a

data cleaning analysis through binary logistic regression analysis to support the screening.

Initially, data collected from this study I used for a descriptive analysis for trend analysis (Creswell & Plano Clark, 2011). I used ordinal regression analysis to examine the relationship between IV and DVs of each hypothesis. The two IVs tracked were age category and self-efficacy scores.

I applied the correlation coefficient R to identify the relation of digital immigrant status and self-efficacy. Separate DVs of technological practices used in instruction, technological social work practice options taught, and specific curriculum were indicators of the impact of the digital divide on social work populations producing the data results (Cohen et al., 2003). B coefficients were the determinants of whether the relationship between the IV and DV were positive or negative (Cohen et al., 2003).

I used factor analysis to determine whether common factors existed within questionnaire variables (Osborne, 2015). Other relationships explored between IVs and DVs included personal and educational institution demographics and pedagogical behaviors. Specific testing types for quantitative hypotheses and qualitative research questions are in Table 1.

Table 1

Data Analysis Matrix

Research questions	Data sources	Data analysis
Hypothesis 1	CTIS, Survey	Ordinal Regression, Factor Analysis
Hypothesis 2	CTIS, Survey	Ordinal Regression, Factor Analysis
Hypothesis 3	CTIS, Survey	MLR, Factor Analysis
Question 1	Demographics, Survey,	Descriptive quantitative and

	Interviews	Qualitative analysis
Question 2	Demographics, Survey, Interviews	Descriptive quantitative and Qualitative analysis

I identified confounding variable identities through hierarchical analysis of data by ranking the variables (Bursac, Gauss, Williams, & Hosmer, 2008). A stepwise selection identified which effects I should select for inclusion in the model (Bursac et al., 2008). I interpreted the results from the remaining data thorough calculation of confidence intervals at 95% for point estimates (Osborne, 2015).

Qualitative Plan

Coding data is one method to understand qualitative inquiry (Saldana, 2013). This mixed methods study used a grounded theory, two phase approach to coding, with an initial and then focused analysis (Charmaz, 2006). The data coding included material from open-ended questions, interviews, and memo writing.

The first coding phase included a collection of words and phrases significant to the variables. I sorted variables derived from each questionnaire by code variables of individually numbered cases. I used MAXQDA 11 software for mixed methods data analysis. MAXQDA 11 allowed code variables to connect attributes and text segments (Kuckartz, 2014). Attribute coding provided description about study participants and social work educational practices.

Additionally, the initial phase involved an analysis of magnitude codes. Magnitude codes allowed survey behaviors to be quantified for frequency and participation in technology integration activities. In order to develop a connection between attribute and magnitude coding, I added pattern coding to the second phase of

data analysis. Pattern coding provided a framework to develop the major themes of the data collected (Charmaz, 2006; Saldana, 2013).

Theming the data occurred throughout both phases to identify information or directly addresed the phenomena in the study (Saldana, 2013). Crosstabs comparisons of data displayed coded data in a quantitative format for analysis (Kuckartz, 2014). MAXQDA 11 software processes integrated the coding in phases one and two with the quantitative data obtained in the survey (Kuckartz, 2014). Significant examples given by DISWE were useful in identifying relationships between meaning and integration of technology quantitative results.

Discrepancy of data can occur through contaminated observations and from a rare case data (Cohen et al., 2003). I minimized contaminated observations in this study by using an expert researcher in assessment of research procedures and evaluation of diagnostic statistics when data collection was complete. I checked my research notes and interview coding for procedural irregularities, which may have contaminated the data.

Rare case data can occur due to valid, but unique individuals within the study (Cohen et al., 2003). I analyzed rare cases for either elimination or identification of a significant occurrence impacting an unexpected finding or problems with the regression model. Then, I identified and evaluated the outlying data and their consequences within the study.

Integration of Qualitative and Quantitative Data

I integrated data from the quantitative and qualitative analysis after separate analysis of data sets in a convergent design (Creswell & Plano Clark, 2011). Closed and

open-ended questions with interviews provided different data sets complementing the information about the DISWE beliefs and behaviors. I synthesized content data from each data set in analysis to identify themes for a data-validation variant from the open-ended questions and interviews. Similarities and differences in results were examined. This convergent design triangulated method provided the ability to identify the significance of statistical results with qualitative information provided in-depth understanding of the topic for transferability.

Validity in mixed methods research is a controversial topic. Qualitative researchers refuted the term validity due to the inability of results to be observed as truth (Onwuegbuzie & Johnson, 2006). Qualitative researchers viewed many realities, not one truth, for research results. Mixed methods researchers developed inferences or meanings, ranging from purely quantitative to purely qualitative, about study findings to bridge this gap in interpretation (Tashakkori & Teddlie, 2003, p. 71-73). The threat to inference quality in mixed methods research can occur during research design, data collection, data analysis and data interpretation (Onwuegbuzie & Johnson, 2006).

Increasing internal inference quality is accomplishable through within-design consistency, conceptual consistency, interpretive consistency, and interpretive distinctness (Tashakkori & Teddlie, 2003). Consistency was possible through the use of a qualitative data collection program, MAXQDA, appropriate sample size, and calculation of selected indices (Creswell & Plano Clark, 2011; MAXQDA, 2013).

I checked internal validity through triangulation of data, member checks, and identification of research bias in this study; external validity was required for the ability

to replicate this research (Zohrabi, 2013). External validity was through consistency in population choice, researcher self-awareness of position, explicit definitions of constructs and premises, and a detailed account of research tools and procedures. Design quality and interpretive rigor set the foundation of establishing construct validity and confirmability (Tashakkori & Teddlie, 2010).

During the analysis and integration of data from open-ended questions and interviews, rich descriptions added credibility and dependability to the quantitative results (Patton, 2002). Approaches to identify confirmability added to the objectivity of the data analysis (Hesse-Biber, 2010). A data audit at the end of the study enhanced confirmability of the results (Hesse-Biber, 2010). Data audits can be reviews of reflexivity to minimize my personal biases about the topic of the study (Creswell & Plano Clark, 2011). Evaluation of qualitative data was by comparative multidisciplinary research studies that contradicted or confirmed the data results on DISWE behaviors.

Ethical Procedures

The recruitment, data collection, and data analysis stages contained protections for participants and their data. Recruitment materials included ethical and data collection processes for participants. Informed consent specifically addressed content at the beginning of each questionnaire and interview. I maintained the data with confidentiality and anonymity. E-mail and phone calls allowed for participants to express any concerns with the study. Data storage included a password on a hard drive and a cloud server.

This researcher was the only person with access to the personal data involved in the study. Data will be destroyed within 5 years of publishing the dissertation. This study

received the approval by the IRB committee at Walden University to meet the requirements of ethical behavior, confidentiality, and participant safety. Walden University's IRB approval number for this study was 03-21-16-0174700.

Summary

Data was from DISWE in this grounded theory research study to identify CTI self-efficacy in relation to curriculum development and practice in social work education. The mixed methods approach included triangulation of data to increase the generalization of results (Hesse-Biber, 2010). The quantitative approach included demographics, a modified version of the Wang et al. (2004) CTI survey and behavior specific Likert questions. The qualitative portion of this survey included two open-ended questions in the overall survey and four interviews with DISWE. The process of data collection and analysis in Chapter 3 provided an avenue for evaluation of validity and replication. The analysis of the data for this study's quantitative and qualitative approaches and an explanation of their significance are presented in Chapter 4.

Chapter 4: Results

Introduction

The results from the analysis of quantitative and qualitative data are in this chapter. The purpose of this study was to explore the CTI by DISWE in three areas: (a) curriculum, (b) pedagogy, and (c) inclusion of technological solutions with vulnerable and marginalized populations.

The three quantitative research questions guiding the study were as follows:

RQ1: How did DISWE's CTI self-efficacy impact integrating technology in curriculum development, pedagogy, and practice strategies?

RQ2: What were the relationships between DISWEs CTI self-efficacy and the number of digital options taught to students for integration into their social work practice?

RQ3: What was the relationship between CTI self-efficacy of DISWE and their ability to address digital divide issues in social work practice with students?

In the qualitative portion of the study, I explored how DISWE perceived technological processes being integrated into their pedagogy, curriculum, and practice outcomes. There were two qualitative questions explored:

RQ1: How did Digital Immigrant Social Work Educator's Computer Technology Integration self-efficacy of impact integrating technology in curriculum development, pedagogy, and practice strategies?

RQ2: How did Digital Immigrant Social Work Educators Computer Technology Integration self-efficacy impact instruction of technological resources for social work systems experiencing digital inequities?

Organization of Chapter 4

The research results of this study in Chapter 4 are included in four sections. The first is an overview of the data collection process. The second presents a breakdown of the descriptive and factor analysis of data validating the model used. In the third , presentation of each quantitative and qualitative hypothesis with multinomial logistic regression and thematically relevant interview data. The fourth is a summary of the significant findings leading to the fifth chapter.

Demographics

I sent the CTIS survey to social work educators in the United States through survey software, Qualtrics. Using the accredited programs list from CSWE's website, I obtained emails of faculty by visiting the university's social work department website or using a search engine to find faculty addresses, if not disclosed on the department's website. Age identification and full-time faculty status was through demographic survey questions. Returned surveys totaled 439 of 5,668 DISWE potential participants, with n = 396 being the final participant number not having missing data. DISWE identified their age group from four valid choices seen in Table 2.

Table 2

Completion of Survey by Age

Age group	Frequency	Percent
(2) 35 - 44 years old	117	26.7
(3) 45 - 54 years old	120	27.3
(4) 55 - 64 years old	133	30.3
(5) 65 and over	69	15.7
Total	439	100

Consistency of demographics for this study correlates with the CSWE (2014) statistics on social work education. These results had correlations with age, gender, and faculty status. The largest portion (41.4%) of full time faculty members identified their ages as over 55 with the gender breakdown including 97 (22.1%) males and 342 (77.9%) females. Distribution of full time faculty positions of participants consisted of 59 (13.6%) non tenured, 8 (1.8%) visiting professors, 24 (5.5%) instructors, 24 (6.5%) lecturers, 96 (22.1%) tenure track, 177 (40.8%) tenured, and other 42 (9.7%).

I randomly selected 30 participants with SPSS for their comments in the qualitative portion of the survey. The qualitative portion sample was through two different methods, two open-ended questions ($N = 30$) on the CTI survey, and a purposeful Skype interview with four DISWE. I chose these participants through a snowball sampling of my social work contacts, who could identify other colleagues for interviewing whom I did not know. DISWE, for the qualitative portion, met the criteria and held a full-time status as a faculty member of an accredited BSW or MSW social work program.

Data Collection

The survey distribution, using Qualtrics survey system, started in April of 2016 and remained open for 1 month. Each survey participant received an individual access link to reduce error. I sent out an initial email and then a follow-up email 2 weeks after the start of the data collection process to encourage the participation of DISWE. The qualitative data in the survey maintained the same protocol as the quantitative portion.

The four interviews occurred in May and June of 2016, after the end of the semester for college professors. The interviewees were from a snowball sampling of other DISWE. An email and phone call from me initiated participation in the study. The interviews occurred on Skype and were recorded on an MP3 player. Transfer of the interviews onto a separate hard drive stored all research materials. The transcription took place during June and July. After transcription, each interviewee verified his or her interview content for approval of use in the study.

Variations in Data Collection

Four issues arose in the data collection process. The first issue involved obtaining the contact information from the CSWE. Upon contacting CSWE for purchase of their contact list, I learned that the contact list consisted of home addresses only. CSWE does not collect email addresses for use in a purchase list. The CSWE website provided a list of all accredited programs to collect email addresses by visiting each school of social work faculty website where collection of full time faculty names and email addresses occurred. This number totaled 5,668 social work educators.

The second issue involved timing of the qualitative interviews. Initially, qualitative surveys through Skype were to be completed during the open survey time frame. The time period at the end of the semester proved difficult for the face-to-face interviews. I scheduled the interviews at the DISWE's discretion after the end of the school term.

The third issue occurred in the options for some of the survey questions. DISWEs gave feedback about exclusion of specific categories. This feedback included a lack of option for field faculty, not using the full range of gender identification, and a lack of technology use in curriculum examples specific to course area taught. A few DISWEs identified a lack of clarity in some survey questions. Each of these areas could impact the results of the data analysis.

Lastly, during the creation of the survey in Qualtrics, the rating system may have been confusing due to the ranking of answers in the CTI survey questions. Efficacy rating scale was 1 to 5, where 1 = *totally agree* with the question (meaning "innovator in using technology in this question area) and 5 = *disagree* with the question (meaning "one of the last to use technology" in this question area). Lower ratings represented a higher CTI self-efficacy while higher numbers represented a lower CTI self-efficacy. Higher numbers commonly reflect more proficiency and lower numbers a higher proficiency. The reverse order of these results could impact the understanding of the survey outcomes.

Data Analysis

Factor Analysis of Survey Responses

A factor analysis of principal components determined one factor capturing the maximum amount of variance in the twenty-one efficacy questions. This single factor accounted for 67% of the total variance in the efficacy questions. All questions loaded positively on the factor, so as the ratings on the efficacy questions increased, the factor score also increased, meaning a higher score reflected lower use of technology. The efficacy rating scale was 1 to 5, where 1 equals *totally agree* with the question (meaning "innovator in using technology in this question area) and 5 equals *disagree* with the question (meaning "one of the last to use technology" in this question area).

