A TAPESTRY OF EDUCATIONAL TECHNOLOGY WOMEN LEADERS IN HIGHER EDUCATION: A QUALITATIVE STUDY

by

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PERMISSION

Title	A Tapestry of Educational Technology Women Leaders in Higher Education: A Qualitative Study
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Jane Braaten Overmoe
August 31, 2018

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ABSTRACT

A qualitative study was used to understand the experiences of 12 women, leaders in Education Technology in higher education. Through interviews, women leaders described their environment as well as personal and behavioral aspects of their work. Findings revealed four threads of descriptive concepts including relationships, leadership, persistence, and advice. Relationships were from workplaces and professional networks. Leadership was defined by vision and teamwork. Persistence was addressed as either values-based or relationship-based. The fourth thread in the findings, advice, was divided into three sub-threads: education, family (both personal and work), and managing emotions. A qualitative approach was used to highlight interview responses to demonstrate the experiences of women leaders in Education Technology in Higher Education.

CHAPTER I

INTRODUCTION

In the world of higher education at the time of this study, there were educational technology leaders whose voices and whose stories beckoned to be told because the field was relatively new. Women who were leaders in Educational Technology could be instructional designers, learning management system administrators, or distance education leaders who followed many different types of career paths. Women professionals in Educational Technology connected with all levels of roles in higher education because of the systematic workings of technology in an ever-changing academic world. What were these women leaders experiencing while working multiple roles? Due to a lack of research about women in these roles, this study intended to ask women about their experiences and interweave a 21st century tapestry describing those experiences.

In a simple world, a tapestry is a physical thing, woven and displayed to be viewed and admired, perhaps adorned on a forgotten wall. But, in this instance, in the complex world existing at the time of this study, this paper's tapestry could be defined as a living tapestry, consisting of voices from women leaders who work in Educational Technology across our nation's college campuses. Their stories and descriptions form a blend of women's career trajectories with present day technology practices from

emotional displays of dismay to humor, an interwoven fabric capturing their experiences – a tapestry full of advice, relationships, leadership, and persistence.

Educational Technology Versus Information Technology

The *Occupational Outlook Handbook* (United States Department of Labor, Bureau of Labor Statistics, 2018a) defined Information Technology jobs as computer network architects, computer support specialists, database administrators, and network administrators, to name a few. What do these people do at work? According to the United States Department of Labor (2018a), "Computer network architects design and build data communication networks, including local area networks (LANs), wide area networks (WANs), and Intranets" (Job Summary section, para. 2). "Computer support specialists provide help and advice" (Job Summary section, para. 4) to people and organizations using computer software or equipment. "Database administrators (DBAs) use specialized software to store and organize data, such as financial information and customer shipping records" (Job Summary section, para. 6). "Computer networks are critical parts of almost every organization. Network and computer systems administrators are responsible for the day-to-day operation of these networks" (Job Summary section, para. 8).

Instructional coordinators are administrators; they are responsible for schoolwide curricula and teaching standards (United States Department of Labor, Bureau of Labor Statistics, 2018b). According to the United States Department of Labor, Bureau of Labor Statistics (2018c), instructional coordinators "develop instructional material, coordinate educational content, and incorporate current technology in specialized fields that provide guidelines to educators and instructors for developing curricula and conducting courses. [This position also] includes educational consultants and specialists, and instructional

material directors" (para. 1). The use of technology within the instructional coordinator occupation becomes vital as use of learning management systems (LMSs) increases in higher education as well as faculty training with online pedagogy.

Educational Technology is a subset of Information Technology and was prevalent on college campuses at the time of this report. Many professionals in the field consider Information Technology the "hard tech" of computer use and Educational Technology as the "soft tech" of computer use (e.g., Burger, Creamer, & Meszaros, 2007). The National Center for Education Statistics (2010) has defined Education/Instructional Technology as "a program that focuses on integrating technology into educational curricula" (para. 1). This "includes instruction in foundations of educational technology, computer applications, utilizing technology for assessment, multimedia instruction, web-based instruction, distance education, and designing and producing educational software and materials" (National Center for Education Statistics, 2010, para. 1).

What Do Educational Technology Leaders Do?

An educational technology leader can have many job titles including: Distance Education Coordinator; Academic Leader in a division, school, or department; or Director of Instructional Design, among others. A white paper by Intentional Futures (2016) categorized responsibilities of one type of educational technology leader – such as an instructional designer – into four roles: designer, manager, trainer, and support. As a designer, the individual creates a new course or redevelops an old course, authors instructional content, and performs tests of quality assurance. As a trainer, the individual works with the latest technology, pedagogy, and professional development. As a project manager, she/he oversees courses from beginning to end, campaigns for educational

technology at all levels, and works as a liaison to academic administration, faculty, and other educational technology personnel. With support, she/he is the learning management system go-to person, supports faculty with timelines, and transforms face-to-face courses into online curricula. Work skills for an instructional designer include learning new technologies, managing projects, learning theory, teaching and replicating educational technology models, strategic planning, teaching, researching, producing multimedia projects, data analysis, graphic design, and coding. An instructional designer works with a variety of people on campus including faculty and instructional staff, subject matter experts, senior leadership, educational technology specialists, students, and librarians (Intentional Futures, 2016).

In their capacities as leaders, women in higher education technology roles can impact perceptions on how a college is viewed by students, faculty, and potential students. This role is addressed through directing various components of a learning management system and an institution's web site that contains information about curriculum, classes, and faculty. Another leadership role is participation in policy development for an institution, staying current on trends in technology, maintaining contact with colleagues at meetings, and being involved in decision-making for technology-related issues. Educational technology leaders also plan professional development and conduct training for faculty and staff in a timely fashion. Finally, transforming a school's web presence is a leadership role that needs to be explored and reflected upon, depending on the size and organizational chart of an institution.

Statement of the Problem

Women are successful and persist in educational technology careers in higher education environments, but we do not know what their lives are like in a workplace full of a variety of roles and a multitude of job tasks. For this study, the problem resided in determining how women's voices can be heard when educational technology leaders wear so many hats and accomplish so many feats in an ever-changing world. McGrath Cohoon and Aspray (2006), Burger et al. (2007), and Donaldson (2016) compiled research on underrepresentation of women in the field of Educational Technology. Women leaders in Educational Technology have worked multiple roles from planners to transformers to managers to directors. This study scrutinized those roles more closely.

Purpose of the Study

The purpose of this study was to explore the experiences of women leaders in Educational Technology fields in higher education today. This study also illuminated how women in the field of Educational Technology filling leadership positions in higher education defined persistence in the workplace, and why they chose to stay in this career field.

Research Question

There was one primary research question in this study: What are the experiences of women who persist in Educational Technology leadership positions in higher education?

Theoretical Framework

Albert Bandura's Self-Efficacy Theory was used as a guiding framework for this study. Bandura (1977) assumed that individuals in their natural course of life freely chose

to be in certain situations and to avoid others; thus, they were able to provide opportunities for personal dispositions to manifest and/or be reinforced in these preferred environments. Bandura (1986) also stated:

> When people aim for a challenging standard but have to guess how they are doing, the stronger their perceived self-efficacy for goal attainment and the more pleased they are with whatever they surmise their performance to be, the more they heighten their efforts. (p. 361)

The degree to which goals create incentives for action is partly determined by goal specificity. Bandura (1977) stated that explicitly defined goals regulate performance by designating the type and amount of effort required to achieve those goals, by fostering self-satisfaction, and by furnishing clear signs of personal accomplishments. In addition, research indicated that women's socialization has taught them the importance of contributing to the goals of others and of collaborating in a group. Thus, they were able to not only nurture others, but also to bask vicariously and altruistically in the success of those they value.

Figure 1 displays how experiences, accomplishments, coaching, evaluations, and states of being existed following Bandura's Self-Efficacy Theory. Bandura offered a framework to study individuals experiencing personal, behavioral, and environmental relationships with various sub-threads.

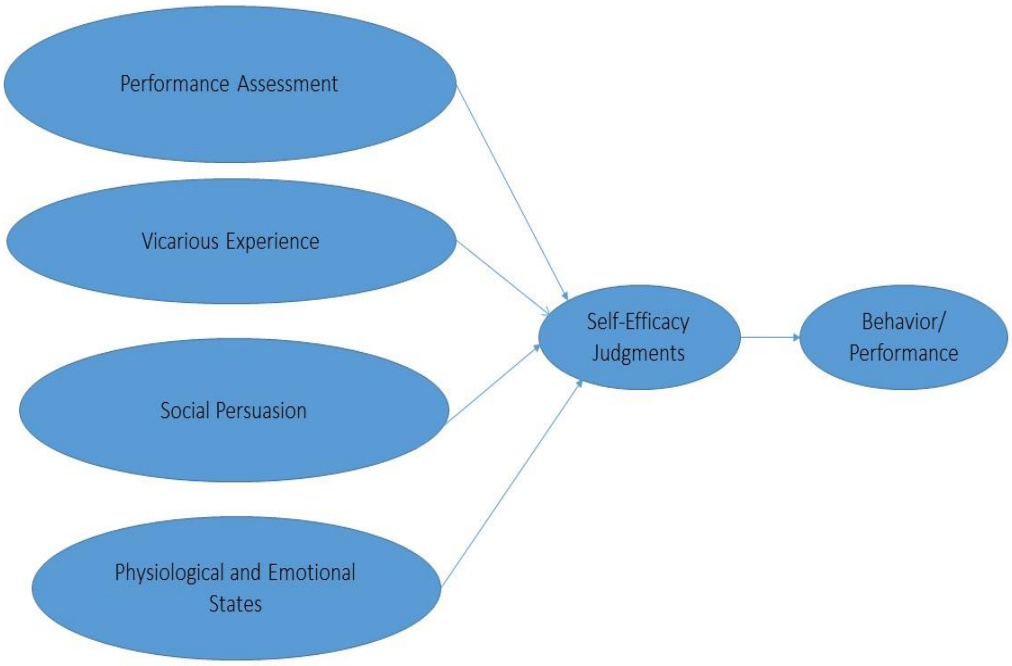


Figure 1. Albert Bandura's Self-Efficacy Theory Construct.

Personal relationships include self-efficacy standards that mirror a sense of wellbeing. According to Bandura, the world is full of good and bad and to accomplish self-efficacy is to be able to juggle the roles when negative forces intercept. These negative encounters include frustrations, inequities, and adversities. An affirmative self-efficacy allows a person to persist and to create a balanced work perspective.

Behavioral relationships include career paths and leadership styles and with Bandura's (1995) theory in the book *Self-Efficacy in Changing Societies*, it takes a "strong sense of efficacy to remain task oriented in the face of pressing situational demands, failures and setbacks" (p. 6). For those in innovative career paths leading the way, aspirations and analytical thinking create positive performances and a sense of resiliency.

Environmental relationships include organizational structure and culture where participants shape and contribute their work efforts. Even though societal norms and practices have prohibited women from aspiring to pursue quantitative and technology careers (Bandura, 1982) there are changes in mass media, family structures, educational and occupational practices, and the culture at large that have been permitting more women to contribute in these fields than ever before.

Bandura's work was used as a framework for this study and has helped to create meaning for women leaders' experiences in Educational Technology in higher education environments. Bandura's theory gave a start to generating concepts for this qualitative study. The literature review was organized around personal, behavioral, and environmental categories described by Bandura by using three trajectories of women: education technology students, education technology careerists, and education technology leaders in higher education. However, other code possibilities beyond personal, behavioral, and environmental concerns were explored to help in understanding what else was unfolding at the workplace for women leaders in Educational Technology in higher education.