Age and CTI Self-Efficacy

I first investigated the relationship between age group and efficacy question ratings. Younger respondents had a lower average efficacy factor score, while older respondents had a higher average efficacy score. This means that younger respondents tended to have lower ratings on the efficacy questions (indicating *higher* use of technology), while older respondents tended to have higher ratings on the efficacy questions (indicating *lower* use of technology).

Table 3

Efficacy Factor Score Statistics

Age group	*N*	Mean	Std. deviation
55 & Over	167	0.25	1.04
35 to 54	202	-0.21	0.92

I used an independent samples to test whether the difference in the efficacy factor score demonstrated a significant finding. The Levene test has the assumption that equal group variances were met. Table 4 reveals a significant difference in average efficacy factor scores (t (367) = 0.53, $p < .001$) between age group 35 to 54 (M = -0.21, SD = 0.92) and age group 55 & over (M = 0.25, SD = 1.04). The effect size of the difference in means (MD = 0.46, *95% CI*: 0.26 to 0.66) was 0.03, a small effect.

Table 4

Independent Samples tTest for Equality of Mean Efficacy Factor Score by Age Group

					95% Confidence Interval of the difference	
t	*df*	*p*	Mean	Std. error difference	Lower	Upper
.53	367	.000	.46	.10	.26	.66

Note. Effect size = Square root of (t^2 / (t^2 + *d.f.*)). Guidelines are: .01 = small effect; .06 = moderate effect; and .14 = large effect.

Assumptions of Multiple Linear Regression

These study results met each multilinear linear regression (MLR) assumption: no multicollinearity, normal distribution of residuals, linear relationship, and homoscedasticity. Multicollinearity tests resulted in three findings: all absolute values of standardized betas < 0.90, no tolerance values < 0.1, and no VIF > 5. The multi-collinearity findings exhibited IVs independent of each other. Residuals displayed normal distribution supported by the histogram and normal P-P plot. Linearity and homoscedasticity (constant variance of residuals across the range of predicted values) exhibited no pattern in the plot of the standardized residuals against the standardized predicted values, supporting each of these assumptions.

Research Questions

CTI Self-Efficacy and Technology Used in Instruction Methods

In this analysis, I explored age group and CTI self-efficacy scores and their impact on the number of digital tools used in social work courses. The digital tools list (Table 5) displayed the choices DISWE used in the survey. Using a hierarchical multiple regression, the age group and CTI self-efficacy factor score (independent variables) displayed a significant relationship with the number of digital tools used (dependent variable). The regression occurred hierarchically, with age group entered as the first block and CTI self-efficacy factor score as the second block.

Model 1 included age group as a set of dummy variables: Group 1 (age 35 to 44), Group 2 (45 to 54), and Group 3 (55 to 64). Group 4 (65 & over) withheld as the reference category. The regression model with age group as the only predictor was not significant (F (3, 365) = 1.94, p = .123). In Model 2 (Block 2), age group and CTI efficacy factor score were included as the independent variables. The regression model displayed significant findings (F (4, 364) = 30.36, $p < .001$). The R^2 for the model indicated 0.25, meaning the model accounted for about 25% of the variance in the dependent variable, the number of digital tools used. Table 5 shows the coefficients.

Table 5

Coefficients of Digital Tools Used

	Unstandardized coefficients		Standardized coefficients			Collinearity statistics	
Variables	*B*	Std. Error	Beta	*t*	Sig.	Tolerance	VIF
(Constant)	6.85	0.42		16.204	.000		
Age Group 35 to 44	0.06	0.54	0.01	0.11	.910	0.49	2.03
Age Group 45 to 54	-0.18	0.53	-0.02	-0.34	.731	0.51	1.98
Age Group 55 to 64	0.17	0.53	0.02	0.32	.748	0.51	1.96
Efficacy Factor Score	-1.88	0.18	-0.50	-10.67	.000	0.93	1.07

Note. DV = number of digital tools used.

As the table shows, none of the age groups used as variables were significantly related to the number of digital tools used compared to the age group 65 & over, holding the efficacy factor score constant. On the other hand, the coefficient for the CTI self-efficacy factor score (B = -1.88) was very significant (t (364) = -10.67, $p < .001$). Controlling for age groups (i.e., holding the other variables in the model constant), the CTI self-efficacy score coefficient indicated that as the CTI self-efficacy score increased by 1, the number of digital tools used went down by almost 2 (1.88). In other words, as the CTI self-efficacy factor score goes up (moving towards less technology-oriented (i.e., higher ratings on efficacy questions), the tendency to use digital tools goes down (i.e., fewer items checked). Therefore, the null hypothesis, CTI self-efficacy did not relate to the amount of technology used in instruction methods and was rejected.

The "other specify please" category revealed a variety of technology tools used in the classroom. A lack of clarity existed in the reasons DISWE used this category. Many of the specific types of digital tools correlated with the categories for the question. An example of this was Moodle and Blackboard as a specific other. I question whether DISWE identified their specific Learning Management System or they did not understand the meaning of the categories. One significant flaw in the question exhibited itself in the "other" category. Social media, unknowingly omitted from the list, may present an issue with reliability.

Relationship between CTI Self-Efficacy and Digital Options Instruction With Students

In the second research question, I explored age group and the CTI self-efficacy factor score with the types of technology-integrated curriculum and pedagogy used to educate students in social work courses. Nine different areas identified DISWE behaviors using digital curriculum and pedagogical options. The frequency of use rating was broken into three groups: (a) never or rarely used, (b) sometimes used, and (c) often used or used in every course. The use of MLR determined whether the age group and efficacy factor score had an impact on the respondent's age group. Thus, for each of the nine MLRs, the DV frequency of use group (with "sometimes used" as the reference category) and the independent variables age group and efficacy factor score categorized the results.

In each MLR, age group had no significant impact on a respondent's frequency of use group, but was kept in the model to control for age. Appendix F shows the MLR results. Controlling for age group (i.e., holding the other variables in the model

constant), the Exp (B) value shows how the CTI self-efficacy factor score affected the likelihood of being in the "never or rarely used" group compared to the "sometimes used" group and the likelihood of being in the "often used or used in every course" group compared to the "sometimes used" group. The following adds to the explanation of impact in data results:

1. An Exp (B) > 1 represented an increased likelihood of being in the target group as opposed to the reference group.
2. An Exp (B) < 1 represented a decreased likelihood of being in the target group as opposed to the reference group.
3. An Exp (B) ≈ 1 indicated the independent variable had little or no impact on the likelihood of being in the target group as opposed to the reference group.

All MLR results for the survey are in Appendix F. Using the preceding table, two examples of the MLR results process follows for the second hypothesis.

1. DV, Q17 (1), identified how often DISWEs educate students about technology in social work practice during their courses in "Role plays or vignettes including technology examples." Controlling for age group, if the CTI self-efficacy factor score increased by 1, then the odds of being in the "never or rarely used" group compared to the "sometimes used" group increased by a factor of 1.62, or increased by 62% (*Exp (B)* = 1.62, $p < .001$.). The CTI self-efficacy factor score did not have a significant impact on the odds of being in the "often used or used in every course" group compared to the "sometimes used" ($p = .11$).

2. DV, Q17 (2) had DISWEs identify whether they usde… "Specific examples of systems using technology to solve social justice issues". Controlling for age group, if the CTI self-efficacy factor score increased by 1, then the odds of being in the "never or rarely used" group compared to the "sometimes used" group increased by a factor of 1.42, or increased by 42% (*Exp (B)* = 1.42, p = .01.). If the CTI self- efficacy factor (controlling for age group) score increased 1, then the odds of being in the "often used or used in every course" group compared to the "sometimes used" group decreased by a factor of 0.41, or decreased by 59% (Exp (B) = 0.41, $p < .001$.).

The methods of curriculum development and pedagogy analysis displayed mixed results for hypothesis testing. My determination rejecting the null hypothesis occurred for DVs 1,2,3,4,5,7, and 13 in the "never or rarely in each course" category and DVs 2,3,4,5,7, and 8, in the "often in every course" category. In the evaluation of DV's 8 and 9 in the "never or rarely in each course" category coupled with DV's 1 and 13 "often in every course," review of the data led to an acceptance of the null hypothesis (see Appendix D).

CTI Self-Efficacy and Ability to Address Digital Divide With Students

The third research question involved age group and CTI self-efficacy factor score with DISWE's awareness in addressing digital divide issues with students. Two different questions identified DISWE behaviors using digital curriculum and pedagogical options addressing the digital divide. The frequency of use rating had 3 groups as in the second DV: (a) never or rarely used; (b) sometimes used; and (c) often used or used in every

course. The use of MLR determined if age group and efficacy factor score had an impact on which group a respondent answered within. The two dependent variables, frequency of use group (with "sometimes used" as the reference category) and the independent variables, of age group and efficacy factor score, determined the results.

Using Appendix F, two examples of the MLR results for the third hypothesis were as follows.

1. DV, Q17 (6) involved how often DISWE educated students about technology in social work practice during their courses in "Curriculum specifically assessing effects of the Digital Divide." Controlling for age group, if the CTI self-efficacy factor score increased by 1, then the odds of being in the "never or rarely used" group compared to the "sometimes used" group increased by a factor of 1.58, or increased by 58% (*Exp (B)* = 1.58, $p < .001$.). If the CTI self- efficacy factor (controlling for age group) score increased 1, then the odds of being in the "often used or used in every course" group compared to the "sometimes used" group decreased by a factor of 0.51 or decreased by 49% (*Exp (B)* = 0.51, $p < .001$.).

2. DV, Q17 (14) asks DISWE to identify if they used… "Solutions to address the digital divide with client populations." Controlling for age group, if the CTI self-efficacy factor score increased by 1, then the odds of being in the "never or rarely used" group compared to the "sometimes used" group increased by a factor of 1.58, or increased by 58% (*Exp (B)* = 1.58, $p = .01$.). If the CTI self- efficacy factor (controlling for age group) score goes up 1, then the odds of being in the "often used or used in every course" group compared

to the "sometimes used" group decreased by a factor of 0.36, or 64% (*Exp (B)* = 0.36, $p < .001$.).

In each MLR, age group continued to exhibit no significant impact on a respondent's frequency of use group, but I kept in the model to control for age (See Appendix D) Controlling for age group the *Exp (B)* value showed how the CTI self-efficacy factor score influenced the likelihood of occurring in the "never or rarely used" group compared to the "sometimes used" group and the likelihood of being in the "often used or used in every course" group compared to the "sometimes used" group. An *Exp (B)* > 1 represented an increased likelihood of being in the target group as opposed to the reference group. The findings in Appendix D lead to my rejection of the null hypothesis.

Qualitative Results

The qualitative portion of this study was an exploration of the DISWE's self-concepts and identities in their CTI self-efficacy within three areas: (a) curriculum development, (b) pedagogy, and (c) issues of the digital divide in social work education. The central qualitative question was "How did digitally immigrant social work educators perceive technological processes being integrated into their approaches to pedagogy, curriculum and practice outcomes?"

RQ1: How did DISWE's CTI self-efficacy impact integrating technology in curriculum development, pedagogy, and practice strategies?

RQ2: How did DISWE's CTI self-efficacy impact instruction of technological resources for social work systems experiencing digital inequities?

Process of Data Coding

Using constructivist grounded theory coding, I examined data collected from open-ended questions, interviews, and memo writing (Charmaz, 2006). The start of my coding began with evaluating magnitude codes for perception of CTI self-efficacy of DISWE in the open questions (Saldaña, 2013). My examination of open questions led to four categories of magnitude coding; excellent, proficient, somewhat, and minimal. Outlier Initial line by line analysis of data led way to identifying focused coding for model significance. Theoretical categories evolved from my examining the focus coding trends. Data from interview answers and memos offered me insight into positive and negative CTI self-efficacy of DISWE described in the data obtained from the open survey questions. The coding of in-person interviews provided rich content to give additional insight into CTI with DISWE.

The initial sample within the proposal identified 30 random samples of DISWE responses. Initially, the magnitude codes provided a varied sample from the 30 responses. As I began the open coding process, the answers chosen did not reflect the entirety of rich data available within the comments. While some comments minimally addressed the questions ("very effective"), other answers provided a snapshot of the participant's knowledge on the subject. The lack of saturation in the open coding process for both hypotheses led to my decision of including all open ended answers in the analysis of data. The number of DISWE answering both questions (n=260) slightly differed from DISWE answering only one question. Table 6 (Q40 comment frequency) and Table 7(Q41 comment frequency) have the identified discrepancies in the number of respondents for

each open question in the survey. Over half of the survey respondents (Q40=59%, Q41=56%) answered at least one open question. I found no clear reason for a lack of participation in DISWEs who did not fill out the survey questions. Table 8 displays participants age ranges.

Table 6

Q40 Comment Frequency

		Frequency	Percent	Valid percent	Cumulative percent
Valid	0 No Comment	182	41.5	41.5	41.5
	1 Comment provided	257	58.5	58.5	100.0
	Total	439	100.0	100.0	

Table 7

Q41 Comment Frequency

		Frequency	Percent	Valid percent	Cumulative percent
Valid	.00	193	44.0	44.0	44.0
	1.00	246	56.0	56.0	100.0
	Total	439	100.0	100.0	

Table 8

Q4 Current Age

		Frequency	Percent	Valid percent	Cumulative percent
Valid	2 35 - 44 years old	56	21.5	21.5	21.5
	3 45 - 54 years old	80	30.8	30.8	52.3
	4 55 - 64 years old	73	28.1	28.1	80.4
	5 65 over	51	19.6	19.6	100.0
	Total	260	100.0	100.0	

Self-Identification of CTI Efficacy in Curriculum Development and Pedagogy

Early adopters self-identified by using the term "early adopter" and evaluating their efficacy in different terms as "I feel effective" or "fairly strong." Early adopter definitions ranged from a short statement of confidence to behaviors encompassing the meaning of the term. Mentoring relationships with other faculty, writing journal articles or books promoting technology integration in social work, and an embracing of the challenge technology innovation brings to their profession stood out among the less remarks. Comments included: "Very effective. I think technology enhances learning and I am willing to learn and implement technological advances to support learning in the classroom." "I feel very effective. There are projects that I embed into the classroom/activities that include technology as one of the processes which to complete the assignment."

Even with self-identified CTI efficacy the definition of the DISWE perceived effectiveness included a narrow scope of technology uses. Technology course tools

exemplified CTI behavior responses. DISWE included specified use of pedagogy (how they teach) as testament to their technology self-efficacy. The most frequent example of pedagogical technology integration (*n*=30) consisted of using a Learning Management System with students. Respondents defined use of LMS systems as proof of their self-efficacy with technology integration.

DISWEs described their effectiveness with familiarity of a pedagogical tool instead of technology's use in the field. DISWE stated: "I regularly use Blackboard and present learning materials, using online technology, such as having a recorded PowerPoint lecture formatted into a movie, incorporating streaming videos into learning materials and have students submit their own videos form my review." "Very effective, I was one of the first to teach online courses in my school," and "I teach online and am committed to providing distance education as a social justice effort." Examples about curriculum development rarely surfaced in self-definitions of CTI efficacy. Table 9 has the top nine frequencies isolated in the second phase of the open coding process. Significant themes arose from the open question data.

Table 9

Top 9 Frequencies of Open Coding of Q40

	Frequency	Percent
Early Adopters	43	17
Proficient	28	11
Not using any technology	34	13
Use LMS	35	14
Need Training	33	13
Pedagogical Uses	30	12
No Support	19	7
Time Consuming	18	7
Not Good for All or Some Social Work Courses	14	6
Total	254	100.0

Barriers to CTI in social work education. DISWE described substantial barriers preventing technology integration into social work pedagogy and curriculum development. The sub-categories of perceived barriers with DISWE presented both internal and external reasons for a lack of CTI. Internal barriers included: differing definitions of technology integration, a lack of understanding for the need of technology integration, negative feelings associated with learning and using technology, a bias towards in person learning, and a narrow grasp of technology uses. The external barriers reported by DISWE signified a lack of technical support from the university and/or department, "constant battles" with colleagues and leadership, a shortage of funds for technology purchase or upgrades, and insufficient time for learning and integration.

Strong emotions underlined DISWE skepticism of integrating technology for use by social work students. Respondents identified fear of diminishing the "hands on" feel

of social work. As one DISWE stated, “I believe that the wholesale adoption of technology, because ‘we can’ is threatening the integrity of future generations of social workers.” A dichotomy of technology self-efficacy in social work education was in the following comment: “I feel as effective as anyone. I am skeptical about how useful technology is except as an enhancement to communication and data management and analysis. I feel like we lose a lot when we have to teach online as social work is about relationships.” Another DISWE described their futility regarding CTI as “I am really tired of having to learn new things ALL THE TIME. I also do not see any improvement in communication…In fact, I think sometimes it is worse. I’m not sold on this…know it is here…ready to retire before I am entirely lost…and part of me does not want to keep up.”

One of the face-to-face interviewees with a high amount of CTI efficacy stated this about the emotions of DISWE around tech instruction: “There are only a couple of us that do this (CTI). I do this; my wife does it. Um, a couple others have tried it, but haven't stuck with it; um, they're just not comfortable with the technology. Um, and so it's something that we have a lot of conversation around with our peers, and we've actually done some hand holding. And you know tried to lay it out for them and here's what it can look like and here's the value of it and they'll try it, but I think that unless you've embraced it, you fear it, and they run away from it.”

Time is a valuable commodity among educators. The rapid upgrading of technology and surfacing of new processes is communicated through the data in concerns of time constraints. As one DISWE expressed: “due to uncompensated time required (to)

develop and integrate technology in curriculum development, I am not motivated to put for the effort." The learning curve for technology presents a need for DISWE to choose between traditional course content and the addition of technology as this quote illustrates: "I am (an) advocate for this integration of technology in course(s). However, we are often burdened by limited resources and heavy teaching loads. If we are provided a course reduction, I am certainly willing to adapt more technology pieces into current curriculum.

A lack of support for resources and training add to the discomfort DISWE feel toward technology integration "I am overwhelmed and anxious about this. I know that it's very important, but I don't know where to get help to learn about all the tools first listed in this survey." At other times faculty or administration hinders CTI, "The majority of my department remains skeptical of technology or refuse to use it," and "There are some technologies I would like to use but my university didn't support." DISWE relied on university resources, department experts, and student knowledge to support their learning track for using technology.

One of the DISWEs discussed their place as a technology integrator at their university: "The students- I am the only one in my department that's using technology largely out of a faculty of nine. We're all full-time. I told you we're spread across three campuses, and I am the technology user. So I have coworkers that are asking me to show me how to use, teach me how to use Google Community, so I want to make sure as I'm teaching these things to the students, that they're understanding the importance of how to do this."

Constructive views on CTI in social work education. While the data collected conveyed many barriers to CTI integration in social work education, educators expressed an almost enthusiastic openness to learn about technology. Comments about appropriate technology uses qualified as discrepant cases and included in the results for a greater understanding of behaviors. One DISWE stated: "I feel with the proper training that I am currently receiving, my ability to integrate technology in curriculum development and pedagogy will be awesome. I will have the ability to reach the students in a way they will learn and properly implement the knowledge, skills and values a true worker exhibits in the field."

Some DISWEs are motivated by their interest in learning how technology could help social work populations, "I am curious about technology and its impact on competent service to client systems. This curiosity is beneficial and prompts me to try new things." One 30 year veteran of social work education was "motivated to learn in order to best equip social workers for this time and the future to practice well. That includes becoming proficient myself in all nuances of technology." DISWEs are willing to learn about CTI if given the training and time to navigate the new technologies.

Early adoption of technology characterized each of the four face to face interviews. These interviews focused on the DISWEs perceived CTI self-efficacy with curriculum, pedagogy and addressing the digital divide. Each interviewee voiced their mediocrity with technology as technical support, but as the interview continued CTI behavior identified them in the early adopter position for social work. One DISWE stated: "I would say that I'm on a scale 1-10 I'm probably about a 5. I think that I can

support them halfway. If it's a simple issue, if it's a software issue or connectivity issue, I don't even know where to begin. I mean, thankfully (my university) has really good support, so."

Data from the in person interviews and survey questions underlined a misunderstanding in the difference between CTI in social work education and the functions of a help desk position. Even as early adopters, the content clearly focused on pedagogy vs. curriculum development with both the answers given to the survey question and the in person interviews. The focus of both quantitative and qualitative data results supports the focus on pedagogy using technological tools and not CTI into curriculum.

Effectiveness of DISWE providing education about the digital divide. The qualitative data collected about DISWEs CTI of education and techniques addressing populations experiencing a digital divide exhibited a clear disconnect. When questioning DISWEs not feeling effective in their delivery of information regarding the digital divide, 43% did not feel effective. As shown in Table 10, the frequency of not being effective in teaching about the digital divide well surpassed any other category**.**

Table 10

Top 8 Frequencies of Open Coding for Q41

	Frequency	Percent
Effective	52	16
Somewhat Effective	20	6
Not Effective	138	43
Unclear on definition of Digital Divide/Inequities	33	10
Not Applicable to Course or Social Work	21	6
Should Address in the Future	21	6
Need Training to Address this Issue	21	6
Students Initiate Discussions of Digital Inequities	18	6
Total	324	99.0*

Note. *Not 100% due to rounding of numbers

Barriers to providing education on the digital divide. A struggle about defining the term, digital divide, surfaced during the second phase of open coding. DISWEs described their understanding of digital divide with terms used for other phenomena. These phrases included: "I find it can be problematic if there is not sufficient IT support." "Some of my students experience internet outages and bandwidth issues." Educators used digital divide to describe students divide in understanding technology instead of the impact on social work populations. These discrepant cases signified the many definitions DISWE hold for the term digital divide.

DISWE relied on students to already understand or teach them about the digital divide in courses. These two DISWEs explained further: "Students are much more tech savvy than I am, and they are aware of these inequities." The other stated: "While students are aware of the economic and social barriers to accessing digital technology,

this (is) not an area I have been effective in developing as a regular part of my classroom or online instruction." Students driving content manifested in comments as "I think I could be effective, but it has never come up." One educator exclaimed: "I learn from students on technology—they learn from me on how to be a clinical social worker—and how to be a macro social worker. Personal!" Student participation in driving content frequented the comments (*n*=18).

The discontent and ignorance of curating CTI content is a reason for exclusion of the topic. Explanations from faculty covered inflexibility. "All of our faculty are over 45 years old and are not comfortable or 'do not have the time' to teach or use new technology or assess the use of it." Reasons for lack of knowledge, "I don't think I am responsible for knowing everything" Unawareness of the significance digital divides bring to vulnerable and marginalized populations: "I don't see technology as part of cultural competence for social work students as the digital divide really excludes many of the clients social workers serve" "I think, given the market place, digital inequities will resolve themselves." Again, DISWEs exhibited divergent definitions concerning technology definitions associated with social work practice.

When speaking to one of the DISWE interviewees about specific teaching of digital inequities, they responded with both a negative and affirmative stance: "Um, frankly, I don't. I probably talk more about that in classroom settings or depending upon the course. Um, so now, in this HBSE course, I definitely talk about, we just talked about children and their access to technology or limitations in access to technology based on issues associated with socioeconomic status or with rural or urban location or parental

knowledge of technology. So I think it probably depends on the course and the course content. I can't say in my LGBT diversity class that technology or access or limitations to technology comes up as much." Many comments reflected the ambiguity of how to integrate technological topics into social work education.

Inclusive behavior for CTI of digital divide populations. While much of the data I analyzed revealed a lack of implementation surrounding the impact of the digital divide, some DISWEs displayed evidence of awareness and follow through of the concept. One educator teaching gerontology courses expressed: "There is a need to address the digital divide and to teach about technological interventions for older adults including problems of ADLs/IADLs and cognitive impairment; address issues of urban and rural elders; address elder poverty. These topics do appear in text readings, other assigned readings, and in discussion questions. Generally students appear to learn beyond their own myths and stereotypes about older people and technology." Other DISWEs described the technological inequities in the courses they teach: "I discuss this in my social welfare policy course when I am discussing access to services, applying for social welfare benefits, etc." These positive discrepant cases offer a view into the future of social work education when CTI is woven throughout course content.

Evidence of Trustworthiness

The triangulation of data addressed credibility and dependability of the research findings. Use of qualitative and quantitative methods in a constructivist paradigm offered an understanding of how DISWEs give meaning to the connection between technology and social work education (Charmaz, 2006). The use of an audit trail, memo records,

quantitative and qualitative results from the CTI survey and interviews offer validation from five different data points.

The thick description of qualitative questions and interviews adds to the transferability of results for future study (Charmaz, 2006). The participants included two men and two women who all have varying backgrounds with BSW and MSW pedagogy and curriculum development. As a reflection of the qualitative data, I chose each of the participants by who had at least some experience using technology in social work education. This offered strength in understanding the progression of technology use in the profession.

Dependability and confirmability in the study occurred through participant checks of the qualitative interviews. Each interviewee had an option to review and respond to their conversation content. An audit trail and use of memos developed during of the quantitative and qualitative collection of data supported the analysis. This audit trail document consisted of a log of emails, conversations, impressions, perceived errors, and decision making reasoning during the research process. The audit trail included analysis, synthesis, and intentions of decisions made through both the quantitative and qualitative phases. The gathering of memo writings occurred during each method in the collection of quantitative and qualitative data. A colleague reviewed my work for researcher bias in context and content.

Adjustment of Data Analysis

The process of analyzing qualitative data in this study changed the way I thought about technology and processing. Initially, I downloaded MAXQDA 12 software in

preparation for exploring qualitative data sets. As I began the open coding process in MAXQDA I became frustrated with software impediments not being fluid in the manner of how my thought processes organize and evaluate data. I decided to proceed with data analysis through hand coding. I started the coding process by printing each data set multiple times. I placed each phase of the coding process next to the subsequent analysis. The observation of these codes in one large flow chart enabled me to conceptualize connections between the data. The irony of my choice not to use a computer program for qualitative data analysis does not escape me as a researcher.