Pilot Studies

During graduate coursework, I conducted two pilot studies related to this topic. The first study was a qualitative study about women working in Educational Technology at a Midwest research university. The second study was a quantitative study about women in 11 colleges working in leadership, Educational Technology, Instructional Design, and teaching roles. Next, brief descriptions of the pilot studies were explained,

what was learned from them, and how these studies and the results steered a direction for this dissertation.

Pilot Study 1

This qualitative study examined various work narratives about women in the Educational Technology field at a Midwest research university. Responses showed a difference in how younger workers narrated versus two older workers. What was learned from this pilot study was how technology was viewed either as a small picture use or a larger picture use. Also culled from the interviews was the view of more experienced workers and a view of innovation from less experienced workers. The questions for the study were placed on a wiki space on the researcher's web site for future studies.

Pilot Study 2

The quantitative study was a nine item survey sent to women Educational Technology workers in a Midwest research university (n = 23). The survey contained questions about three categories of job satisfaction: job structure, job networking, and job control factors. Questions in the job structure category attempted to assess day to day workings of women and impact of job issues on women Educational Technology workers at that time. Questions in the job networking category attempted to assess how important networking was for Educational Technology workers at that time. Questions in the job control category attempted to assess to what degree respondents had control over their work functions.

Challenges noted from survey results included ways to improve working conditions of women in Educational Technology, and these efforts were ongoing and essential for future growth and commitment of women in the Educational Technology job

sector in higher education. Results of this survey indicated some dismay with administration who were not well-versed in technology but were giving directions on how to use technology. I learned from the pilot studies that there were important personal, behavioral, and environmental stories to be told by these women. Because this type of career and college path was fairly new, the hope at the time of the pilot study was to unveil and share experiences from a variety of women working in Educational Technology as a career.

EDUCAUSE as the Research Source and Site

EDUCAUSE was selected to be the site for the participant selection protocol used in this study because EDUCAUSE is an organization that helps those who lead, manage, and use information technology to shape strategic decisions at every level. EDUCAUSE (a merger of Educom and CAUSE) is "a nonprofit association and the largest community of technology, academic, industry, and campus leaders advancing higher education through the use of IT [Information Technology]" (EDUCAUSE, 2018a, para. 1). "EDUCAUSE was formed in 1998 through a merger between CAUSE and Educom, two respected professional associations representing more than 60 years of combined service to the higher education information technology community" (EDUCAUSE, 2018b, para. 2). Because its members work with leadership to clarify current trends as well as to document effective practices, EDUCAUSE highlights how trends and technologies may influence evolution of Information Technology in higher education through use of innovative technology and service to the higher education culture by using the latest discoveries and trends. The challenges EDUCAUSE members face include strategic leadership, teaching and learning, identity management, and enterprise systems. Members

work in a variety of teams at their campuses to help current practices for students, staff, and faculty. EDUCAUSE offers professional development activities, publications (print and electronic), advocacy, data, research and analytics, specific interesting communities and extensive online resources for its members. For professional development activities, EDUCAUSE annually holds face-to-face conferences as well as online workshops. Their websites archives studies and current research about technology in higher education.

There are a variety of special communities within this EDUCAUSE organization, and the "Women in IT Community Group" was of particular interest to me as I conducted my study because the participants and their professional career trajectories would offer insight into their workplace and how they perceived their workplace. According to EDUCAUSE (2018c),

> The Women in IT Community Group collects and disseminates effective practices in the recruitment, retention, and advancement of women in higher education IT. Through both virtual and face-to-face networking opportunities and by making good use of its affiliation with the National Center for Women & IT, this group provides a venue for addressing a wide range of issues affecting women IT professionals in colleges and universities, including securing high level leadership roles in higher education. This group meets at the EDUCAUSE Annual Conference and uses the electronic discussion list to discuss issues throughout the year. (para. 1)

Key Terms and Definitions

There are several terms that have been key to understanding this study of the experiences of women in Educational Technology positions in higher education

environments. Moore and Kearsley (2005) offered most of the following educational and technical definitions in alphabetical order. Those definitions not supplied by Moore and Kersley are marked with another reference source.

ADDIE: The ADDIE model for creating instruction is sometimes used interchangeably with Instructional Systems Design (ISD) and includes: analysis, design, development, implementation, and evaluation.

Course Design: "Setting learning objectives, choosing technology and media applications, and preparing instructional strategies and evaluation procedures, all in advance of student recruitment" (p. 324).

Course Team: "Group of specialists in content, instructional design, learning, and technologies convened to produce distance education course" (p. 324).

Distance Education: "Planned learning that normally occurs in a different place from teaching, requiring special techniques of course design, special instructional techniques, special methods of communication by electronic and other technology, as well as special organizational and administrative arrangements" (p. 324).

Educational Technologist: "Educational technologists work to supplement online course content with multi-media activities including webcasts, podcasts, wikis and other course avenues for learning" (p. 102).

Instructional Designer: "Instructional designers work with faculty and staff to frame a course for online delivery" (p. 102).

Learning Management Systems: "Facilitating online learning activities such as locating and using educational content, tracking learner progress, reporting learner

performance, and exchanging student records between administrative systems" (p. 329).

Persistence: "Continuing firmly or obstinately in a course of action in spite of difficulty or opposition" ("Persistence," 2011, p. 1038).

Self-Efficacy: Self-efficacy is the belief in ability to achieve or attain a goal. Further, it is the belief in capabilities to achieve levels of performance that are required to manage situations. This belief, whether accurate or not, determines the success of a course of action, how people feel, think, motivate themselves, and act (Bandura 1986, 1997).

Staff Development: "Various, usually formal, forms of training or activities, funded by employers to enhance the attitudes, knowledge, and skills of current employees; also referred to as professional development" (p. 327).

Rationale for the Study

This research was worthy of study because it sought to understand, in detail, how women experience various aspects of their profession. Issues facing the future of women in higher education who worked in Educational Technology were addressed by talking with women about their experiences in higher education Educational Technology leadership positions at the institutional level. This career path is continuously evolving because of the fast-paced use of technology in higher education. Economic, social, environmental, personal, and other considerations these women faced on a daily basis were considered through the process of data collection. Cho (2017) determined interdisciplinary research collaboration between Educational Technology and numerous other fields was mutually beneficial in generating a rigorous and relevant education, and

also imaginative and innovative practices. Educational Technology leaders have had an effect on current curricula as well as on teaching techniques in higher education institutions. These leaders directed, planned, and conducted training for teachers and staff with innovative technology and newer ways of learning. In addition, Educational Technology leaders encountered transformative and innovative methods within today's higher education practices for future generations.

Significance of the Study

This study has the potential to impact future practices of women Educational Technology leaders in higher education. Knowing about experiences of women in leadership positions in Educational Technology may offer new insights on women's roles in Educational Technology. This research studied women's perspectives using Self-Efficacy Theory as described by Albert Bandura. Relationships between the experience of qualitative research and the conceptual framework were ascertained. The Educational Technology field was full of a variety of leader roles due to systematic changes occurring in higher education at the time of this study, women in technology careers, and the world of information technology itself. With that in mind, this study unfolded new knowledge about the 21st century workplace in Educational Technology, its women leaders, and the ever-changing nature of higher education.

A gap in the literature was apparent when women were younger and in school, when women began a career track in Educational Technology, and when women were leaders in Educational Technology. Mosco (2009) concluded that women may not even enter the pipeline; that is, they do not even enroll in creative information technology coursework as early as high school. Quesenberry (2007) added to the body of empirical

research on organizational behavior, and the values and motivations of women in the Information Technology workforce. Reid (2007) explored and identified patterns and types of obstacles women in the Information Technology field experience when advancing to leadership positions. Reid also explored the mentor-mentee relationship of women organizational leaders in the Information Technology field and its effect on the advancement of women to leadership positions. Even though these dissertations were seven years old at the time of this report, they offered a trail of qualitative research that revealed studies that were beginning and were important.

Telling the experiences of women in higher education and Educational Technology leadership roles informs hiring officials and leaders how to encourage diversity and success in the workplace. Knowing about environmental characteristics that contribute to – or detract from – women's successes in their leadership roles is valuable to campus decision-makers by helping them understand how campus culture and climate is experienced by women staff and administrators. This information helps to inform on-boarding processes and procedures for new employees, and it helps to inform employee retention efforts. As with any study, this study revealed new discoveries and stories that demonstrate what might have been missing on the college and career track of participants. The experiences of participants unfolded new information, and in doing so, informed the workplace for future generations of leadership in Educational Technology positions in higher education.

Methodological Overview

This study used a qualitative research method for the interview process and coding. The context for this study was a higher education institution, and specifically,

various Educational Technology offices, divisions, and departments on campus. This methodology involved data collection, identifying categories and sub-categories of data, looking for emerging threads, coding, and doubling back for more data collection, if necessary. Formal analysis began early in the process. Using qualitative methodology allowed me to gather stories through flexible interviewing with participants. Hearing their stories and experiences captured what women who aspire to have such a career may need to know, and allowed administrators, educators, parents, and others to understand the world of work where women hold professional leadership positions in Educational Technology in higher education environments.

Collecting experiences and reflecting upon those experiences was in accord with constructionism as a foundation of social research. According to Crotty (1998), "Meanings are constructed by human beings as they engage with the world they are interpreting" (p. 43). Through this research process, meaning was not created, but rather constructed. By following threads of discourse through the interview process, categories, codes, and old and new threads emerged about women workers, women workers in higher education, as well as women Educational Technology workers in higher education today, and thus, captured narratives of women in this career field (Educational Technology).

Summary

In this chapter, it was explained how experiences of women leaders in Educational Technology in higher education had prompted studies to investigate why women were not entering the field or choosing to stay in the field. However, a literature review briefly described how researchers have been continuing to investigate experiences

of women that have chosen to lead in the field of Educational Technology. As such, Chapter I described how the purpose of this qualitative study was to explore the behavioral, personal, and environmental factors that contributed to the multiple roles and experiences women employed as leaders in Educational Technology in higher education experience.

Chapter II will include a more in-depth review of the literature that reflects stages of the Educational Technology pathway a student, career person, and Educational Technology leader in higher education experiences. A literature map guiding the literature review was drawn according to recent studies as well as Albert Bandura's Self-Efficacy Theory.

Chapter III will explain the methodology for this study. Items in Chapter III include the research question, research approach, research design, selection and recruitment of participants, confidentiality of information received, interview protocol and questions, data analysis steps, reliability and validity considerations, a self-reflective statement, assumptions, limitations of this study, and a summary.

Chapter IV will present summaries of each participant's interview to offer more clarity about what each individual experienced as a woman leader in Educational Technology at the higher education level. The summary of each individual story gave depth and understanding to the threads and categories that follow. Chapter IV also included an analysis of data that yielded four common threads.

Chapter V will discuss the findings from Chapter IV and four descriptive concepts that emerged from the data: (a) mentors, (b) leadership, (c) persistence, and (d) advice. The organization of the final chapter of this dissertation includes two sections. The first

section describes how the descriptive concepts affirms findings in the literature review and Bandura's Self-Efficacy Theory including personal, behavioral, and environmental considerations. In the last section, I describe the study's implications, future research recommendations, and final thoughts.

CHAPTER II

REVIEW OF THE LITERATURE

There was not an extensive body of research literature about the topic of women leaders in Educational Technology fields in higher education at the time of this study. This literature review includes mostly studies conducted shortly before this study, without a significant history of research on the topics in this report because Educational Technology was a relatively new career field at the time of this research. Fields related to Educational Technology were also explored. Along with researchers, there have been organizations such as the Association for Educational Communication and Technology (AECT) and Women in Higher Education (WIHE) that dedicate new knowledge and research efforts to the career field choice of women in Educational Technology leadership roles.