Summary

Chapter 4 was a review of the findings of quantitative and qualitative data collected about the computer technology efficacy of social work educators in pedagogical and curriculum development. Overall, I found a relationship in each of the hypotheses within the quantitative and qualitative data, rejecting the null hypothesis for each research question. The second quantitative research question about digital options taught to social work students found two questions out of each set of nine accepting the null hypothesis; otherwise the remaining questions rejected the null hypothesis. Chapter 5 presents an interpretation of the findings in chapter 4 with limitations of the study and future recommendations.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

This study offered a baseline of social work educators' behaviors in addressing technology integration into the profession through education. Technology integration into social work can be a sensitive topic among educators. Social work is known for being a high touch profession with the in-person relationship being highly connected to providing ethical practice. Compounding technology integration into social work education is the differences in perceptions generations hold about classroom technology practices (Langan, 2016).

In this study, I offered an exploration of how digitally immigrant social work educator (DISWE) experienced technology integration in their teaching practices. Comments from the qualitative research revealed the concern some DISWE encounter with the delivery of effective social work education by using technological alternatives. I did not address the efficacy of instruction with or without using technology, but an exploration of the relationship between technology self-efficacy and practices of DISWEs with students.

Interpretation of the Findings

The research questions in this study explored CTI self-efficacy among DISWEs and how they experienced CTI in curriculum development, pedagogy, and technology inclusion with populations experiencing the digital divide. At the seed of developing a dissertation topic about technology and social work education six years ago, little

research existed. The body of investigations in 2010 centered on theoretical inquiry about CTI efficacy in social work education with few articles devoted to CTI in practice.

Six years later, more research is being completed about CTI integration into education, but the focus centers primarily on online learning (Fitch et al., 2016; Gioia, 2016). Other fields of study acknowledge the need for models of CTI integration through qualitative research. Courduff, Szapkiw, and Wendt (2016) in special education and Miller (2015) in the field of documentation developed research agendas addressing the lack of connection between pedagogy and curriculum in their respective fields.

The first research question was on CTI self-efficacy and different types of technology for use in instruction of social work content. DISWE measures of CTI self-efficacy exhibited a significant relationship to how many digital tools were useful in the classroom. The qualitative results displayed a related finding as DISWE self-identified early adopters of technology discussed a wider variety of digital tools in their examples than those identifying barriers to their technology use (Rogers, 2003). The qualitative interviews of DISWE using more digital tools exhibited an openness to explore new methods of instruction and an acceptance of failure rates for some pedagogical experiments with technology.

I uncovered a revelation in the second research question about DISWE behaviors with technology integration in education. A thread emerged with DISWE focusing on CTI in pedagogy, but rarely used in curriculum examples. Pedagogy is how one teaches, and curriculum is what one teaches (Hurney, Nash, Hartman, & Brantmeier, 2016). The focus of research studies about CTI in social work education continues to center

primarily on the efficacy of pedagogical methods in instruction (Colvin & Bullock, 2014; Deepak, Wisner, & Benton, 2016; O'Connor et al., 2014; 2014; Phelan, 2015). The emphasis of qualitative responses in this study focused on online learning and digital pedagogical approaches with few responses addressing curriculum integration, even by early adopters (Rogers, 2003). One observation of feedback within my qualitative survey results, interviews, and memos was imprecise definitions and misunderstandings when using common technology nomenclature and a general lack of specific direction with integration of CTI teaching the practice of social work.

Four of the independent variables in the second hypothesis (Q8, Q9, Q1, and Q13) exploring DISWE use of CTI in pedagogy and curriculum did not exhibit a significant result. Two questions in appendix F: "Ethical use of technology practices personally (p = .069)" and "How to use social media for advocacy (p = .068)" surfaced as not significant for DISWE rarely using CTI. The second set of independent variables displaying a lack of significance in the second research question's behaviors (Q1, Q13) of "role plays or vignettes including technology examples (p =.114)" and "evaluation of technology use within family systems (p = .81)," exhibited no significance level toward those DISWE using CTI behaviors frequently. These questions need more research to determine the meaning of their lack of significance in the DISWE list of CTI self-efficacy behaviors.

While some researchers discussed the need for technology integration in social work education, few studies connected effectiveness of social work education with technology content for use in practice with social work populations (Mishna et al., 2012; Mukherjee & Clark, 2012; Steyaert & Gould, 2009). Watling (2012) opened the door for

social workers to address digital exclusion in social work education. Digital exclusion is the lack of benefits (e.g., economic, political, or social) experienced by people in the digital divide. The significant finding in this study about the lack of digital divide curriculum integration validated the need for a collaborative effort to move forward addressing technology inequities of the DISWEs. The results from the third research question on the DISWE self-efficacy in teaching issues related to the digital divide yielded a significant lack of knowledge for curriculum integration both in quantitative and qualitative data (See Appendix F and Table 10). The common admission in qualitative data revealed DISWE were ill equipped to address digital divide content within their courses.

Quantitative data results confirmed the hesitancy of social work educators in integrating technology into pedagogy and curriculum. In this study, I found that DISWE feel less confident in CTI development across pedagogy and curriculum according to age; the older the DISWE, the less confident in their use of technology. Cooper-Gaiter (2016) confirmed issues of anxiety and self-efficacy with technology in older adults. Participants offered insights as to the blocks in building a CTI curriculum for social work.

The insights of DISWE offered a systems perspective not developed in the often used technology acceptance model currently being used for CTI adoption in Figure 5 (Davis et al., 1989; Venkatest et al., 2003). As I prioritized the data, it became clear that the technology acceptance model (TAM), while forming a base for integration, did not capture the intricacies of the DISWE processes in technology adoption (Charmaz, 2006; Davis et al., 1989).

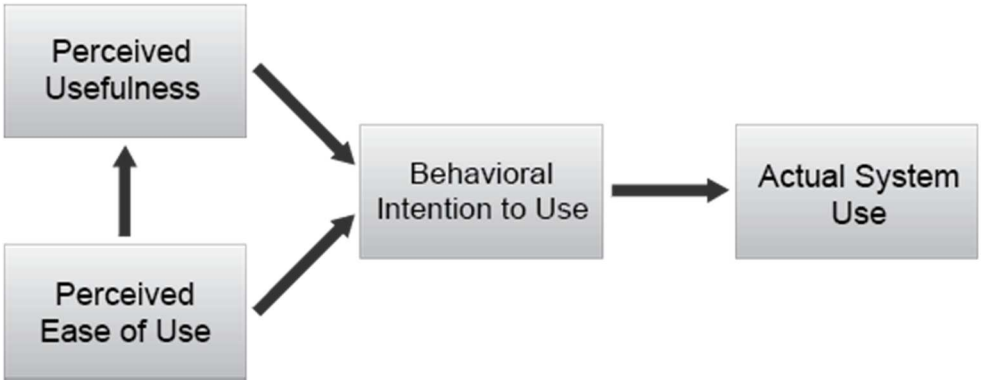

Figure 1.Technology acceptance model.

Note. Adapted from Davis, F.D. (1989) Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13 (3) (1989), pp. 319–340 and Venkatesh, V.; Morris, M. G.; Davis, G. B.; Davis, F. D. (2003), User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27 (3), 425–478.

Social work education is a professional course of study with nationwide expectations of curriculum consistency across programs based on EPAS of the Council on Social Work Accreditation (CSWE, 2015). The change process in social work education incorporates the connection between many systems until the threshold for universal acceptance becoms embraced and then implemented into curriculum. Due to the nature of social work education, curriculum advancement only takes place through a concerted effort of many diverse systems. Models, such as the technology acceptance model, addressed neither the complexity of change within social work and higher education nor the resistance by DISWE in technology implementation (Davis et al., 1989; Watty, McKay, & Ngo, 2016).

The quantitative and qualitative results of this study described factors inhibiting DISWE usage or integration of technology in curriculum. Through analysis of juxtaposing data describing CTI resistance and systemic limitations, a model based on systems theory opened up the possibility of a strength-based approach to technology adaptations and innovation. The quantitative results, qualitative statements, coding, themes, memos, and observations of participant feedback, offered both barriers and motivation for a method of technology integration into social work curriculum. The social work integration model for technology (SWIM-T) is in Figure 2, with the corresponding definitions from data analysis in Tables 9 and 10.

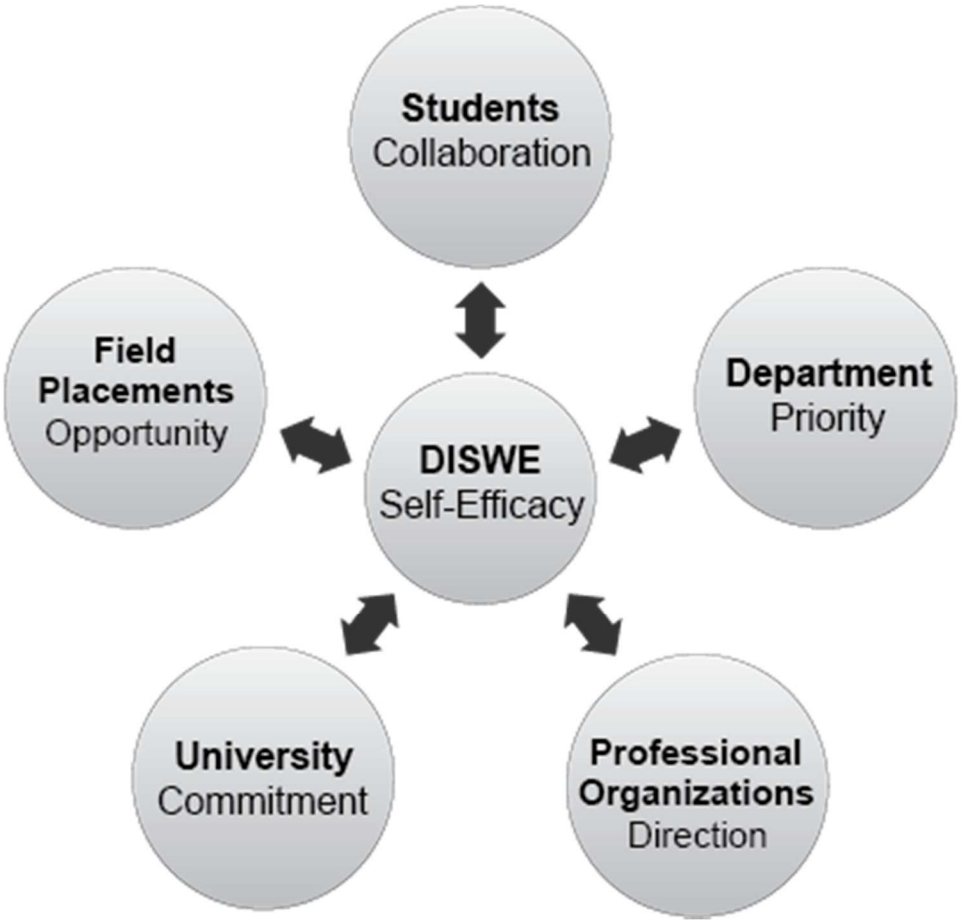

Figure 2.

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The micro level of integration defined by the data resulted in five categories: students, department, university, social service field agencies, and social work professional organizations. The center of the model has a focus on self as a DISWE. Under each category of social work education is a defined role needed for successful technology integration. The meso level is the connection between micro levels and DISWE interactions with the other systems. This meso feedback loop is needed for a macro level transformation initiated by DISWE. Table 5 includes the behavioral components of effective technology integration of SWIM-T within the adoption model. I

focused on the opposite of behavioral components reported to offer a strengths-based interpretation of quantitative and qualitative results.

Table 5

Identified Components of SWIM-T

Social work category	Identified components of effective technology integration	Technology integration role
Educators	Change positive, willingness of trial and error for innovation, asking for help, silencing self-critic, educate on process not necessarily the technical aspect, teach digital citizenship over curriculum	Self-efficacy
Students	Co-creators of technique and content, enlist as experts, connect technology to field assessment and evaluation, become digital citizens	Collaboration
Social service field placements	Efficacy research, Assessments of use in clinical, professional, advocacy, fundraising, and social media, ethical practices and policies, digital divide addressed	Opportunity
Department	Committee development, Peer Support, Time Allocations, Mentoring (both inter and intra disciplinary), policies supporting quality improvement	Priority
University	Support technology innovation strategies in higher education, Strategic plan inclusion of technology, Use of Experts/consultants in planning and execution, Acquisition and implementation of technology resources	Commitment
Professional organizations	Specific CSWE implicit and explicit EPA's across competencies, Ethical standards for the profession, CEU training mandates nationwide, Collaboration with macro level resources to address digital divide inequities and increase technology funding for social work services and education	Direction

One finding needing further research is an addition of a CTI self-efficacy component to TAM (Davis et al., 1989; Venkatest et al., 2003). This study provided information needed on CTI self-efficacy for technology integration in higher education.

If integration exists between TAM and SWIM-T self-efficacy, the capacity for an organization to develop technology acceptance may be enhanced (see Figure 3).