To understand the relationship between women Educational Technology leaders and the higher education institutions in which they work, I conducted a review of literature and applicable career theories to explain behavioral, personal, and environmental characteristics at play in Educational Technology for women at three stages in their lives: as students in different types of academic disciplines within the Educational Technology field, as professionals in their careers, and as women in leadership positions.

Educational Technology Versus Information Technology

As background information for this literature review, it is necessary to differentiate between the jobs of Educational Technology and Information Technology so that a clearer understanding of the soft (Educational Technology – design and curriculum) versus the hard (Information Technology – machinery and networking) technology is realized. A significant amount of literature in this review refers to Educational Technology in an Information Technology scenario because the research steers readers to that label (Cavazotte, Moreno, & Bernardo, 2013; Jameson, 2013). However, Educational Technology exists within the realm of Information Technology and must be included when literature is discussed on the subject of Information Technology.

Even though job descriptions vary, it is important to differentiate between the two types of career pathways discussed in the previous paragraph. In education, Information Technology gives power to phones, networks, computers, and Smartboards, and protects data that serves our students, staff, and faculty. Educational Technology in higher education builds online classrooms, allows pedagogy to infiltrate communities on-campus and via distance education, and helps teaching and learning goals be achieved using the assistance of technology. Both Educational Technology and Information Technology deal with science, technology, engineering, and mathematics (STEM) related issues, and due to the nature of technology systems changing at the "speed of light" (or contrariwise), it is important to understand that without Information Technology, there would be no Educational Technology, and vice versa.

A case could be made that even though some of the following literature reviews address women in Educational Technology careers and academic pursuits, some reviewed information may be relevant to women Educational Technology leaders in higher education institutions at the time of this study, and into the future. Another case could be made that Educational Technology staff in higher education contain a greater number of women workers than women leaders. Therefore, we need to know what those lives are like for women as Educational Technology students, in Educational Technology careers, and in higher education Educational Technology leadership positions. Donaldson (2016) collected women's narratives who worked in the field of Educational Technology at the time of her research who shared histories and mentorships while working in the field.

Literature Map

Three areas are included in this study about experiences of women leaders in Educational Technology in higher education. Guided by Bandura's (1986) Self-Efficacy Theory and using behavioral, personal, and environmental characteristics, this literature review is organized around: (a) women students in Educational Technology disciplines, (b) women in Educational Technology as a career field, and (c) women leaders working in Educational Technology in higher education. Figure 2 communicates relationships between topics reviewed for this study. In Figure 2, personal characteristics include gender issues, anxiety issues, goal setting, self-advocacy, continuing education, and job fulfillment. Behavioral characteristics include social isolation, how women navigate chilly climates in higher education, communication styles, relationship building, positive and/or negative actions that occur, and persistence. Environmental characteristics include

filling pipeline issues, equity issues along a career path, work place setting, home issues, conferences, professional development, and institutional challenges women may face.

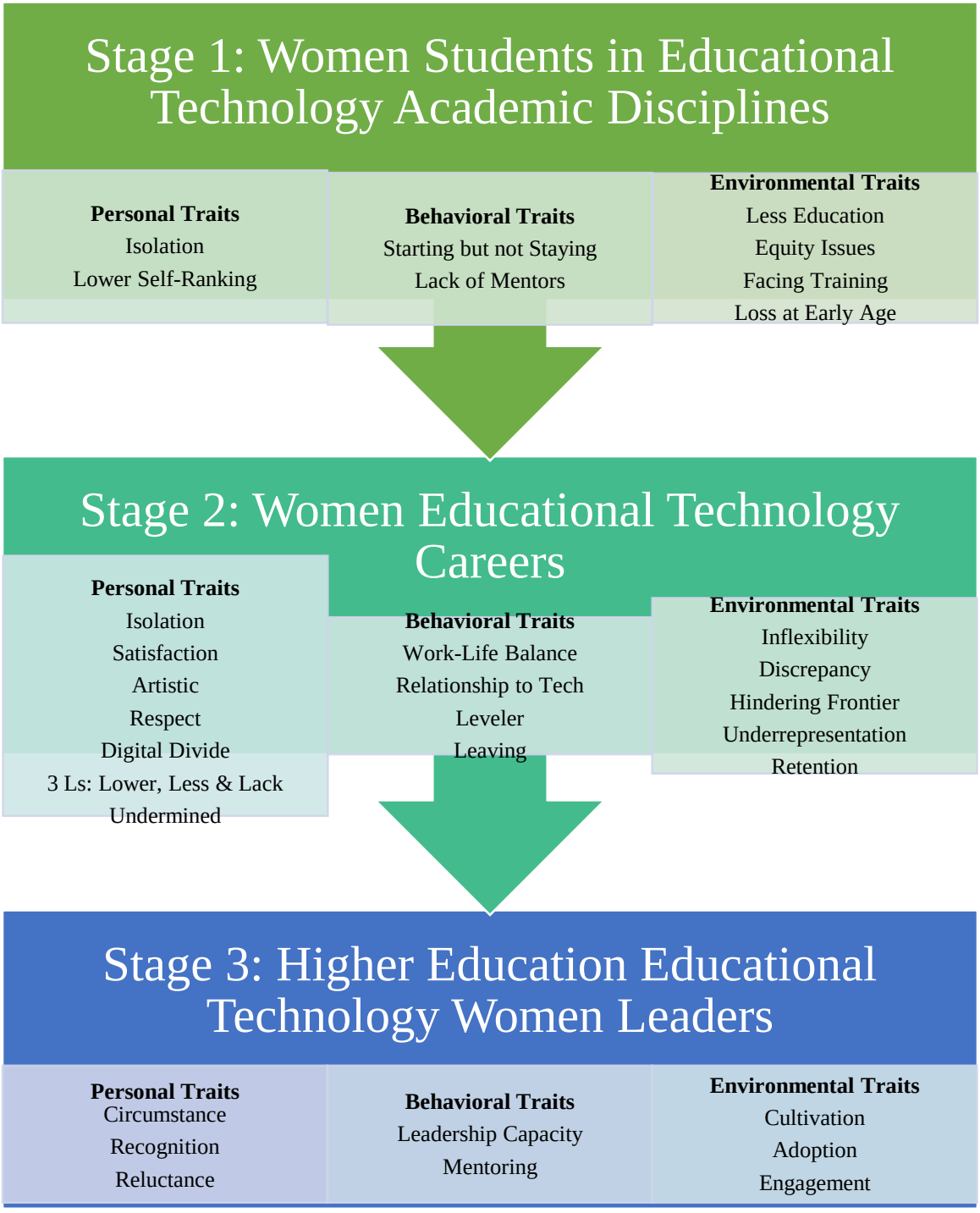


Figure 2. Factors Affecting Women in Educational Technology Disciplines.

Applications of Bandura's Self-Efficacy Theory

Albert Bandura's Self-Efficacy Theory relates to students, careerists, and leaders in technology roles in part due to behavior, personal, and environmental relationships. Several studies try understanding the relationships by taking into account the various roles within Bandura's framework. For example, Shea and Bidjerano (2010) examined the relationship between constructs and elements of self-efficacy in order to understand a thread between online learners and learning presence. By applying Bandura's socio-cognitive perspective, beliefs and motivations were studied in regard to persistence in the online environment. This study was relevant to the Educational Technology designs and structures built by women in Educational Technology.

McCoy (2010) sought to learn about undergraduate students' use of technology and self-efficacy in using technology. Younger students accomplished more tasks with technology than older students to find out if self-efficacy provided the impetus for improved and successful use of technology. In this study, people with expanded technology skills had higher levels of self-efficacy.

Other studies have demonstrated how levels of self-efficacy can be positive or negative in education. The research has shown that high levels of self-efficacy are associated with positive self-concepts, use of high level learning strategies (Wang, Wu, & Wang, 2009), expectations of success, and perseverance in an activity (Puzziferro & Shelton, 2009). Additionally, low levels of self-efficacy are associated with negative self-concept, anticipation of failure, and reluctance to attempt tasks (Hsieh, Cho, Liu, & Schallert, 2008).

Incorporating Bandura's Self-Efficacy Theory into practice using personal, behavioral, and environmental traits women in Educational Technology possess encompasses three categories of workers for this paper. First, the literature review will discuss women students in Educational Technology academic disciplines. Secondly, the literature review will discuss women in Educational Technology careers. Lastly, the literature review will discuss women in higher education Educational Technology leadership positions.

To connect the Educational Technology leadership position with various academic disciplines women may enter as students may help to discern types of professional programs offered to students as well as professional skills needed for duties performed in jobs in higher education. There are organizations like EDUCAUSE that offer assistance to students in Educational Technology studies. There are other organizations that offer guidance to professionals in this type of career. One is called the Association for Educational Communications and Technology [AECT]. AECT focuses on theory and practice of five main divisions or domains of skills inherent in "processes and resources for learning" (Seels & Richey, 1994, p. 1) including: design, development, utilization, management, and evaluation (Association for Educational Communications and Technology [AECT], 2012; Seels & Richey, 1994). Each one of these divisions requires a set of job skills necessary to accomplishing objectives of that division. For example, design requires knowledge of "instructional systems design, message design, instructional strategies and learner characteristics" (Seels & Richey, 1994, p. 30). With development, there is a need for print technology mastery, audio visual technology, computer-based technology, and integrated technology. Utilization requires media,

diffusion of innovations, implementation, and institutionalization along with policies and regulations. Management involves project management skills, resource management, delivery system management, and information management. The final division includes problem analysis, criterion referenced evaluation, measurement, formative evaluation, and summative evaluation (Seels & Richey, 1994). Because of the various divisions within educational technology (or instructional technology as it is sometimes called) and the depth of skill each division requires, it was important to also consider the backgrounds of college experience and job experience for women in this study.

Women's Studies That Lead to Educational Technology Jobs

Studies that include women students in academic disciplines leading to Educational Technology careers may give insight into the backgrounds, academic tracks, and internships of women connecting to a career path in Educational Technology. For purposes of this literature review, references are synthesized according to Bandura's categories of personal traits, behavioral traits, and environmental traits.

Personal Traits

Personal traits in women described in recent studies at the time of this research included isolation in the workplace and lower rankings in the workplace, and the effects of these experiences on women in Educational Technology. If these personal traits are present in women students in higher education will these traits follow students throughout their academic lives, and how will these personal traits transfer to career paths and then leadership positions, if at all?

Stoilescu and Egodawatte (2010) examined how women students feel isolated, have reduced confidence, and underperform in one type of technology undergraduate

major (computer science). Their study participants came from a variety of majors and job experiences; some had computer science backgrounds. The authors explored differences between women and men students in undergraduate computer science programs in a mid-size university in Ontario. Even though the study included any age woman in an undergraduate computer science program, the trajectory for success of future Educational Technology women leaders may begin before their career starts. So, it is appropriate to determine experiences of women early in their academic career.