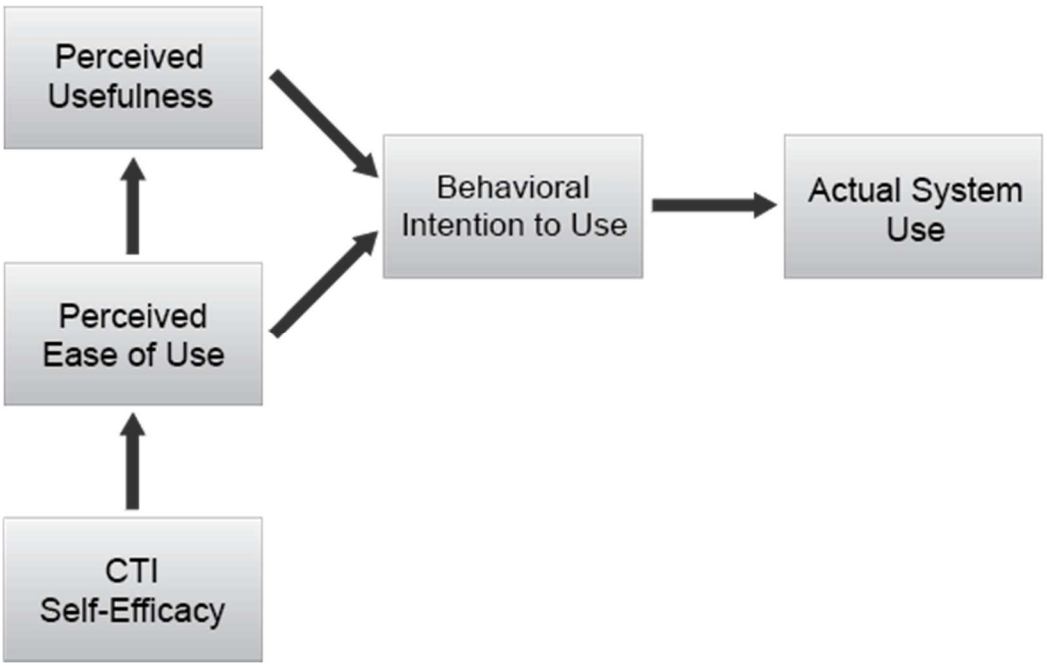

Figure 3. TAM overlay with SWIM-T.

Note. Adapted from Davis, F.D. (1989) Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13 (3) (1989), pp. 319–340 and Venkatesh, V.; Morris, M. G.; Davis, G. B.; Davis, F. D. (2003), User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27 (3), 425–478.

Limitations of the Study

The limitations of the study changed as the data collection process progressed. Instead of email addresses being bought through CSWE, I collected the addresses from the websites of each university or college with CSWE accreditation. The collection came from a list of these institutions on the CSWE website. Some universities did not include

email addresses of their faculty members. I used Google searches of the faculty members' names to research alternative ways to obtain undisclosed university addresses. This method left out some DISWE from the sample due to invalid email addresses.

The ability to contact faculty for in person interviews became difficult due to the survey being sent the last month of the academic year. This time frame is inconvenient for some educators due to an increase of pressure to submit grades and other semester end tasks. Some of the research sample may not have participated due to this timing. The educators taking part in the in person interviews waited until the completion of the school year to be interviewed. This time frame of interviews did not meet the goal of being concurrent with the survey.

Field education is one area brought to my attention by field educators. The survey questions I developed did not properly address how technology is useful in pedagogy and curriculum in field placements. Understanding the implications of technology in the field is a priority due to field being the signature pedagogy of social work education (CSWE, 2015).

Due to the deliberate inexplicit nature of the two open-ended questions, a minor subset of DISWE defined "digital divide, pedagogy and/or curriculum development" different than the intention of the question. The discrepant comments from DISWEs whom misunderstood the definitions could not be added to the data set used for analysis. I sought confirmation verifying the discrepant comments with feedback from another social work educator.

Recommendations for Further Study

SWIM-T is a proposed model of technology integration for social work education resulting from this mixed method, grounded theory study. This model addressed a gap in literature connecting pedagogical and curriculum development by DISWE for delivery of technology integrated social work education. During data analysis the revelation of several threads for future research surfaced.

The first step in future research is to validate the SWIM-T for efficacy. The data results outline the needs for successful development of a technology integration model in social work education. As the number of SWIM-T studies increase, the opportunity for innovation by DISWE opens. This model starts with the DISWE as the center of a systems change. A shift in the DISWE self-efficacy with technology begins the role as an agent of change in technology inclusion and ethical practice for the field.

The focus on current social work research and technology centers primarily on online learning efficacy (Shorkey & Uebel, 2014). The future steps in research after model acceptance is for social work education to address five main areas: (a) increasing self-efficacy among DISWE, (b) identifying field placements use of technology, (c) developing ethical standards, (d) creating a unified plan identifying technology goals in education and the profession, and (e) researching evidence-based digital practices. The shift in focus of social work education's technological inclusion will need further investigation to provide a convergence of optimal practices across the curriculum.

While some researchers discussed the need for technology integration in social work education, few studies connected effectiveness of social work education with

technology content for use in practice with social work populations (Mishna et al,. 2012; Mukherjee & Clark, 2012; Steyaert & Gould, 2009). Watling (2012) opened the door for social workers to address digital exclusion in social work education through research. The significant finding in this study, identifying the lack of digital divide curriculum integration, validated the need for a collaborative effort to move forward addressing technology inequities as DISWEs. The impact of the digital divide on social work populations should not be an afterthought.

Implications

Integrating technology into social work pedagogy and curriculum provided an intersection of opportunity between educational systems whose goal is to progress students into professional positive social change agents. DISWEs can choose to confront technology integration either as a crisis or a challenge. A systems approach to CTI offers DISWE and the profession of social work support to work through existing social problems with innovative methods.

Addressing the integration of technology into pedagogy and curriculum through a SWIM-T approach can offer an increase in digital self-efficacy for each microsystem involved in social work education. Digital citizenship, combined with technological literacy in social work practice, may provide students with an edge in the job market and an increase in efficacy with client populations. The university and department may benefit from CTI self-efficacy though an edge in recruiting millennials or streamlining educational processes.

Field placements serving marginalized and vulnerable populations can work with students and DISWEs to (a) develop technological standards, (b) address digital divide issues, (c) generate new funding streams, and (d) create evidence-based technology practices. Social work professional organizations can become leaders of technology guidance in ethics and practice. Lastly, DISWEs can decide to accept the inevitability of technological progress by embracing change and moving forward toward a critical mass where CTI brings social change to education and vulnerable populations.

Conclusion

Innovations in technology occur at an incredible pace often making it difficult to remain current with each digital evolution. Innovation pacing should not be an excuse to exclude these technological advancements in social work education. Social work educators must evaluate if the need to adhere to "traditional" social work education is as important as the need to remain current with the needs of the populations they serve and the digital citizens entering social work education programs.

The SWIM-T model offers a process for technology integration into the field of social work through a systems approach. Adoption of this model by DISWEs could provide the critical mass needed to develop technology literacy in the field and an evidence based response to an ever growing technologically literate society. Other professions, such as k-12 educators, embrace technological advances and their integration into educational innovation (Courduff et al., 2016; Pan & Franklin, 2011; Skoretz, 2011). As millennials progress into higher education the need for innovative strategies bridging the gap between technology used as a tool in education and technology as a part of a

professional practice. Here exists an opportunity for social work education to raise the bar for its digital citizens or risk an increasing disparity between education and actual practice.

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Appendix A: Letter of Permission

Dear Ellen,

You have my permission to modify the survey and use it for your dissertation study. The terms and conditions you specified are excellent.

Thank you,

Ling

Ling Wang, Ph.D.

Professor of Graduate School of Computer and Information Sciences

Nova Southeastern University

From: Belluomini, Ellen [XXX@dom.edu]
Sent: Friday, January 02, 2015 2:18 PM
To: Ling Wang; XXX@purdue.edu
Subject: Permission to alter your CTI survey

Dear Dr. Wang and Dr. Ertmer,

I am a doctoral student from Walden University in the dissertation phase of earning my PhD. My dissertation is tentatively titled "Digitally Immigrant Social Work Faculty: Technology Self-Efficacy and Practice Outcomes" under the direction of Dr. Barbara Benoliel. I would like your permission to reproduce and alter some of your Computer Technology Integration survey as a self-efficacy measure in my research study. I have enclosed the differences. These differences address social work educators specifically and change the ratings to reflect a Diffusion of Innovation Theory model. I am validating the altered tool due to these modifications. I have enclosed the altered survey in this document.

I promise to use this survey only for my research study and will not sell or use it with any compensated or curriculum development activities. I will include the copyright statement in the survey for each participant. The survey will be sent in an online format using Qualtrics as a data collection tool. I will send my research study and any proceeding articles, which include credit for your survey, to your attention.

If these are acceptable terms and conditions, please indicate so by returning my email

stating I have your permission to use this modified survey in my research.

Regards,

Ellen

Ellen Belluomini, LCSW
Dominican University - Graduate School of Social Work
Lecturer/Coordinator - Military Social Work Program

Appendix B: Computer Technology Integration Survey

Q1 Statement of Consent: I have read the above information. My understanding of this study is sufficient to agree to my involvement in this research. I have read the above information. I consent to participate in this study at this time.

- ❍ I consent to my participation in this study.
- ❍ I do not wish to participate in this study.

Q2 Welcome!

Thank you for agreeing to participate in this survey about understanding the part technology plays in social work education. This survey is broken up into two parts, demographics with survey questions (13) and a self-efficacy survey (21 questions). This survey should take no longer than 15- 20 minutes. Below is a definition of technology and technology integration in relation to this survey. Technology - the methods, theory, devices, and practices used to solve problems using mechanical or industrial arts. Technology Integration - Using technology innovations in social work education to support curricular goals, address disparities, and maintain cultural relevance in practice. This first part of the survey consists of demographics and specifics of behavior in the integration of technology in your pedagogy. The second part is a modified version of the Computer Technology Integration Survey by Wand, Ertmer, and Newby (2004). Thank you for taking the time to participate in this study.

Q4 What is your current age?

- ❍ Under 35
- ❍ 35 - 44 years old
- ❍ 45 - 54 years old
- ❍ 55 - 64 years old
- ❍ 65 over

Q5 What is your gender preference?

- ❍ Male
- ❍ Female

Q6 How many years have you practiced social work in the field? (not including teaching, consulting, or research)

- ❍ 0-5 years
- ❍ 6-10 years
- ❍ 11-15 years
- ❍ Over 15 years
- ❍ I have never practiced in the field

Q7 How many students are enrolled at your university? (The entire school, not just the social work department)

- ❍ 500 - 1,999
- ❍ 2,000 - 4,999
- ❍ 5,000 - 9,999
- ❍ 10,000 +

Q8 What is your faculty status?

- ❍ Non - Tenured
- ❍ Visiting Professor
- ❍ Instructor
- ❍ Lecturer
- ❍ Tenure Track
- ❍ Tenured
- ❍ Other _____

Q9 Please check which level of social work education you primarily teach in:

- ❍ BSW
- ❍ MSW
- ❍ PhD (if you **only** instruct at this level, thank you for your participation, but this survey is only for BSW and MSW educators)

Q10 The type of courses I instruct in primarily are...

- ❑ Fully Online
- ❑ Equally online and face to face
- ❑ Between 25-50% online
- ❑ Under 25% online
- ❑ I teach online minimally
- ❑ I do not teach online

Q11 Please record the amount of online or over blended format courses you have taught.

- ❍ I have not instructed an online or blended course
- ❍ I have instructed in between 1 - 5 online/blended courses (blended means over 25%)
- ❍ I have instructed between 6 - 10 online/blended courses (blended means over 25%)
- ❍ I have instructed over 11 Online/blended courses (blended means over 25%)

Q12 What is the primary focus of your social work department?

- ❍ A teaching institution
- ❍ A research institution

Q13 Please rank which courses you most often instruct in social work education. One being the most often, three being the least.

_____ HBSE
_____ Diversity
_____ Policy
_____ Practice
_____ Research
_____ Community

Q14 On scale of 1 - 10, how important to you personally is it to integrate technology into social work curriculum as a cultural competency for future social workers?

- ❍ 0
- ❍ 1
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5
- ❍ 6
- ❍ 7
- ❍ 8
- ❍ 9
- ❍ 10

Q15 On scale of 1 - 10, how important to your social work program is it to integrate technology into social work curriculum as a cultural competency for future social workers?

- ❍ 0
- ❍ 1
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5
- ❍ 6
- ❍ 7
- ❍ 8
- ❍ 9
- ❍ 10

Q16 Please check all the digital tools you ***currently use or have used within the last year*** in social work courses with your students.

	Technology used in course delivery
Clickers in the Classroom	❍
Digital Cameras/video	❍
eAssessment	❍
ePortfolios	❍
Hash Tags	❍
Instructional Technology Devices (i.e. tablets, computers, etc.)	❍
Learning Management Systems (i.e. Blackboard, D2L, Moodle)	❍
Collaborative learning online tools (i.e., Google Docs, Dropbox)	❍
Presentation software (i.e., PowerPoint, Keynote, Prezi)	❍
Screen-casts (providing online instruction, lectures, etc.)	❍
Smart Boards	❍
Smart Phones	❍
Apps	❍
Online Chats	❍
Survey Tools Online	❍
Provide tutorials or tutoring about technological processes or programs	❍
Your own website	❍
Virtual Learning Environment (i.e. Adobe Connect, Blackboard Collaborate)	❍
Video Conferencing (i.e. Adobe Connect, Blackboard Collaborate)	❍
Podcasting	❍
Data collection through GPS or Geocaching:	❍
Metadata collection tools	❍
Software Program from Publisher of Book (i.e., Pearson Course Connect)	❍

MOOCs (Massive Open Online Courses)	❍
Other specify please:	❍
Other specify please:	❍
Other specify please:	❍

Q17 Please identify how often you educate students about technology in social work practice during your courses in the following areas.