Stoilescu and McDougall (2011) also studied students in undergraduate computer science programs and how male and female students differed. They explained their study as follows:

> Based on Kelly's (2008) three levels of digital divide (resources, instruction, and culture specific knowledge), we explored gender specific challenges for each level. The research shows that, while the first level of digital divide is difficult to detect and the second layer is easily detectable, the third layer of digital divide is particularly pervasive and has a disconcerting outcome" (Stoilescu & McDougall, 2011, Abstract section, p. 308)

Stoilescu and McDougall described digital divide as "the gap between those with regular and effective access to devices, instruction, and knowledge to computational resources and those who miss them" (p. 311). The first level of this digital divide refers to "physical access to computer sources" (p. 311), the second level refers to methods of teaching, and the third level looks at how culture shapes students' behavior and perspectives about computers. Stoilescu and McDougall suggested female students' confidence in their abilities were lower than male students, and there was a need for further studies about

discrimination and gender stereotypes in school STEM courses as well as the STEM career field.

Hargittai and Shafer (2006) wanted to test gender abilities with navigation of online content. They conducted a quantitative study with a sample of adult internet users. Hargittai and Shafer wanted to understand self-perceived technology usage for adults. The study's conclusion pointed out why women rank their skills lower than male counterparts.

Isolation and lower rankings were two effects for women workers in the Hargittai and Shafer (2006) study. If women rank their skills lower than men, does this pattern continue down their career paths? If isolation continues, will these workers choose other offerings instead of dealing with aloneness? For women leaders to succeed and feel appreciated in their workplace, the personal traits of isolation and skill competency must be addressed in future professional development and training so that women workers feel accomplished and seek to improve their status of social isolation and their perceived lower rankings in skills.

Behavioral Traits

For women students, a need for mentors and for moral support so women stay in their chosen field of educational technology are demonstrated by studies that focus on anecdotal and quantitative data that allow understanding for why women do or do not stay in their career paths. For example, Wajcman (2010) provided an overview of various approaches that link gender with technology through a qualitative study that used a feminist perspective to consider what technology means to women from multiple perspectives (i.e., education, training, and professional experience). Wajcman used

techno-feminist theory and viewed a major paradigm shift occurring in the last 50 years finding more women entering but not staying in technology fields.

Herring and Marken (2008) investigated the effects of gender consciousness among students enrolled in Instructional Technology programs at five U.S. universities. Their work was a qualitative study with 136 face-to-face in-depth interviews. They found that women were willing to accept gender roles in Information Technology; a lack of mentors in the field was noted. Herring and Marken concluded that motivation and ambition among women about pursuing careers in Information Technology needs further exploration as women continue to accept the ongoing paradox of low representation of women within the Information Technology field and bringing forth qualified women and closing the gender gap within the Information Technology field would benefit the national economy.

As demonstrated by the studies mentioned in previous paragraphs, mentors at an academic level are important for future growth of women as well as modeling mentoring as a practice once a career path is established. The lack of persistence of women for staying in the technology academic area as students demonstrates a loss of individuals at an early stage who may possess the skills and talents needed in Educational Technology but choose not to stay because of workplace issues.

Environmental Traits

Women students in Educational Technology academic disciplines face many unknown issues as they begin college, which represents a new learning environment. Because of primary and secondary education career track options, women students may enter college majors with fewer skills and fewer fundamental approaches to Educational

Technology or Information Technology than their male counterparts. Blickenstaff (2005) compiled an extensive review of the literature on this topic. Findings ranged from equity issues to job assignments to cooperative groups, elimination of sexist language, and the politics of scientific inquiry. Huffman, Whetten, and Huffman (2013) suggested that girls and women receive less education, experience, and opportunities in the area of technology than men because it is a new field. They found that self-efficacy in regards to technology improved in individuals who identified with masculinity issues. Indeed, masculinity became the greater predictor of technology self-efficacy than previous computer hassles, for example.

Dakers, Dow, and McNamee (2009) explored perceptions about technology and technology education by secondary students in the U.S. Their argument had three points including "technology education is perceived to be masculine in nature, procedural in delivery and lacking in any conceptual dimension" (Dakers et al., 2009, p. 381). Dakers et al. felt these three points contributed to reasons female interest in the field was low. There has been a push for policy makers to support both pre-service and in-service teacher education in making transitions within pedagogy so learning spaces include conceptual issues in technology education, and perceptions of technology do not see the field as masculine in nature; when this occurs, apparently both boys and girls at the secondary education level appear more interested in technology (Dakers et al., 2009). The relevance to this study is that leaders are facing training options for educators so that students, both men and women, may benefit from technology in education.

Kekelis, Ancheta, and Heber (2005) investigated what young girls thought of technology projects in order to spark interest in the field of Informational Technology or

computer science. Kekelis et al. used their findings to develop a program for girls (called Techbridge) that introduces girls to technology oriented projects. After Techbridge had been operating for a time, Kekelis et al. conducted another study with "in-depth interviews and focus groups with 126 Techbridge girls and 34 of their parents or guardians" (Kekelis, 2005, p. 99). Girls interviewed were ages 11-19. Kekelis et al. concluded that girls lacked instruction and guidance to pursue education in the technology field. If there is no instruction or guidance to pursue the technology field, then this study is more relevant than ever because of the loss at early stages of technological experiences among young people.

In summary, retention, equity, and less education are critical issues facing women at the academic level when they start in this field of Educational Technology. At the college level, women face training they may not be ready for because of lack of direction and experience in technology in early grades at school, as well as losing interest at early ages. Due to a lack of guidance and mentors, a key ingredient in the formation of a career trajectory, women are not starting with a strong foundation in the field.

Summary

A review of existing literature revealed how personal traits for women in the academic discipline of Educational Technology included isolation and lower self-ranking in technology skills when compared to men students. It is important to acknowledge that those two traits have an influence on future career paths. Behavioral traits included problems with retention and a lack of mentors to guide them along their academic pathways. Environmental traits included less education, equity issues, loss of technology training at an early age for women students, and facing training at the college level that

they are not equipped to handle, or ready to handle. For these students, the aforementioned traits will hinder a tapestry full of skilled and prominent workers in the future.

Women With Careers in Educational Technology

Historically, women have been underrepresented in the field of Educational Technology due to a variety of factors including workplace issues where individuals may perceive traditional roles in the career to be male oriented, and such perceptions can be difficult to transform or change. Also, while women work in Educational Technology, there may be residual after effects of decades-long treatments of women such as little promotion in the field. Despite these past occurrences, the number of women in Educational Technology continues to decline for reasons that may be attributable to personal, behavioral, or environmental traits.

Personal Traits

Esch (2010) analyzed men's and women's perceptions of social isolation in the Educational Technology workplace. The independent variables were gender, office setting, and preferred communication methods; the dependent variable, satisfaction with the social aspects of the Educational Technology workplace. Esch found that the social aspects of the Educational Technology workplace were important for job satisfaction. Networking with other professionals appeared to be another important factor in this study.

Coder, Rosenbloom, Ash, and Dupont (2009) completed a qualitative study examining why women do not choose Information Technology careers. The authors invited focus groups to generate data. They learned about misconceptions about the

Informational Technology work field. They concluded that Informational Technology jobs in the future may be re-designed in ways that are more attractive to women addressing artistic, social, and conventional ways in which women work.

Demaiter and Adams' (2009) study examined experiences of 11 women in the Information Technology field who had successful careers, proven by advancement and promotion. Eleven interviews were conducted. According to Demaiter and Adams, Information Technology workers "possess a gendered occupational identity that excludes women" (p. 37) from traditional careers. Demaiter and Adams' study was about perceptions, beliefs about why women leave the Informational Technology field and accept lower pay while in the Information Technology field. The conclusion mentioned respect or lack thereof in the Information Technology field as one of the critical reasons why women exit their career path.

Women role models and mentors can assist with what Sanders (2005) described as "female deficits" (p. 23). Sanders explained, "most research has focused on female deficits" (p. 23). Such "deficits" included lower technology experience levels, less positive attitudes toward technology, lack of positive performance as evaluated by male standards, and lack of perseverance in the pursuit of Informational Technology-related education and careers.

Giles, Ski, and Vrdoljak (2009) explored the backgrounds of postgraduate Information Technology workers in Australia. Participants had master's degrees or doctorates. Giles et al. used a mixed methodology that included a survey and a case study. Their findings showed women experienced gender discrimination to a greater extent than men and that STEM careers are traditionally male-dominated fields. They

also identified a need to explore further links between industry and academia. Giles et al. found that investment in science, engineering, and technology in higher education will create opportunities for early Information Technology careers. Expectations were short lived for new Information Technology workers when short term contracts were experienced. Short contracts undermined foundations for a career.

In summary, personal traits for the career woman in Educational Technology covered social and conventional ways women work, women's misconceptions, job satisfaction, artistic choices, the "3 Ls" (Lower experience, Less positive attitudes, and Lack of positive performance and perseverance). The career trajectory women have includes many different kinds of patterns, some positive and some negative, but it is important to be aware of traits that are necessary for women to have if we want to improve retention and success of women on their career path.

Behavioral Traits

Ahuja and Thatcher (2005) provided a study with empirical evidence for the effects of work–family conflict, perceived work overload, fairness of rewards, and job autonomy on organizational commitment and work exhaustion. They found that innovation with information technology at the workplace varied significantly according to gender. Ahuja and Thatcher felt this may be because women workers must "juggle work and family responsibilities to a greater extent than do men" (Ahuja & Thatcher, 2005, p. 448). Work-life balance for women in some technology fields remains an untold story and avenues need to be explored about job stress, family conflict, work overload, rewards and successes at work, and overall job autonomy.

Trauth and Howcroft (2008) discussed two dominant theoretical viewpoints currently reflected in the majority of literature about gender and Educational Technology: essentialism and social construction. They concluded that there is insufficient attention being paid to theorizing about gender and Educational Technology. Given this need, greater theorization in gender and Educational Technology research can contribute in several ways to a better understanding of women's relationships to Educational Technology.

1. It can lead to more theoretically informed treatments of gender in Educational Technology research.
2. Much of the published work that does focus on gender places emphasis on data analysis rather than theoretical implications and linking research results on theoretical implications to the existing body of knowledge on gender, and gender and Educational Technology literature may provide new insights into workplace relationships.
3. Insufficient attention has been paid to the differences among women rather than between women and men with respect to Educational Technology adoption, use, and work.

Klein (2000) found relationships between "women in technology" and "management roles." "Four interrelated factors are suggested as to why Internet companies are playing the role of the 'great leveler' of leadership opportunities in upper [Educational Technology] management" (Klein, 2000, p. 88). These four factors include: "(a) the demand for qualified top managers; (b) the nonexistence of an "old boy" network, (c) the existence of diversified, mixed gender personal networks; and (d) an

organizational culture open to diversity, which is typical of Web-related firms" (Klein, 2000, p. 88). The ability of women to crack "the glass ceiling" in upper management and removal of barriers to women participating in decision-making as well as the emergence of leadership by women has suggested relationships between women in technology and management roles will continue to be further investigated (Klein, 2000).

Cone (2007) examined why women left Educational Technology jobs in the 2000-2010 decade. It was a short article with a brief survey asking respondents to give the top three reasons they left the Educational Technology field. Answers were that there were low numbers of girls in STEM, the "good old boys" network, and a lack of mentors in the Educational Technology field. Fuller and Meiners (2005) researched why women continued to be underrepresented in technology at the time of their study, especially in professions that require computer expertise. This was a qualitative study with findings suggesting a need for more grant funded avenues for women and minorities to learn technology. Fuller and Meiners gathered perspectives on the importance of implementing and theorizing educational and institutional change.

To conclude this section, traits for behavior found in women included: ability to deal with job stress, ability to balance work and a personal life, traits that help women build relationships to education technology, women's perceptions of their workloads, and women's ability to work autonomously. Much of the research indicated a need for more research into behavioral traits of women and how those traits affect women's abilities to persevere in Educational Technology.