	Never in each course	Rarely in each course	Sometimes in each course	Often in each course	Every Course
Role plays or vignettes including technology examples (i.e., teenager texting during session)	❍	❍	❍	❍	❍
Specific examples of systems using technology to solve social justice issues	❍	❍	❍	❍	❍
Evidence Based Practices using technology to offer digital alternatives for mental health treatment	❍	❍	❍	❍	❍
Evaluation of technology use within family systems	❍	❍	❍	❍	❍
Evaluation of technology solutions for client interventions	❍	❍	❍	❍	❍
Evaluation of technology practices in social service systems/agencies	❍	❍	❍	❍	❍
Curriculum specifically	❍	❍	❍	❍	❍

assessing effects of the Digital Divide on client populations					
Solutions to address the digital divide with client populations	❍	❍	❍	❍	❍
Ethical use of technology practices professionally	❍	❍	❍	❍	❍
Ethical use of technology practices personally	❍	❍	❍	❍	❍
How to use social media for advocacy	❍	❍	❍	❍	❍

Q18 Please choose the option which best describes the belief about your abilities using technology in response to each question. The self-efficacy scale options are defined as:

Totally Agree - I am an innovator in this area of using technology – I am confident in introducing and taking risks using technology. I am a leader in my use of technology.

Strongly Agree - I am an early adopter in this area of using technology – I am confident, but less vocal and more discerning about using technology, but I do use the latest tested advances.

Fairly Agree - I am in the early majority in this area of using technology – I am confident with technologies only after others show me how to use them. I am confident after I have tested the technology and the benefits are explained to me.

Agree a little - I am in the late majority in this area of using technology – I am confident in being skeptical about technology adoption and I only use technology after the majority of people have integrated the digital process or tool productively.

Disagree - I am one of the last in this area of using technology – I am confident in being conservative, traditional and skeptical of the change technology brings. I only use technology if it is required.

Q19 I feel confident that I understand computer capabilities well enough to maximize them in my classroom.

- ❍ Totally Agree - I am an innovator in this area of using technology
- ❍ Strongly Agree - I am an early adopter in this area of using technology
- ❍ Fairly Agree - I am in the early majority in this area of using technology
- ❍ Agree a little - I am in the late majority in this area of using technology
- ❍ Disagree - I am one of the last in this area of using technology

Q20 I feel confident that I have the skills necessary to use the computer for instruction.

- ❍ Totally Agree- I am an innovator in this area of using technology
- ❍ Strongly Agree - I am an early adopter in this area of using technology
- ❍ Fairly Agree - I am in the early majority in this area of using technology
- ❍ Agree a little - I am in the late majority in this area of using technology
- ❍ Disagree - I am one of the last in this area of using technology

Q21 I feel confident that I can successfully teach relevant subject content with appropriate use of technology.

- Totally Agree - I am an innovator in this area of using technology
- Strongly Agree - I am an early adopter in this area of using technology
- Fairly Agree - I am in the early majority in this area of using technology
- Agree a little - I am in the late majority in this area of using technology
- Disagree -I am one of the last in this area of using technology

Q22 I feel confident in my ability to evaluate software tools and processes for teaching and learning.

- Totally Agree - I am an innovator in this area of using technology
- Strongly Agree - I am an early adopter in this area of using technology
- Fairly Agree - I am in the early majority in this area of using technology
- Agree a little - I am in the late majority in this area of using technology
- Disagree -I am one of the last in this area of using technology

Q23 I feel confident that I can use correct computer terminology when directing students and their computer use.

- Totally Agree - I am an innovator in this area of using technology
- Strongly Agree - I am an early adopter in this area of using technology
- Fairly Agree - I am in the early majority in this area of using technology
- Agree a little - I am in the late majority in this area of using technology
- Disagree -I am one of the last in this area of using technology

Q24 I feel confident I can help students when they have difficulty with the computer.

- Totally Agree - I am an innovator in this area of using technology
- Strongly Agree - I am an early adopter in this area of using technology
- Fairly Agree - I am in the early majority in this area of using technology
- Agree a little - I am in the late majority in this area of using technology
- Disagree -I am one of the last in this area of using technology

Q25 I feel confident I can effectively monitor students' computer use for project development in my classroom.

- Totally Agree - I am an innovator in this area of using technology
- Strongly Agree - I am an early adopter in this area of using technology
- Fairly Agree - I am in the early majority in this area of using technology
- Agree a little - I am in the late majority in this area of using technology
- Disagree -I am one of the last in this area of using technology

Q26 I feel confident that I can motivate my students to participate in technology-based projects.

- Totally Agree -I am an innovator in this area of using technology
- Strongly Agree - I am an early adopter in this area of using technology
- Fairly Agree - I am in the early majority in this area of using technology
- Agree a little - I am in the late majority in this area of using technology
- Disagree -I am one of the last in this area of using technology

Q27 I feel confident I can mentor students in appropriate uses of technology.

- Totally Agree -I am an innovator in this area of using technology
- Strongly Agree - I am an early adopter in this area of using technology
- Fairly Agree - I am in the early majority in this area of using technology
- Agree a little - I am in the late majority in this area of using technology
- Disagree -I am one of the last in this area of using technology

Q28 I feel confident I can consistently use educational technology in effective ways.

- Totally Agree - I am an innovator in this area of using technology
- Strongly Agree - I am an early adopter in this area of using technology
- Fairly Agree - I am in the early majority in this area of using technology
- Agree a little - I am in the late majority in this area of using technology
- Disagree -I am one of the last in this area of using technology

Q29 I feel confident I can provide individual feedback to students when they have questions about technology and social work practice.

- Totally Agree - I am an innovator in this area of using technology
- Strongly Agree - I am an early adopter in this area of using technology
- Fairly Agree - I am in the early majority in this area of using technology
- Agree a little - I am in the late majority in this area of using technology
- Disagree -I am one of the last in this area of using technology

Q30 I feel confident I can regularly include relevant technological components in an example or vignette as a part of learning for students.

- Totally Agree - I am an innovator in this area of using technology
- Strongly Agree - I am an early adopter in this area of using technology
- Fairly Agree - I am in the early majority in this area of using technology
- Agree a little - I am in the late majority in this area of using technology
- Disagree -I am one of the last in this area of using technology

Q31 I feel confident about selecting appropriate technological interventions for instruction of social work students for their client populations.

- Totally Agree -I am an innovator in this area of using technology
- Strongly Agree - I am an early adopter in this area of using technology
- Fairly Agree - I am in the early majority in this area of using technology
- Agree a little - I am in the late majority in this area of using technology
- Disagree -I am one of the last in this area of using technology

Q32 I feel confident about assigning and grading technology-based projects.

- Totally Agree -I am an innovator in this area of using technology
- Strongly Agree - I am an early adopter in this area of using technology
- Fairly Agree - I am in the early majority in this area of using technology
- Agree a little - I am in the late majority in this area of using technology
- Disagree -I am one of the last in this area of using technology

Q33 I feel confident about keeping curricular goals and technology uses in mind when selecting an ideal way to assess student learning.

- Totally Agree - I am an innovator in this area of using technology
- Strongly Agree - I am an early adopter in this area of using technology
- Fairly Agree - I am in the early majority in this area of using technology
- Agree a little - I am in the late majority in this area of using technology
- Disagree -I am one of the last in this area of using technology

Q34 I feel confident about using technology resources (such as spreadsheets, electronic portfolios, Learning Management statistics, etc.) to collect and analyze data from student tests and products to improve instructional practices.

- Totally Agree - I am an innovator in this area of using technology
- Strongly Agree - I am an early adopter in this area of using technology
- Fairly Agree - I am in the early majority in this area of using technology
- Agree a little - I am in the late majority in this area of using technology
- Disagree -I am one of the last in this area of using technology

Q35 I feel confident that I can address the impact of the digital divide/exclusion on social work populations with students.

- Totally Agree - I am an innovator in this area of using technology
- Strongly Agree - I am an early adopter in this area of using technology
- Fairly Agree - I am in the early majority in this area of using technology
- Agree a little - I am in the late majority in this area of using technology
- Disagree -I am one of the last in this area of using technology

Q36 I feel confident I can be responsive to students' needs during technology usage.

- Totally Agree - I am an innovator in this area of using technology
- Strongly Agree - I am an early adopter in this area of using technology
- Fairly Agree - I am in the early majority in this area of using technology
- Agree a little - I am in the late majority in this area of using technology
- Disagree -I am one of the last in this area of using technology

Q37 I feel confident that, as time goes by, my ability to address my students' and social work populations technology needs will continue to improve.

- Totally Agree -I am an innovator in this area of using technology
- Strongly Agree - I am an early adopter in this area of using technology
- Fairly Agree - I am in the early majority in this area of using technology
- Agree a little - I am in the late majority in this area of using technology
- I Disagree - am one of the last in this area of using technology

Q38 I feel confident that I can develop creative ways to cope with system innovations (such as Learning Management System changes or upgrades) and continue to teach effectively with technology.

- Totally Agree - I am an innovator in this area of using technology
- Strongly Agree - I am an early adopter in this area of using technology
- Fairly Agree - I am in the early majority in this area of using technology
- Agree a little - I am in the late majority in this area of using technology
- Disagree -I am one of the last in this area of using technology

Q39 I feel confident that I can carry out technology- based projects even when I am opposed by skeptical colleagues.

- Totally Agree - I am an innovator in this area of using technology
- Strongly Agree - I am an early adopter in this area of using technology
- Fairly Agree - I am in the early majority in this area of using technology
- Agree a little - I am in the late majority in this area of using technology
- Disagree -I am one of the last in this area of using technology

Q40 If you have any questions or would like an electronic copy of this dissertation please leave your information (name, email address) below or send your question to Ellen Belluomini at XXX@waldenu.edu. I appreciate your participation in this research.

Appendix C: Letter to Directors of Social Work Programs

To All Directors and Chairpersons of Social Work Programs

My name is Ellen Belluomini, a faculty member at Dominican University. As part of my doctoral research in social work education I have designed a study to identify Computer Technology Integration self-efficacy and the pedagogy/curriculum development of digital practices in social work education for faculty over the age of 35. As a social work educator myself, I understand the difficulty technology integration poses in the education of students. This study explores the relationship between social work educators and technology.

I would appreciate it if you would support this study in two ways:

1. Please forward this link to your full time faculty for their participation in this study.
2. Please use a small portion of a staff meeting to identify that an email was sent out to participate in this study and encourage their participation.

Should you have any questions, I can be reached via email at XXX@waldenu.edu or by phone at XXX. You may also contact my research chair, Dr. Barbara Benoliel, at XXX@Waldenu.edu.

Your support of this research is greatly appreciated.

Ellen Belluomini
Doctoral Candidate
Walden University

Appendix D: Multinomial Logistic Regression Coefficients

Variables	Wald	Sig	Odds Ratio	95% Lower	95% Upper	B	S.E.
RQ2 DV's							
Never or Rarely in each course							
Role plays or vignettes including technology examples (1)	12.52	.000	1.62	1.24	2.12	0.48	0.14
Specific examples of systems using technology to solve social justice issues (2)	6.27	.012	1.42	1.08	1.88	0.35	0.14
EBP using technology to offer digital alternatives for MH Treatment (3)	7.19	.007	1.45	1.11	1.90	0.37	0.14
Evaluation of technology use within family systems (13)	17.20	.000	2.10	1.48	2.98	0.74	0.18
Evaluation of technology solutions for client interventions (4)	13.37	.000	1.76	1.30	2.38	0.56	0.15
Evaluation of technology practices in social service systems/agencies (5)	13.01	.000	1.67	1.27	2.21	0.52	0.14
Ethical use of technology practices professionally (7)	5.00	.025	1.37	1.04	1.81	0.32	0.14
Ethical use of technology practices personally (8)	3.30	.069	1.31	0.98	1.75	0.27	0.15
How to use social media for advocacy (9)	3.32	.068	1.28	0.98	1.68	0.25	0.14
Often or in every course							
Role plays or vignettes including technology examples (1)	2.50	.114	0.74	0.50	1.08	-0.31	0.19
Specific examples of systems using technology to solve social justice issues (2)	17.64	.000	0.41	0.27	0.62	-0.90	0.21
EBP using technology to offer digital alternatives for MH Treatment (3)	14.82	.000	0.42	0.27	0.65	-0.87	0.23
Evaluation of technology use within family systems (13)	3.05	.081	0.59	0.33	1.07	-0.52	0.30
Evaluation of technology solutions for client interventions (4)	15.46	.000	0.34	0.19	0.58	-1.09	0.28
Evaluation of technology practices in social service systems/agencies (5)	12.51	.000	0.49	0.33	0.73	-0.72	0.20
Ethical use of technology practices professionally (7)	6.73	.009	0.69	0.52	0.91	-0.37	0.14
Ethical use of technology practices personally (8)	5.52	.019	0.70	0.51	0.94	-0.36	0.16
How to use social media for advocacy (9)	15.03	.000	0.53	0.39	0.73	-0.64	0.16

RQ3 DV's

Never or Rarely in each course

Curriculum specifically assessing effects of the Digital Divide					0.46	0.17
7.65	.006	1.58	1.14	2.18		
on client populations (6)						
Solutions to address the digital divide with client populations (14)					0.46	0.17
7.70	.006	1.58	1.14	2.19		

Often or in every course

Curriculum specifically assessing effects of the Digital Divide					-0.68	0.26
6.75	.009	0.51	0.31	0.85		
on client populations (6)						
Solutions to address the digital divide with client populations (14)					-1.01	0.32
9.97	.002	0.36	0.19	0.68		

Appendix E: MLR Output Q17

Variables	Sig	Odds Ratio	95% Lower	95% Upper	B	S.E.	Wald
RQ2 DV's							
Never or Rarely in each course							
Role plays or vignettes including technology examples (1)	.000	1.62	1.24	2.12	0.48	0.14	12.52
Specific examples of systems using technology to solve social justice issues (2)	.012	1.42	1.08	1.88	0.35	0.14	6.27
EBP using technology to offer digital alternatives for MH Treatment (3)	.007	1.45	1.11	1.90	0.37	0.14	7.19
Evaluation of technology use within family systems (13)	.000	2.10	1.48	2.98	0.74	0.18	17.20
Evaluation of technology solutions for client interventions (4)	.000	1.76	1.30	2.38	0.56	0.15	13.37
Evaluation of technology practices in social service systems/agencies (5)	.000	1.67	1.27	2.21	0.52	0.14	13.01
Ethical use of technology practices professionally (7)	.025	1.37	1.04	1.81	0.32	0.14	5.00
Ethical use of technology practices personally (8)	.069	1.31	0.98	1.75	0.27	0.15	3.30
How to use social media for advocacy (9)	.068	1.28	0.98	1.68	0.25	0.14	3.32
Often or in every course							
Role plays or vignettes including technology examples (1)	.114	0.74	0.50	1.08	-0.31	0.19	2.50
Specific examples of systems using technology to solve social justice issues (2)	.000	0.41	0.27	0.62	-0.90	0.21	17.64
EBP using technology to offer digital alternatives for MH Treatment (3)	.000	0.42	0.27	0.65	-0.87	0.23	14.82
Evaluation of technology use within family systems (13)	.081	0.59	0.33	1.07	-0.52	0.30	3.05
Evaluation of technology solutions for client interventions (4)	.000	0.34	0.19	0.58	-1.09	0.28	15.46
Evaluation of technology practices in social service systems/agencies (5)	.000	0.49	0.33	0.73	-0.72	0.20	12.51
Ethical use of technology practices professionally (7)	.009	0.69	0.52	0.91	-0.37	0.14	6.73
Ethical use of technology practices personally (8)	.019	0.70	0.51	0.94	-0.36	0.16	5.52
How to use social media for advocacy (9)	.000	0.53	0.39	0.73	-0.64	0.16	15.03
RQ3 DV's							
Never or Rarely in each course							

Curriculum specifically assessing effects of the Digital Divide			0.46	0.17	7.65
.006	1.58	1.14	2.18		
on client populations (6)					
Solutions to address the digital divide with client populations (14)			0.46	0.17	7.70
.006	1.58	1.14	2.19		
Often or in every course					
Curriculum specifically assessing effects of the Digital Divide			-0.68	0.26	6.75
.009	0.51	0.31	0.85		
on client populations (6)					
Solutions to address the digital divide with client populations (14)			-1.01	0.32	9.97
.002	0.36	0.19	0.68		

Appendix F: MLR Output Q17

Parameter Estimates

Q17_1_Recoded Role plays or vignettes including technology examples (i.e., teenager texting during session)[a]		B	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
								Lower Bound	Upper Bound
0 Never or Rarely in each course	Intercept	.680	.301	5.104	1	.024			
	[Q4=2]	.172	.389	.196	1	.658	1.188	.554	2.548
	[Q4=3]	.311	.388	.643	1	.423	1.365	.638	2.917
	[Q4=4]	.293	.391	.561	1	.454	1.340	.623	2.884
	[Q4=5]	0[b]	.	.	0	.	.	.	.
	FAC1_2	.483	.136	12.519	1	.000	1.620	1.240	2.117
2 Often or in every course	Intercept	-1.292	.515	6.284	1	.012			
	[Q4=2]	.548	.604	.824	1	.364	1.730	.530	5.646
	[Q4=3]	.506	.617	.674	1	.412	1.659	.495	5.555
	[Q4=4]	1.160	.599	3.752	1	.053	3.191	.986	10.322
	[Q4=5]	0[b]	.	.	0	.	.	.	.
	FAC1_2	-.307	.194	2.496	1	.114	.736	.503	1.077

a. The reference category is: 1 Sometimes in each course.

b. This parameter is set to zero because it is redundant.

Age (Q4) did not have a significant impact on Q17_1, but I had it in the model, so the coefficients of other predictors reflected controlling for age. Here, Factor 1 (captured 67% of the total variance in the efficacy variables) had a sig. relationship with the likelihood of being in Q17_1 Group 0. If the value for Factor 1 went up 1 unit, then the odds of being in Group 0 increased by a factor of 1.62 (or 62%). So as Factor 1 went up (meaning the ratings for the efficacy questions move towards the end of the scale reflected "one of the last in this area using

technology"), the odds of being in Group 0 went up (Grp 0 is "rarely or never educate students about technology..."). Factor 1 was not a sig. predictor of Group 2.

Parameter Estimates

Q17_2_Recoded Specific examples of systems using technology to solve social justice issues[a]		B	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
								Lower Bound	Upper Bound
0 Never or Rarely in each course	Intercept	.622	.302	4.242	1	.039			
	[Q4=2]	.006	.386	.000	1	.987	1.006	.472	2.147
	[Q4=3]	.755	.409	3.398	1	.065	2.127	.953	4.744
	[Q4=4]	.479	.390	1.505	1	.220	1.614	.751	3.468
	[Q4=5]	0[b]	.	.	0	.	.	.	.
	FAC1_2	.353	.141	6.266	1	.012	1.423	1.080	1.877
2 Often or in every course	Intercept	-1.197	.490	5.981	1	.014			
	[Q4=2]	-.064	.571	.013	1	.911	.938	.306	2.872
	[Q4=3]	.813	.587	1.923	1	.166	2.255	.714	7.120
	[Q4=4]	.724	.586	1.528	1	.216	2.063	.655	6.500
	[Q4=5]	0[b]	.	.	0	.	.	.	.
	FAC1_2	-.900	.214	17.639	1	.000	.407	.267	.619

a. The reference category was: 1 Sometimes in each course.

b. This parameter was set to zero because it was redundant.

Age (Q4) did not have a significant impact on Q17_2, but I had it in the model, so the coefficients of other predictors reflected controlling for age. Factor 1 had a significant relationship with the likelihood of being in Q17_2 Group 0. If the value for Factor 1 increased 1 unit, then the odds of being in Group 0 increased by a factor of 1.42 (or 42%). So as Factor 1increased (meaning the ratings for the efficacy questions moved towards the end of the scale reflecting "one of the last in this area using technology"), the odds of being in Group 0 went up (Grp 0 was "rarely or never educated students about technology."). Factor 1 had a significant relationship with the likelihood of being in Q17_2 Group 2. If the value for Factor 1 increased 1 unit, then the odds of being in Group 2 decreased by a factor of 0.41 (or 59%). So as Factor 1

increased (meaning the ratings for the efficacy questions moved towards the end of the scale reflecting "one of the last in this area using technology"), the odds of being in Group 2 decreased (Group 2 was "often or in every course educate students about technology").

Parameter Estimates

Q17_3_Recoded Evidence Based Practices using technology to offer digital alternatives for mental health[a]		B	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
								Lower Bound	Upper Bound
0 Never or Rarely in each course	Intercept	.898	.318	7.956	1	.005			
	[Q4=2]	.265	.413	.411	1	.521	1.303	.580	2.925
	[Q4=3]	.229	.403	.323	1	.570	1.258	.571	2.772
	[Q4=4]	-.215	.389	.305	1	.581	.807	.377	1.728
	[Q4=5]	0[b]	.	.	0	.	.	.	.
	FAC1_2	.371	.138	7.192	1	.007	1.449	1.105	1.901
2 Often or in every course	Intercept	-1.012	.504	4.029	1	.045			
	[Q4=2]	.024	.596	.002	1	.967	1.025	.319	3.293
	[Q4=3]	-.306	.621	.243	1	.622	.736	.218	2.486
	[Q4=4]	.087	.592	.021	1	.883	1.091	.342	3.478
	[Q4=5]	0[b]	.	.	0	.	.	.	.
	FAC1_2	-.871	.226	14.815	1	.000	.419	.269	.652

a. The reference category was: 1 Sometimes in each course.

b. This parameter was set to zero because it was redundant.

Age (Q4) did not have a significant impact on Q17_3, but I had it in the model, so the coefficients of other predictors reflected controlling for age. Factor 1 had a significant relationship with the likelihood of being in Q17_3 Group 0. If the value for Factor 1 increased 1 unit, then the odds of being in Group 0 increased by a factor of 1.45 (or 45%). So as Factor 1increased (meaning the ratings for the efficacy questions moved towards the end of the scale reflecting "on one of the last in this area using technology"), the odds of being in Group 0 increased (Grp 0 was "rarely one ever educates students about technology"). Factor 1 had a significant relationship with the likelihood of being in Q17_3 Group 2. If the value for Factor 1 increased 1 unit, then the odds of being in Group 2 decreased by a factor of 0.42 (or 58%). So as

Factor 1 increased (meaning the ratings for the efficacy questions moved towards the end of the scale reflecting "one of the last in this area using technology"), the odds of being in Group 2 decreased (Grp 2 was "often or in every course educates students about technology").

Parameter Estimates

Q17_13_Recoded Evaluation of technology use within family systems[a]		B	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
								Lower Bound	Upper Bound
0 Never or Rarely in each course	Intercept	2.343	.486	23.231	1	.000			
	[Q4=2]	-.449	.560	.641	1	.423	.639	.213	1.914
	[Q4=3]	-.557	.558	.995	1	.318	.573	.192	1.711
	[Q4=4]	-.775	.560	1.915	1	.166	.461	.154	1.380
	[Q4=5]	0[b]	.	.	0	.	.	.	.
	FAC1_2	.742	.179	17.195	1	.000	2.100	1.479	2.981
2 Often or in every course	Intercept	-.890	.778	1.310	1	.252			
	[Q4=2]	-.240	.855	.079	1	.779	.786	.147	4.205
	[Q4=3]	-.460	.879	.273	1	.601	.631	.113	3.540
	[Q4=4]	.100	.854	.014	1	.906	1.105	.207	5.890
	[Q4=5]	0[b]	.	.	0	.	.	.	.
	FAC1_2	-.522	.299	3.052	1	.081	.593	.330	1.066

a. The reference category was: 1 Sometimes in each course.

b. This parameter was set to zero because it was redundant.

Age (Q4) did not have a significant impact on Q17_13, but I had it in the model, so the coefficients of other predictors reflected controlling for age. Factor 1 had a significant relationship with the likelihood of being in Q17_13 Group 0. If the value for Factor 1 increased 1 unit, then the odds of being in Group 0 increased by a factor of 2.10 (or 110%). So as Factor 1increased (meaning the ratings for the efficacy questions moved towards the end of the scale reflecting "one of the last in this area using technology"), the odds of being in Group 0 increased (Group 0 was "rarely or never educate students about technology, etc."). Factor 1 did not have a significant relationship with the likelihood of being in Q17_13 Group 2 ($p > .05$).

Parameter Estimates

Q17_4_Recoded Evaluation of technology solutions for client interventions[a]		B	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
								Lower Bound	Upper Bound
0 Never or Rarely in each course	Intercept	1.373	.359	14.599	1	.000			
	[Q4=2]	.044	.449	.010	1	.922	1.045	.433	2.521
	[Q4=3]	.077	.447	.030	1	.863	1.080	.450	2.596
	[Q4=4]	-.421	.433	.948	1	.330	.656	.281	1.533
	[Q4=5]	0[b]	.	.	0	.	.	.	.
	FAC1_2	.564	.154	13.369	1	.000	1.757	1.299	2.378
2 Often or in every course	Intercept	-1.420	.631	5.069	1	.024			
	[Q4=2]	.002	.689	.000	1	.998	1.002	.260	3.865
	[Q4=3]	-.242	.722	.112	1	.737	.785	.191	3.229
	[Q4=4]	.303	.692	.192	1	.662	1.354	.349	5.255
	[Q4=5]	0[b]	.	.	0	.	.	.	.
	FAC1_2	-1.094	.278	15.463	1	.000	.335	.194	.578

a. The reference category was: 1 Sometimes in each course.

b. This parameter was set to zero because it was redundant.