Environmental Traits

Begun in 1990, The Campus Computing Project (TCCP) is the largest continuing study of Information Technology in American higher education that includes Educational Technology roles (Wexler, 2015). The project collects "qualitative and quantitative data to aid and inform faculty, campus administrators, and others interested in critical IT [including Educational Technology] planning and policy issues that affect American colleges and universities" (Green, 2017, para. 1). Wexler (2015) summarized the 2015 Campus Computing Project at over 400 campuses nationwide:

> After instructional integration, IT leaders' next priority is a tie between hiring and retaining qualified IT [Information Technology] staff members and providing adequate user support. But 74 percent also report that IT salaries are not competitive, and 26 percent report reduced IT staffing. (p. A17).

According to Cummings-Foust, Sabattini, and Carter (2008), "early in the decade" (which would be the early 2000s since Cummings-Foust et al. wrote their report in 2008), several factors were driving women away from the Educational Technology workforce. These factors included:

- An exclusionary culture to support women's advancement.
- Inflexible workplaces that were not conducive to work-life effectiveness.
- Isolation of women because of a lack of role models, networks, and mentors.
- The failure of companies in the high-tech sector to strategically and objectively identify and develop talent. (p. 2)

A new workplace may offer different cultures, a "changed" workplace with flex-time, few if any mentors, and the lack of an ability to develop talent from potential women workers who never had the chance to develop in Information Technology or Educational Technology. On the other hand, Cummings-Foust et al. (2008) suggested there may have been better opportunities for women in 2008 and satisfaction among women with their jobs in technical fields, though percentages of women were remaining steady or declining in technical fields at that time.

Orser, Riding, and Stanley (2012) published a study conducted by Canadian Women in Technology (CanWIT), concluding that gender discrepancy in the technology sector may be far worse than many have realized. How do we find out about discrepancy in the workplace? We ask the questions to those women who are now working there.

Messersmith, Garrett, Davis-Kean, Malanchuk, and Eccles (2008) utilized a mixed method study involving 13 men and 13 women. Messersmith et al. wanted to look at the supportive and the obstructive career-related experiences of Educational Technology workers. Codes that emerged from the data included family, classes, activities, other people, home computer use, and access to technology during formative years. Messersmith et al. concluded that a workforce was useful for experience. They also related to the underrepresentation of women in Educational Technology occupations due to male oriented career fields and the discrimination and promotional practices that women encountered.

Rosser's (2005) case study explored contributions of feminist theories, "ranging from liberal feminism through radical feminism to postcolonial feminism, to the understanding of gender and information technology" (p. 1). Findings resulted in a

framework of theory such as the technology frontier may hinder women at the Educational Technology workplace. Rosser concluded that she would like to see the theory of cyberfeminism (a fusion of gender and information technology) continue as the information technology (and therefore, Educational Technology) workplace unfolds or closes for women.

Cater-Steel and McDonald (2001) provided insight for other groups who address the imbalance of women in traditionally underrepresented disciplines. It was a qualitative study – a case study of a pilot project called "Go West" and took place in Australia. The authors found four factors critical for success:

1. Senior management support,
2. Working within institutional processes to attain goals,
3. Use of IT is essential for success, and
4. Marketing.

Even though Cater-Steel and McDonald's study took place in Australia, their findings are important due to issues about gender, institutional goals, and marketing and how to successfully integrate those factors with an imbalance of women in disciplines where women are not the majority.

Griffiths, Moore, and Richardson (2007) examined some of the work issues faced by women Information and Computer Technology (ICT) professionals. This was a quantitative, large scale online survey conducted across England in 2004-2005. The study explored under representation of women in the ICT field, retention of quality women workers, and senior level retention of women ICT staff. This study is important to note because it demonstrates the need and the scope for this type of leader and the retention

issues they face. Retention issues at both early and late stages of a career show a need for training and professional development as well as mentors at all stages of a person's career. To conclude this environmental section of the career trajectory segment of this literature review, there are several issues to point out. Women in technology related careers have faced inflexibility in the workplace, discrepancy in ratio of women to men, barriers to crossing the field's frontier into higher positions, underrepresentation, and problems of retention at the senior level of their careers. The literature documented some of the above issues facing women in their career stages and demonstrated a need to learn more about the negative forces that surround women in their workplaces.

Summary

All in all, this section, on women whose career trajectories include technology, stitches together a variety of landscapes and horizons facing women in Educational Technology and other technology related fields. From isolation at work to leaving their professions early in life to the inflexibility of workplaces, there are many hurdles women must traverse in technology related fields like Educational Technology. Many areas need additional research and examination such as discrepancy in ratio of women and men, underrepresentation of women, and future barriers to women entering technology related professions. Research is needed on work-life balance and women, women's relationships to technology, and a digital divide women face.

Women Leaders in Education Technology and Higher Education

Existing literature on women leaders in Education Technology and higher education focuses on leadership performance as well as on skills needed to do Education Technology jobs. As with literature reviewed in other sections, much of the skills-related

Educational Technology literature is based in information technology literature or in the broader context of higher education leadership. This literature review about women leaders in Educational Technology and higher education is organized using personal, behavioral, and environmental traits.

Personal Traits

Airini et al. (2011) asked women working in New Zealand higher education whether work or non-work situations helped or stopped their advancement in leadership roles at their schools. Even though the Airini et al. study took place in another country, results are relevant to this study because it concerns women, leadership, and how women advance in their careers, and what is useful to them in pursuit of that career advancement. The aims of Airini et al.'s research project L-SHIP (Leadership – Supporting Higher Intent and Practice) were to identify factors that help or hurt women wishing to advance in their careers, and to provide useful evidence to support development of programs that help women's advancement in university leadership roles. Five themes emerged from the data as important to helping individuals advance to leader positions. Themes were "work relationships, university environment, invisible rules, proactivity, and personal circumstances" (Airini et al., 2011, Abstract section). Getting more qualitative data to find out reasons why women are helped or hindered when seeking advancement in leadership positions is an important link in the historical development of research questions.

Spotts, Bowman, and Mertz (1997) studied higher education faculty and use of technology for classroom purposes. An early study, the relevance does conclude that men at this time rated their knowledge and use of technology higher than females. For

frequency of use, no differences were found among male and female users. However, the exception for women was the use of video, where women indicated slightly more frequent use. This may be telling when comparisons to today's research is completed. Incentives such as release time, merit pay and monetary rewards, recognition by the university were rated as more important by women as well. Barriers such as lack of time and lack of contribution for professional advancement were also more important to women. These findings may suggest that "gender differences in technology use by university faculty may exist and need to be addressed" (Spotts et al., 1997, p. 421) by future studies such as this one.

Miles (2009) studied four social factors and four challenges for women in Information Technology. Social factors included role models/mentors, family, peer groups, and teachers. The four challenges included gender, discrimination and unfairness, diversity, and stereotypical beliefs regarding women. Three findings showed that family, role models, and job satisfaction all play a part in the reluctance of women to enter Informational Technology as a career. This study could be replicated for use in higher education; companies as well as higher education institutions need to finds way to promote women in the field and retain qualified, well-educated women at the time of this study and employee shortage in Information Technology.

In summary, personal traits women appear to possess that may contribute to women seeking leadership positions include: proactivity, concern for family versus concern for job, interest in release time or leave time available, interest in amount of money received or other compensation, social need for presence of mentors and peers, wanting opportunities to contribute on the job, personal satisfaction for work done well,

need for recognition by employers and colleagues for work done well, perceptions of stereotypical roles, how women react to the circumstances they are in, wanting adequate resources at the workplace to accomplish tasks, and wanting paths to be open to professional development. For any person in the workplace, recognition is essential for advancement and for continued professional growth. If there is a capacity for advancement for women into new leadership positions, recognition of women achieving commendable work, opportunities to be mentored and to foster self-growth, and a need for new professionals in a field, then there will be a dynamic field for women to work in and to progress in.

Behavioral Traits

Gallant (2014) considered the under-representation of women in higher education leadership to be a persistent global issue. Eight women who were aspiring to be leaders participated in interviews after attending a leadership program. Findings included "ambiguities and contradictions that surround notions of leadership" (Gallant, 2014, p. 203). Meanings about leader recognition, interacting with existing leaders, and leadership capacity were discussed. Findings about men included attraction, men "paying it forward" to advance more than women, and the advocacy of formal leadership training rather than just learning by doing. Women leaders were viewed as "nurturing, communicators, and relationship focused" (Gallant, 2014, p. 213).

Drury (2009) studied women leaders in Educational Technology in higher education. She conducted three interviews in this qualitative study and provided an insightful literature review for further consideration. Her findings were that there have been concerns about a lack of women in leadership positions and a loss of women

workers in Educational Technology possibly due to economic and social reasons at the workplace. Drury concluded that mentoring will be a critical component for future women leaders and workers in Educational Technology at colleges and universities. Drury suggested if women want to advance, they should get involved in professional organizations. Getting involved in professional organizations builds social, political, and cultural capital and creates a support network for a worker as that worker meets people. Women who want to advance should also volunteer to be on committees or do other work in their organizations. Getting involved may combat feelings of isolation (Drury, 2009).

Behavioral traits address women's capacities to lead and a need for mentoring so necessary for retention of these women in Educational Technology. The literature mentioned concerns about a lack of women in leadership positions as well as a loss of workers due to economic reasons and social reasons. Some behaviors that might help women advance included: taking advantage of soft skills in a women like tendencies for nurturing, being good communicators, and being focused on relationships. Other suggestions included getting involved in professional organizations and volunteering to be on committees; these behaviors build social networks and mentoring opportunities for women (and also for men, for anyone).

Environmental Traits

Bradley (2000) wanted to find out if gender differentiation by field of study had occurred in higher education. Bradley found gender differentiation was evident and had declined little over time in some fields of study such as STEM fields, including technology. Bradley found "women are more likely to graduate from education, arts,

humanities, social sciences, and law, and men are more likely to graduate from natural sciences, mathematics, and engineering" (Bradley, 2000, Abstract section).

In a follow-up study, Charles and Bradley (2009) determined from 44 societies that "postindustrial labor markets and modern educational systems support the cultivation, realization, and display of gender-specific curricular affinities" (Charles & Bradley, 2009, Abstract section). In other words, some career fields support certain characteristics in individuals, and many of these characteristics were associated with predominately male or female genders. So, you might have construction supporting individuals that could lift a lot of weight, or nursing might require individuals to be sensitive to feelings of patients. It is important to cultivate leaders early in people's academic careers, and look at gender-specific preferences of students during early schooling.

Dugan, Fath, Howes, Lavelle, and Polanin (2013) studied leadership of women in STEM majors compared to leadership of women in non-STEM fields. Results indicated that there were similar levels of "leadership capacity" in women in leadership roles in STEM majors compared to non-STEM majors in higher education but with women leaders in STEM majors exhibiting less self-efficacy than their non-STEM counterparts. Dugan et al. felt this difference in self-efficacy could be a function of environment. According to Dugan et al., Bandura described efficacy as "malleable and influenced by environmental factors" (p. 8) and affecting how a person might perceive their level of success. Dugan et al. suggested "specific experiences during college (i.e., perceptions of sense of belonging, engagement in community service activities, sociocultural conversations with peers, and off-campus employment) . . . [could] be leveraged to

cultivate more purposefully the leader efficacy of women in STEM environments" (Dugan et al., 2013, p. 17).

Jameson (2013) proposed that "a new fifth 'age' of educational technology research" (Abstract section) was occurring in higher education. He argued that "strategic e-leadership approaches to the adoption and use of educational technology need to be progressed through research, development and training" (Jameson, 2013, Abstract section). Building on "prior literature identified from leadership and educational technology research," Jameson built an updated framework of principles (The e-Leadership Framework of Educational Technology Skills for Higher Education) for effective "e-leadership". His proposed model contained three parts: purposes, people, and structure and social systems. Purposes included (among other things) e-learning visioning and making meaning in complex adaptive systems. The people section included segments about culture, trust, and collegiality; and the third section on structures and social systems talked about innovation, infrastructure, and quality management among other items.

What the environmental section unfolded was that there is a need for cultivation of leadership among women in Educational Technology careers. Development, research, and training was discussed in the Jameson study where he said technology's adoption for use needs to progress through "research, development, and training" (Jameson, 2013, Abstract section). Dugan et al. (2013) related that community involvement, developing a sense of belonging, and engagement with peers for women translate into potentially stronger leadership roles for them. There was little information about actual environmental factors that affect women's abilities to become leaders in a technology focused world.

Summary

Personal traits women possess that may affect women seeking leadership positions include: proactivity, interest in amount of money received or other compensation, social need for mentors and peers, wanting opportunities to contribute on the job, personal satisfaction for work done well, need for recognition by employers and colleagues for work done well, perceptions of stereotypical roles, wanting adequate resources at the workplace to accomplish tasks, and wanting paths to be open to professional development and advancement.

Behavioral traits that might affect advancement of women in technology include: being good communicators, and being focused on relationships, involvement in professional organizations, and volunteering to be on committees; these behaviors build social networks and mentoring opportunities for women or for anyone.

The literature review in this report contained little information about actual environmental factors that affect women's abilities to become leaders in a technology focused world.

Even though the office landscape in today's Educational Technology world may sometimes make it difficult for women to advance, there is an online setting that may reveal new mosaics, new opportunities in a gender neutral world, for women who wish to become leaders in Educational Technology in higher education. Because setting usually involves the where and when of experiences, it will be important to explore environmental concerns and experiences of those concerns in this study. A sub-thread of environmental characteristics includes women's needs for having a mentor in the

workplace or for persevering and existing in a mentor-less world and filling the pipeline (filling the void or lack of women in higher positions) in technology fields.

Summary of Stages – Women in Educational Technology

There are many fortuitous elements in the events people encounter in their daily lives. Bandura's (1982) viewpoint is that certain people are often brought together through a constellation of events; if these events did not occur in a given pattern, those people's paths would never have crossed. In such chance encounters, the separate paths in which people are moving have their own chain of causal determinants, but their intersection occurs fortuitously rather than through deliberate plan. The profusion of separate chains of events provides innumerable opportunities for fortuitous intersections. It is such chance encounters that often play a prominent role in shaping the course of career pursuits, forming marital partnerships, and altering the future direction and other aspects of human lives.

Fortuitous intersections could be a way of viewing the personal landscape of women leaders in Educational Technology in Higher Education today. Because of the ever-evolving world of technology and the personal demands on working women today, it becomes important to inquire about personal views of women at their workplace as well as their own personal issues during the course of a day or during the course of a career. What important personal issues do women face? What improvements have been made and what else needs to be done in order for women's workplaces to improve? Two sub threads to consider are anxiety issues and gender issues.

A basic leadership challenge for women Educational Technology leaders in higher education is to seek meaning at work in order for the culture they work in to thrive

and to succeed. There will be stories and experiences that are important and this study aims to locate "glimmers of truth" (Bolman & Deal, 2008, p. 19). The telling of personal experiences will allow understanding of women Educational Technology leaders in university settings to grow. Along with exploring experiences of women students in Educational Technology academic disciplines, women in Educational Technology as a career field, and women working in Educational Technology in higher education leadership capacities, this study hopes to reveal more threads about the persistence of women leaders in Educational Technology in higher education.

CHAPTER III

METHODOLOGY

This chapter explains the methods and procedures used to research and understand experiences of women leaders in Educational Technology in higher education. I included a discussion of the research design including the research question, the research approach, site selection, selection and recruitment of participants, confidentiality of participant data, interview questions, interview protocol, plan for data collection, data analysis and coding, reliability and validity of the study, assumptions, limitations, and an overall summary of the of the chapter.

Research Question

The primary research question for this study was: What are the experiences of women who persist in Educational Technology leadership positions in higher education?

Research Approach

This study used a qualitative research approach. Brantlinger, Jimenez, Klingner, Pugach, and Richardson (2005) described qualitative research as "a systematic approach to understanding qualities, or the essential nature, of a phenomenon within a particular context" (p. 196). A qualitative approach worked best for the research question because it allowed a variety of experiences to be shared and analyzed using a constructivist perspective.

According to Crotty (1998), constructivism "is the view that *all knowledge, and therefore all meaningful reality as such, is contingent upon human practices, being constructed in and out of interaction between human beings and their world, and developed and transmitted within an essentially social context*" (p. 42). I believe the interview process in my study allowed the social context of participants' experiences to reveal behaviors, personal issues, as well as environmental factors in the higher education workplace that affected participants. As interviews unfolded, data collected revealed newer ways of viewing this type of 21st century career and may prove enlightening for prospective workers wanting to join the field.

Research Design

A qualitative inquiry approach was used for this study relying on two rounds of interviews with women Educational Technology leaders in Higher Education to collect data. After receiving approval for the study from the Institutional Review Board at my home institution (see Appendix A), I recruited participants for the interviews. Prior to the first interview, I requested and received resumes from all participants to supplement my understanding of their professional and personal backgrounds. All but two sent resumes and the remaining participants allowed me access to their resumes via LinkedIn, a business and professional online directory.

In the first round of interviews, I interviewed 12 women who held leadership positions with responsibility for Educational Technology functions at higher education institutions. The first interview included discussion of a consent form and signature followed by the interview questions and recording of responses. I then conducted follow-up interviews with eight participants. The questions asked in the follow-up interviews

evolved from remarks made by participants during the first round of interviews. Both rounds of interviews were conducted and recorded mainly via video conference and transcribed using a software application. For backup, when video conferencing did not work, I used a cell phone with software applications instead of a laptop to interview participants. Three times wireless video conferencing via my laptop did not work, so then I used a software application on my cell phone. I was able to record video as well as screen capture using software applications on my phone. Through the two rounds of interviews, authentic experiences of women Educational Technology leaders in higher education unfolded.

Selection and Recruitment of Participants

The population for this study was women Educational Technology leaders in higher education who were members of the nonprofit organization, EDUCAUSE. There are numerous types of positions in Educational Technology, but this study focused on women in roles that leant support to online curriculum, such as learning management developers, directors of instructional design, a distance education coordinator, or leaders of online learning.

As an organization, EDUCAUSE's mission is to advance higher education through the use of information technology. EDUCAUSE was used to recruit participants for my study because there is an EDUCAUSE listserv specifically for women in Educational Technology. To be able to access the listserv, I joined EDUCAUSE and became a member of the listserv 6 months before interviews were conducted. Access was not granted right away. It took 3 months of phone calls and emails before I received an email allowing me to discuss my study with someone via telephone. So, I called a

director, and we discussed the study. At that time, EDUCAUSE did not use a permission letter to approve my study. The director said it would be possible to send a group email to the Women in the Information Technology sub-group on the EDUCAUSE listserv. I contacted the IRB office at my home institution to see if this research protocol would be permitted, and it was approved. After 5 months, the study moved forward.

The listserv participants began to respond to my initial email (See Appendix B). Job titles of respondents included Administrative or Managerial, Director, Associate Director, or Manager. Some of the specific job titles included Distance Education Director, Director of Instructional Design, Associate Director, Program Manager, and Director of Learning Management Systems, among others. Gender was determined by name and information found in EDUCAUSE profiles (where available). Also, in the EDUCAUSE database, membership was considered as a proxy for determining persistence and/or longevity at the workplace by the membership years in the organization. Through this process, I identified 150 potential participants for my study.

My goal was to identify 12 women for participation in my study for the first round of interviews and eight women for the second round of interviews. I emailed prospective EDUCAUSE participants, gave them information about the study, and asked if they were willing to become involved in the study (see Appendix B). After the initial email and participant acceptance period, I did a follow up with Doodle online scheduling software to schedule online interviews. This recruitment phase lasted approximately 10 days. Twenty women answered my email and 15 sent back resumes and signed consent forms. Three women dropped out of the interview process. The eight women for the second round of interviews were selected because they responded that they would be

available and that they would schedule a second interview. See Appendix C (Round 1 interviews) and Appendix D (Round 2 interviews) for a summary of participant interview schedules. After sharing my research protocol with selected participants, I began the interview process to determine experiences of women in their various leadership roles in Educational Technology.

Ensuring Confidentiality of Participants

According to Glesne (1999), "Researchers must consciously consider and protect the rights of participants to privacy" (p. 122). A consent form was used in this study to help ensure confidentiality (see Appendix E). In addition, participants in this study were numbered; those numbers were used to identify them throughout the study. I kept a record of those who signed up to participate separate from interview transcripts and an identification number bridge sheet. I did not attempt to change any identifying characteristics when transcribing interviews.

Interview Protocol and Interview Questions

Face-to-face interviews were conducted via video conference in timeframes chosen by each participant. I conducted two rounds of interviews: 12 first interviews and 8 second interviews, resulting in 20 total interviews. All interviews were recorded with video software and transcribed verbatim. Each first interview was approximately 1 hour in length and the follow-up interview was approximately 1 hour also. The time range for all interviews went from 35 minutes to sixty-five minutes.

For the first interview, there were three topic questions with three sub topic questions. The three topic questions were informed by Bandura's (1977) framework. The first round questions included:

1. What do you think leadership is and how do you do it?
2. What kind of support have you had to ensure your professional success?
3. What qualities did your support network/system demonstrate?
4. What is one piece of advice that you got early on in your career? Or what is one piece of advice that you have received that has served you well?
5. Can you talk about your career path and what have you learned?
6. What in your previous positions brought you to where you are today? Or informed your leadership style?
7. What has been successful in your career path? What would you do differently?
8. Persistence: Define persistence. How can we model persistence for the next generation?

Second round questions that emerged from round one interviews included:

1. What does Higher Education culture do to help or hinder Educational Technology leaders?
2. What do you think the future of your organization will be? What role will you play?
3. What does it mean to be a leader in Higher Education Educational Technology?
4. At your retirement, what will be your signature accomplishment?
5. What would be your advice for a young woman entering the world of higher education Educational Technology?

After reading both round one and round two transcripts and extracting six to eight comments from each answer, four sub-questions evolved:

1. How important is mentorship?
2. How does leadership evolve?
3. What does it take to persist?
4. What are pieces of advice you have received in early career, practice today and offer to future women leaders?

From those four sub-questions, the relationships, the evolution of leadership, and persistence came together to describe some experiences of women in higher education leadership positions in Educational Technology as well as the advice respondents received, practiced, and wanted to offer to future leaders in higher education, specifically Educational Technology. Respondents discussed past advice they received when they first began their careers, and then advice they followed at the time of this study. In the second round of interviews, eight respondents shared what advice they would give to future women leaders in Education Technology and higher education roles.