Age (Q4) did not have a significant impact on Q17_4, but I had it in the model, so the coefficients of other predictors reflected controlling for age. Factor 1 had a significant relationship with the likelihood of being in Q17_4 Group 0. If the value for Factor 1 increased 1 unit, then the odds of being in Group 0 increased by a factor of 1.76 (or 76%). So as Factor 1increased (meaning the ratings for the efficacy questions moved towards the end of the scale reflected "one of the last in this area using technology"), the odds of being in Group 0 increased (Group 0 was "rarely or never educate students about technology, etc."). Factor 1 had a

significant relationship with the likelihood of being in Q17_4 Group 2. If the value for Factor 1 increased 1 unit, then the odds of being in Group 2 decreased by a factor of 0.34 (or 66%). So as Factor 1 increased (meaning the ratings for the efficacy questions moved towards the end of the scale reflecting "one of the last in this area using technology"), the odds of being in Group 2 decreased (Grp 2was "often or in every course educates students about technology, etc.").

Parameter Estimates

Q17_5_Recoded Evaluation of technology practices in social service systems/agencies[a]		B	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
								Lower Bound	Upper Bound
0 Never or Rarely in each course	Intercept	.484	.302	2.561	1	.110			
	[Q4=2]	.469	.397	1.392	1	.238	1.598	.733	3.482
	[Q4=3]	.530	.396	1.791	1	.181	1.700	.782	3.697
	[Q4=4]	.453	.388	1.364	1	.243	1.573	.736	3.363
	[Q4=5]	0[b]	.	.	0	.	.	.	.
	FAC1_2	.515	.143	13.012	1	.000	1.673	1.265	2.213
2 Often or in every course	Intercept	-1.202	.474	6.430	1	.011			
	[Q4=2]	.444	.557	.636	1	.425	1.559	.523	4.645
	[Q4=3]	.759	.558	1.847	1	.174	2.136	.715	6.382
	[Q4=4]	.732	.567	1.668	1	.197	2.079	.685	6.313
	[Q4=5]	0[b]	.	.	0	.	.	.	.
	FAC1_2	-.715	.202	12.508	1	.000	.489	.329	.727

a. The reference category was: 1 sometimes in each course.

b. This parameter was set to zero because it was redundant.

Age (Q4) did not have a significant impact on Q17_5, but I had it in the model, so the coefficients of other predictors reflected controlling for age. Factor 1 had a significant relationship with the likelihood of being in Q17_5 Group 0. If the value for Factor 1 increased 1 unit, then the odds of being in Group 0 increased by a factor of 1.67 (or 67%). So as Factor 1

increased (meaning the ratings for the efficacy questions move towards the end of the scale reflecting "one of the last in this area using technology"), the odds of being in Group 0 increased (Group 0 was "rarely or never educate students about technology, etc."). Factor 1 had a significant relationship with the likelihood of being in Q17_5 Group 2. If the value for Factor 1 increased 1 unit, then the odds of being in Group 2 decreased by a factor of 0.49 (or 51%). So as Factor 1 increased (meaning the ratings for the efficacy questions moved towards the end of the scale reflected "one of the last in this area using technology"), the odds of being in Group 2 decreased (Grp 2 was "often or in every course educates students about technology, etc.").

Parameter Estimates

Q17_7_Recoded Ethical use of technology practices professionally[a]		B	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp(B) Lower Bound	95% Confidence Interval for Exp(B) Upper Bound
0 Never or Rarely in each course	Intercept	.599	.334	3.226	1	.072			
	[Q4=2]	-.472	.430	1.205	1	.272	.623	.268	1.449
	[Q4=3]	-.498	.419	1.412	1	.235	.608	.267	1.382
	[Q4=4]	-.562	.404	1.935	1	.164	.570	.258	1.258
	[Q4=5]	0[b]	.	.	0	.	.	.	.
	FAC1_2	.317	.142	5.000	1	.025	1.372	1.040	1.811
2 Often or in every course	Intercept	.212	.367	.334	1	.563			
	[Q4=2]	.032	.446	.005	1	.943	1.032	.430	2.477
	[Q4=3]	.033	.443	.005	1	.941	1.033	.434	2.460
	[Q4=4]	-.227	.441	.265	1	.607	.797	.336	1.893
	[Q4=5]	0[b]	.	.	0	.	.	.	.
	FAC1_2	-.373	.144	6.727	1	.009	.688	.519	.913

a. The reference category was: 1 Sometimes in each course.

b. This parameter was set to zero because it was redundant.

Age (Q4) did not have a significant impact on Q17_7, but I had it in the model, so the coefficients of other predictors reflected controlling for age. Factor 1 had a significant relationship with the likelihood of being in Q17_7 Group 0. If the value for Factor 1 increased by 1 unit, then the odds of being in Group 0 increased by a factor of 1.37 (or 37%). So as Factor 1increased (meaning the ratings for the efficacy questions moved towards the end of the scale reflected "one of the last in this area using technology"), the odds of being in Group 0 increased (Group 0 was "rarely or never educate students about technology, etc."). Factor 1 had a significant relationship with the likelihood of being in Q17_7 Group 2. If the value for Factor 1 increased 1 unit, then the odds of being in Group 2 decreased by a factor of 0.69 (or 31%). So as Factor 1 increased (meaning the ratings for the efficacy questions moved towards the end of the

scale reflected "one of the last in this area using technology"), the odds of being in Group 2 decreased (Grp 2 was "often or in every course educate students about technology, etc.").

Parameter Estimates

Q17_8_Recoded Ethical use of technology practices personally[a]		B	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp(B) Lower Bound	Upper Bound
0 Never or Rarely in each course	Intercept	1.344	.398	11.385	1	.001			
	[Q4=2]	-.695	.488	2.022	1	.155	.499	.192	1.301
	[Q4=3]	-1.140	.472	5.838	1	.016	.320	.127	.806
	[Q4=4]	-.809	.464	3.036	1	.081	.445	.179	1.106
	[Q4=5]	0[b]	.	.	0	.	.	.	.
	FAC1_2	.269	.148	3.296	1	.069	1.309	.979	1.750
2 Often or in every course	Intercept	.832	.430	3.739	1	.053			
	[Q4=2]	-.323	.514	.394	1	.530	.724	.265	1.983
	[Q4=3]	-.573	.499	1.321	1	.250	.564	.212	1.498
	[Q4=4]	-.612	.505	1.470	1	.225	.542	.201	1.459
	[Q4=5]	0[b]	.	.	0	.	.	.	.
	FAC1_2	-.363	.155	5.515	1	.019	.696	.514	.942

a. The reference category was: 1 Sometimes in each course.

b. This parameter was set to zero because it was redundant.

Age (Q4) did not have a significant impact on Q17_8, but I had it in the model, so the coefficients of other predictors reflected controlling for age. Factor 1 did not have a significant relationship with the likelihood of being in Q17_8 Group 0 ($p > .05$). Factor 1 had a significant relationship with the likelihood of being in Q17_8 Group 2. If the value for Factor 1 wemt up 1 unit, then the odds of being in Group 2 decreased by a factor of 0.70 (or 30%). So as Factor 1went up (meaning the ratings for the efficacy questions move towards the end of the scale

reflected "one of the last in this area using technology"), the odds of being in Group 2 went down (Grp 2 is "often or in every course educate students about technology...").

Parameter Estimates

Q17_9_Recoded How to use social media for advocacy[a]		B	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
								Lower Bound	Upper Bound
0 Never or Rarely in each course	Intercept	.538	.307	3.066	1	.080			
	[Q4=2]	-.247	.402	.376	1	.540	.781	.355	1.720
	[Q4=3]	-.125	.387	.104	1	.747	.883	.414	1.884
	[Q4=4]	.154	.387	.158	1	.691	1.167	.546	2.492
	[Q4=5]	0[b]	.	.	0	.	.	.	.
	FAC1_2	.249	.136	3.321	1	.068	1.282	.981	1.675
2 Often or in every course	Intercept	-.487	.403	1.461	1	.227			
	[Q4=2]	.441	.479	.847	1	.357	1.554	.608	3.977
	[Q4=3]	.150	.486	.096	1	.757	1.162	.448	3.014
	[Q4=4]	.545	.491	1.233	1	.267	1.725	.659	4.515
	[Q4=5]	0[b]	.	.	0	.	.	.	.
	FAC1_2	-.635	.164	15.025	1	.000	.530	.385	.731

a. The reference category is: 1 Sometimes in each course.

b. This parameter is set to zero because it is redundant.

Age (Q4) did not have a significant impact on Q17_9, but I had it in the model, so the coefficients of other predictors reflected controlling for age. Factor 1 did not have a significant relationship with the likelihood of being in Q17_9 Group 0 ($p > .05$). Factor 1 had a significant relationship with the likelihood of being in Q17_9 Group 2. If the value for Factor 1 went up 1 unit, then the odds of being in Group 2 decreased by a factor of 0.53 (or 47%). So as Factor 1went up (meaning the ratings for the efficacy questions move towards the end of the scale

reflected "one of the last in this area using technology"), the odds of being in Group 2 went down (Grp 2 is "often or in every course educates students about technology...").

Parameter Estimates

Q17_6_Recoded Curriculum specifically assessing effects of the Digital Divide on client populations[a]		B	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
								Lower Bound	Upper Bound
0 Never or Rarely in each course	Intercept	1.643	.389	17.818	1	.000			
	[Q4=2]	.112	.487	.052	1	.819	1.118	.430	2.905
	[Q4=3]	-.025	.481	.003	1	.958	.975	.380	2.503
	[Q4=4]	.045	.486	.009	1	.926	1.046	.403	2.714
	[Q4=5]	0[b]	.	.	0	.	.	.	.
	FAC1_2	.456	.165	7.653	1	.006	1.578	1.142	2.180
2 Often or in every course	Intercept	-.582	.573	1.029	1	.310			
	[Q4=2]	-.761	.721	1.115	1	.291	.467	.114	1.919
	[Q4=3]	-.273	.687	.158	1	.691	.761	.198	2.925
	[Q4=4]	.140	.688	.042	1	.838	1.151	.299	4.435
	[Q4=5]	0[b]	.	.	0	.	.	.	.
	FAC1_2	-.676	.260	6.747	1	.009	.509	.306	.847

a. The reference category is: 1 Sometimes in each course.

b. This parameter is set to zero because it is redundant.

Age (Q4) did not have a significant impact on Q17_6, but I had it in the model, so the coefficients of other predictors reflected controlling for age. Factor 1 had a significant relationship with the likelihood of being in Q17_6 Group 0. If the value for Factor 1 went up 1 unit, then the odds of being in Group 0 increased by a factor of 1.58 (or 58%). So as Factor 1went up (meaning the ratings for the efficacy questions move towards the end of the scale reflected "one of the last in this area using technology"), the odds of being in Group 0 went up

(Grp 0 is "rarely or never educate students about technology..."). Factor 1 had a significant relationship with the likelihood of being in Q17_6 Group 2. If the value for Factor 1 went up 1 unit, then the odds of being in Group 2 decreased by a factor of 0.51 (or 49%). So as Factor 1 went up (meaning the ratings for the efficacy questions move towards the end of the scale reflected "one of the last in this area using technology"), the odds of being in Group 2 went down (Group 2 is "often or in every course educates students about technology...").

Parameter Estimates

Q17_14_Recoded Solutions to address the digital divide with client populations[a]		B	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
								Lower Bound	Upper Bound
0 Never or Rarely in each course	Intercept	2.275	.473	23.101	1	.000			
	[Q4=2]	-.566	.550	1.059	1	.303	.568	.193	1.668
	[Q4=3]	-.631	.550	1.318	1	.251	.532	.181	1.562
	[Q4=4]	-.923	.540	2.924	1	.087	.397	.138	1.144
	[Q4=5]	0[b]	.	.	0	.	.	.	.
	FAC1_2	.459	.165	7.701	1	.006	1.583	1.144	2.188
2 Often or in every course	Intercept	-1.209	.812	2.215	1	.137			
	[Q4=2]	-.881	.912	.934	1	.334	.414	.069	2.473
	[Q4=3]	-.169	.872	.038	1	.846	.844	.153	4.665
	[Q4=4]	-.066	.874	.006	1	.940	.936	.169	5.187
	[Q4=5]	0[b]	.	.	0	.	.	.	.
	FAC1_2	-1.014	.321	9.966	1	.002	.363	.193	.681

a. The reference category is: 1 Sometimes in each course.

b. This parameter is set to zero because it is redundant.

Age (Q4) did not have a significant impact on Q17_14, but I had it in the model, so the coefficients of other predictors reflected controlling for age. Factor 1 had a significant relationship with the likelihood of being in Q17_14 Group 0. If the value for Factor 1 went up 1 unit, then the odds of being in Group 0 increased by a factor of 1.58 (or 58%). So as Factor 1 went up (meaning the ratings for the efficacy questions move towards the end of the scale reflected "one of the last in this area using technology"), the odds of being in Group 0 went up

(Group 0 is "rarely or never educate students about technology..."). Factor 1 had a significant relationship with the likelihood of being in Q17_14 Group 2. If the value for Factor 1 went up 1 unit, then the odds of being in Group 2 decreased by a factor of 0.36 (or 64%). So as Factor 1 went up (meaning the ratings for the efficacy questions move towards the end of the scale reflected "one of the last in this area using technology"), the odds of being in Group 2 went down (Group 2 is "often or in every course educate students about technology”