Data Analysis

Interviews were digitally recorded and subsequently transcribed by me. Once transcriptions were completed, I began the analysis phase of my study. I identified categories and sub-categories of data, looked for emerging threads, coded the data, and then doubled back for more analysis of collected data as necessary. Formal analysis began early in the process, as guided by Bogdan and Biklen (2007). Initial codes were informed by Bandura's theory of self-efficacy (behavior, personal, and environmental). I started with Bandura because it served as a stepping stone to other codes that exist (See

Appendix F for a list of pre-existing codes). This process led to me assigning 22 pre-existing codes to my data set. I did not want to overlook pre-existing codes as some of them were interesting enough to become part of the organization of the study, such as mentors becoming one of many relationships discussed in interviews.

After pre-existing codes were assigned, I utilized open coding practices as described by Strauss and Corbin (1998) to uncover additional codes that were unrecognized using Bandura's framework. *A Priori* codes and co-occurring codes emerged as did sub-categories as I identified and labeled key concepts. A priori codes refer to codes developed by deductive reasoning. They are not supported by fact but by applying generalizations to a specific situation. Co-occurring codes are codes that emerged from the data and were also present in pre-existing codes from previous research or a priori codes. See Appendix G for a list of all codes generated in this study, including 47 *a priori* codes, 49 co-occurring codes, and 22 pre-existing codes.

Following coding of data, I organized interview data into textual, structural, and thematic categories. I found threads within each category based on research questions. Structural descriptions refer to expressions of actual experiences and contained "structural elements" that structure or organize an experience. Threads from each structural description were identified and reported first. Secondly, structural elements were identified based on textual descriptions. The textural descriptions surfaced by the words from participants. From those textural descriptions, thematic descriptions were chosen to connect shared experiences from respondents. Lastly, each type of information was matched with participants' experiences to give a composite picture for each

experience shared by participants. Unique threads (or themes) are discussed in detail in Chapter IV.

Reliability and Validity

Maxwell (2005) stated several options for establishing validity in data obtained through qualitative research. He indicated that "validity is a goal rather than a product" (p. 105). Seidman (2006) followed up with how the interview structure "incorporates features that enhance the accomplishment of validity" (p. 22). In this study, I used several strategies to ensure validity and reliability of data at the point of data collection as well as at the point of analysis. I employed strategies to recognize and account for my own biases during data collection and analysis. The overall research process puts participant comments in context, allows for "idiosyncratic" days to check for internal consistency and how participants made meaning of their experiences.

I began by acknowledging what I believed to be true about the participants in my study. For example, I believed the group of participants was representative of women in Educational Technology in higher education. Participants were from across the country, held various undergraduate and graduate degrees, and were leaders in the institutions they served.

During the interviews, I wanted to encourage deep, rich, and authentic responses from participants. I did so by communicating empathic responses to participants' narratives, including: slowing down, taking time, and dwelling on moments created from respondents dialogue. In fact, for some participants, they needed moments to mull over questions or have questions clarified. I would pause, would ask them if they needed more

time to think about a questions, and sometimes, we would go on and return to certain questions later in an interview. All participants answered all interview questions.

After the first round of interviews were completed, I spent time reflecting on participants' responses in order to extract from responses potential questions for a second round of interviews. In addition, I wrote memos immediately after interviews were transcribed to help guide and refine the study. See Appendix H for an example of this memoing activity.

Via the data of experiences, data of perceptions, and memories, I continued to seek possible meanings as I proceeded through data analysis. As experiences unfolded for each interview, threads surfaced and revealed new knowledge of work happenings and perceptions. I explicated responses and categorized them using threads and pre-existing, a priori, and co-concurrent coding processes. I continually returned to my memos to reconcile my thoughts immediately after the interviews with the codes I assigned during the analysis phase of the study.

Upon first entry into this research study, I brought a lifetime of thoughts, assumptions, and beliefs. With qualitative methodologies frequently based on social interactions between subjects interviewed and researcher, the potential for researcher bias is considered a major weakness. Despite this perceived weakness, objectivity must be an aim in the human sciences because there has been no other reasonable way to construct public knowledge that would be considered legitimate and valid by researchers and policy-makers in diverse communities. Banks (1998) argued that social research cannot be neutral, stating, "The research is always and by logical necessity based on moral and political valuations, and the researcher should be obliged to account for them explicitly"

(p. 6). Objectivity will be achieved through self-disclosure. It is not necessary to completely separate a researcher from subjects under investigation in a study, whether it is a quantitative or qualitative study (Banks, 1998; Rose, 2001). Regardless of the research design, I brought my own assumptions to bear in choices made. So, instead of claiming objectivity by hiding behind a veil of controlled methodologies, it was incumbent upon me as the investigator to acknowledge the beliefs and assumptions I brought into the study (Banks, 1998). I did this by writing a self-reflective statement, which I referred to throughout the processes of data collection and analysis in this study. This enabled me to set aside prejudices or pre-conceived notions, and to allow the things, events, and people in my participants' stories to happen for the first time for me.

Self-Reflective Statement

I have been out of the higher education Educational Technology field for over 5 years. My educational technology experience included a grant-funded instructional design position at a small rural Midwestern university. I have a bachelor degree in English, speech, and drama, and a master's degree in speech communication. I received an educational specialist degree in technology from the University of South Dakota in 2006 while I was teaching and integrating technology at a 1:1 laptop high school beginning in 2003. A 1:1 laptop ratio means each student had access to their own laptop for studying purposes.

Using my experience at a 1:1 laptop high school for 6 years and another experience in a college position as a Director of Instructional Design for two years helping faculty create over forty online courses, I constructed this study to gain a better understanding of women, leadership roles, technology, and higher education. Since 2003,

I have taught secondary and collegiate level courses integrating pedagogy with five learning management systems including WebCT, Desire2Learn, Moodle, Blackboard, and eCollege, along with integrating teaching with an iPad. With my background of integrating technology in teaching, I thought it was important to understand women leaders working in Educational Technology, working with faculty, using technology, and integrating pedagogy into 21st century learning environments. A review of the literature suggested that women leaders in Educational Technology at the higher education level had unique experiences that needed further exploration.

I have an extensive theater background as an actress, director, and playwright. I've been in almost 100 different shows, 40 as a director. Because of the qualitative nature of this study, I believe I brought experience of the "live" stage and what transforms individual actors during every new performance to my qualitative research methods. From rehearsals to production endings, there is a reflective process, not unlike the reflective process a researcher goes through during data analysis in qualitative research, that begins with each new idea. Each idea brought to a show is analyzed and synthesized until an image takes form in the mind, like categories and themes that form during data analysis in qualitative research. Like my theater experiences analyzed ideas for each production, this research study analyzed experiences of women leaders in Educational Technology in higher education.

Assumptions

One assumption made during my literature review was all people involved in this research, including readers, would understand what was meant by personal traits, behavioral traits, and environmental traits. I assumed if readers did not know and were

really interested, they would look up Bandura's Social Cognitive Theory for more information.

Also, entering this research project, I was uncertain as to what I would find about information in the shared experiences of participants. I assumed women attracted to a leadership role in the Educational Technology field would be characterized by strong analytical skills. This belief was based on past working relationships with other women in Educational Technology and women students in Educational Technology related disciplines. For example, I assumed leaders in Educational Technology would be aggressive or good at math. The assumption that they would have strong analytical skills was derived from casual observations that women in Educational Technology appeared to be better at breaking down the technologies into their various conceptual or theoretical components and then grasping the interrelationships between those components. As for women remaining in the field of Educational Technology over long periods of time, I assumed there must be a certain level of job satisfaction involved, and new knowledge would be gained from the transcripts of experiences from women participating in this study.

Limitations

One limitation to this study was finding a location to interview participants who were scattered all over the country. To overcome this limitation, I used video conference technology for conducting interviews. Video conferences encouraged interviewees who had time and place limitations to participate in face-to-face interviews. The flexibility of using video conference technology resolved this researcher's concern about how to reach key informants and increase participation.

Another limitation developed with the use of technology during the interview process. In an age of information like we had at the time of this study, sometimes connectivity with hardware did not work as it was supposed to; for example, sometimes the video conference camera did not work, but the voice recording did, or vice versa. If a laptop computer did not work properly for a video conference, back up options were put into place by having several backup computers and cell phones with video conference ability available and ready. There were three times the wireless connection ability of my research computer did not work properly, so I used software applications on my cell phone to capture video interviews. I also used an iPad to sound record. The video recording software application I was using, along with a screen capture application, worked on either laptop or cell phone.

Another limitation of this study was the EDUCAUSE email listserv. The invitation to participate in this study was given to women members of the "Women in IT" group only; the study would be about their experiences only, and no other Educational Technology women leaders in higher education who did not belong to this particular group.

Summary

In Chapter III, the methodology for this study was explained. Items discussed in this chapter included: the research question, the research approach, the research design, the selection and recruitment of EDUCAUSE participants, ensuring confidentiality of participants, the interview protocol and interview questions, data analysis steps, reliability and validity measures, self-reflective statements, recognition of assumptions, limitations of this study, and this summary.

CHAPTER IV

FINDINGS

This qualitative study examined one major research question: What are the experiences of women who persist in Educational Technology leadership positions in higher education? I used a qualitative research approach to understand the experiences of these women leaders. Data analysis was framed by Bandura's Self-Efficacy theory that delineated the personal, behavioral, and environmental nature of leadership roles demonstrated by participants in this study.

In this chapter, I present summaries of each participant's interviews to offer more clarity about what each woman leader in Educational Technology at the higher education level experienced. The summary of each individual story gives depth and understanding to participants' experiences with common threads of experiences (perceptions, stories, or trains of thought) and categories to follow. This chapter also includes an analysis of data that yielded four common threads within the data, each thread of data representing categories of data that emerged from results of coding activities. In this data analysis, results were organized from larger groups and extracted into smaller segments. Threads have been broken into smaller segments of data to specifically explore individual categories. Direct quotations are used to highlight a thread and to give experiences as described by participants meaning.

Participant Stories

In this section, I give readers an understanding of the educational background and work experiences of 12 women leaders. I offer short biographies of each participant, including education and experience as well as a brief description of the university where they worked at the time of their interview. A variety of backgrounds comprised of unique academic experiences, unique job experiences, unique locations, and unique individual personalities begins to illuminate this study – its depth, its complexity, and the ownership of threads woven into this study's tapestry. The threads offer insight and understanding when participants comment on their leadership experiences in higher education. See Table 1 for a summary of participants' educational and professional backgrounds.

Participant 1 possessed a bachelor's degree and a master's degree in a science field. She had over 10 years of experience in Educational Technology at the higher education level. Her school was a public 4-year university with over 5,000 students. The school showed a high level of research activity in STEM related graduate fields while the undergraduate profile included a full-time, more selective, lower transfer-in population.

Participant 2 held a terminal degree and was acting director of Educational Technology at a research university. A terminal degree is "the highest academic degree in a field of study" (USLegal, 1997-2016, para. 1). She had a graduate degree in computer science and an undergraduate degree in mathematics. Her career background included teaching at the college level and working in administration for instructional design, including an entry level position in that job type. Her university was a public 4-year or above university with over 13,000 students. It was a doctoral university with higher levels of research activity. The graduate instructional program at Participant 2's

university focused on arts and sciences. Her graduate instructional program was STEM-dominant. It was known as a 4-year, largely residential university (students who attended the university lived in dorms or nearby apartments in order to attend – as opposed to living at home).

Table 1. Educational Paths and Careers of Participants.

Participant	Level of Degree	Academic Discipline	Years of Experience	Institutional Type	EDUCAUSE Region
1	Master's	Science	10 +	Public 4-Year University	West
2	PhD	Math & Science	20+	Public 4-Year University	North East
3	Master's	Social Science & IT	10+	Private Not-For-Profit 4-Year University	West
4	PhD	Liberal Arts	10+	Public 4-Year University	South West
5	PhD	Liberal Arts	5+	Private Not-For-Profit 4-Year	West
6	Two Master's	Business	20+	Public 4-Year University	Central
7	Bachelor's	Business	10+	Public 4-Year University	Central
8	PhD	Liberal Arts	10+	Private Not-For-Profit 4-Year	North East
9	Bachelor's	Liberal Arts	20+	Public 4-Year University	South East
10	Master's	Science	5+	Public 4-Year University	Central
11	Master's	Science	10+	Public 4-Year University	North East
12	Master's	Science	10+	Private Not-For-Profit 4-Year	North East

Participant 3 held an undergraduate degree in political science and a graduate degree in information technology management. Her career track included IT specialties, technical manager with learning platforms, and services. At the time of her interview, she served as an associate director of academic software solutions at her university. Her university was a private not-for-profit institution with a student population of under 10,000. The enrollment profile contained a majority of undergraduate students with a single graduate doctoral program in education. It was known as a 4-year school, medium size, and highly residential.

Participant 4 held a terminal degree with undergraduate and master's degrees in liberal arts. At the time of her interview, she was the director of eLearning at her campus. She had over 10 years of experience in this area. Her school was a 4-year or above public university with a student population of over 20,000. It was a basic doctoral university with the highest level of research activity. The enrollment profile was highly undergraduate and primarily non-residential.

Participant 5 possessed a terminal degree. Her job experience included teaching experience as a course lecturer, then work as Instructional Design Director, Instructional Technologist, Educational Technology Manager, and most recently, Director of Educational Technology Services. She served more than one higher education institution during her career. Participant 5 worked for a private not-for-profit, 4-year or above school with a student enrollment under 1,500. The baccalaureate colleges focused on arts and sciences. The student enrollment profile was highly undergraduate, full-time, with a lower transfer-in rate.

Participant 6 held a bachelor's degree and two master's degrees. She worked as an Assistant Director in Academic Technologies at a research university. She had worked in higher education for over 20 years in various staff capacities in Educational Technology. Participant 6 worked at a public university with a student population of over 25,000. The school had comprehensive programs and a high undergraduate profile and was largely residential.

Participant 7 earned a bachelor's degree. She had 20 years of corporate and higher education experience. Her positions in higher education included Customer Experience Manager, Process Manager, and Knowledge and Help Desk Manager. Her corporate experience included Database Support Manager and Operations Center Manager. Her school was a public university with a student population of over 40,000 students. The undergraduate instructional program had strong arts and sciences degrees plus professional programs with a high graduate coexistence. The graduate instructional program included comprehensive programs with medical/veterinary schools and was primarily residential.

Participant 8 earned a terminal degree. Participant 8 had worked in Educational Technology as a director for over 10 years. Her university was a private not-for-profit school with a student population over 10,000. The school's undergraduate instructional program included arts and sciences plus professions with some graduate coexistence. The school had a majority of underclassmen and was largely residential.

Participant 9 had a bachelor's degree. She had worked in higher education for over 20 years. She served as Director of IT Operations and Information Technology Services, Director of Networks and Telecommunications, and Assistant Director of

Instructional Services at the same institution. Her university was a public institution with a student population over 12,000. Her school was a doctoral university with moderate research activity. The undergraduate instructional program was balanced arts and sciences/professions with some graduate coexistence. The doctoral school had a single program in education. The size and setting was 4-year, medium, and largely non-residential.

Participant 10 held a bachelor's degree and a master's degree. She had served in manager-level capacity in higher education for over 5 years. Her school was a public university with a student population over 40,000. The school's undergraduate instructional program included arts and sciences plus professional with a high graduate coexistence. The graduate instructional program included comprehensive programs with a medical and veterinary school. The majority of students were at the undergraduate level and mostly residential.

Participant 11 had a bachelor's degree and a master's degree. She had served as Assistant Director for Infrastructure Technology Solutions and also had been a systems administrator at the same school. She had worked in higher education for under 10 years in a leadership role. Her university was a public doctoral university with the highest level of research activity. The student population was over 25,000. The undergraduate instructional program was balanced between arts and sciences/professional programs with a high graduate coexistence. The enrollment profile was largely undergraduate with highly residential students.

Participant 12 possessed a bachelor's degree and a master's degree. She had held five positions in one school, going up the career ladder. She started as an Educational

Technology Analyst then moved to Lead Analyst, Media Services and Special Projects. From there she became Supervisor of Instructional Technologies to Manager of Multimedia Technologies and finally Director of Multimedia Technologies. Her university was a private, not-for-profit with a student population of over 10,000. This doctoral university had moderate research activity. The size and setting was 4-year and highly residential. The graduate instructional profile was highly STEM-dominant.

Common Threads

As transcripts were reviewed, threads of common discussions began to surface from participants' experiences in higher education leadership roles in Educational Technology. Table 2 offers a summary of common threads and categories that emerged during analysis of participant interview data.

Table 2. Common Threads and Categories.

Threads	Categories
Thread 1 – Relationships: Participants shared how mentorships from the beginning of their careers to developing talent at the time of their interviews evolved into continued working relationships.	Network Workplace
Thread 2 – Leadership: Participants described how their own individual unique leadership evolved through the course of their career.	Vision Teamwork
Thread 3 – Persistence: Participants discussed how persistence kept their career track moving forward with or without steps backwards.	All-in-One
Thread 4 – Advice: Participants discussed advice given to them from early times through their work in the field at the time of their interview and what advice they would give a woman entering a leadership position in Educational Technology in higher education.	Educational Advice Remembering Your Roots to Leaving a Legacy Managing Emotions

The first thread, relationships, reflected how important mentors were at various career stages. The second thread, leadership, demonstrated how leadership styles evolved through time within each participant. The third thread, persistence, dealt with how persistence kept participants on their career tracks. The fourth thread, advice, described advice given to participants throughout their stay in their career fields, advice for future women Educational Technology leaders in higher education as well as what participants believed would be their signature accomplishments at their retirement send-offs.

Thread 1: Relationships

Participants shared how mentorships at the beginning of their careers, throughout their lives, and all the way up to developing talent at the time of this study involved continuing working relationships. These relationships surfaced in several key areas including online networks and face-to-face networks, the daily workplace, and along educational pathways including professional development. Two sub-categories surfaced within Thread 1 data: Network Relationships and Workplace Relationships. Network relationships can be found in professional organizations. Network relationship codes included: connection (12 occurrences), success (55), engagement (12), and experience (33). Workplace relationships included colleagues and administrators who supported and nurtured participant development. Workplace relationship codes included: availability (9 occurrences), ideas (25), organization (37), development (26), help (93), and professionalism (50). See Figure 3 for a visual representation of the relationships and codes that are woven into this thread.

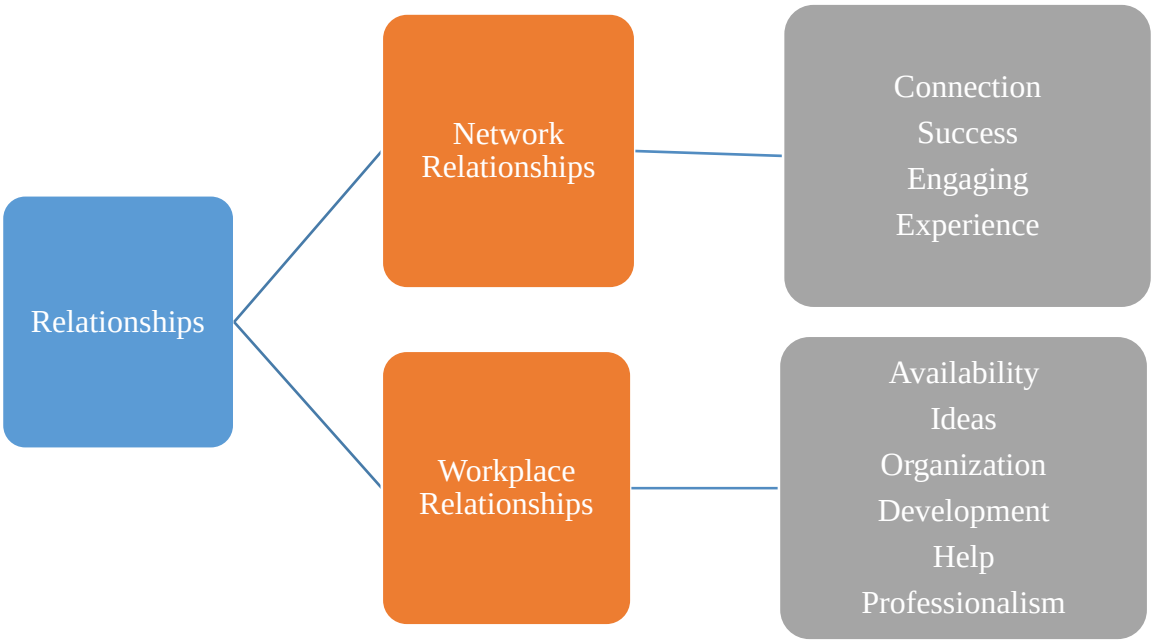


Figure 3. Thread 1, Relationships Code Map.

Network relationships.

The first type of relationship found in this study was the network relationship. Network relationships were important to participants for many reasons. Such relationships provided support to participants. Participants found a willingness to share about job-related duties among colleagues and mentors; participants appreciated availability of contacts and how contacts helped participants through advocacy. Most participants met network mentors at annual conferences and continued taking advantage of this type of mentoring throughout their careers. Network relationships included peers outside a participant's university maybe met through professional development and online listservs that unite women to share stories and build morale. Participants shared how important network relationships were to them in connecting with others, in getting supporting for professional success, and in learning from experienced mentors.

Connecting with others. Participant 4 described the connection with professionals in her field from across the country as cyclical nature. To her, professionals she connected with were . . .

> . . . supportive peers so the networks [reach] both locally and nationally but also internationally. I really liked those and depend on those . . . people that I had worked with 10 or even 20 years ago. I often see the sort of coming back around or me coming back around to them and truly what comes around what goes around.

Like Participant 4, Participant 8 found great value in connecting with professionals in the field through conferences:

> I made friends with people from the conference as well as another group of women who were in the same boat. This group grew into roles together and also became friends. We meet up at that conference every year, and we bounce ideas off each other. I have grown up with that board and ran and won board positions.

Supporting professional success and engaging in their careers. Participant 2's noted relationships were with friends and colleagues with whom she had worked in years past as helping her "forge my way" and helping her in "making some career decisions and deciding where I was going to go." Guidance provided by relationships parallelled the career trajectory established in the literature review, was helpful at all stages in a career pathway, and was shared by more participants. Participant 8 cited going to conferences as the place where her career was supported. She "saw people presenting on topics, and thought, 'I could do that as well.' The desire to be a manager and a leader came from that conference." For Participant 11, having support and guidance in tasks and

responsibilities related to her job was particularly important, especially for those tasks she found challenging. She stated, “Especially being a woman in technology fields, it can be really difficult, from buying [from] really good vendors [male salespersons] I actually found it really difficult when I first started because they’re guys, and they tend to be very blunt with each other, and I wasn't prepared for that communication style.”

Learning from experienced mentors. Participant 7 received support in her career from mentors who were “cheerleaders, and everyone wants a cheerleader. I also believe that mentoring will allow workers to grow and get better if mentors are supportive and honest.” Her use of the cheerleader metaphor provides a glimpse into that positive support she found important and necessary in her career. Participant 11 also had really good mentors. She stated, “I have had two, in particular, but sadly they have moved on and gone to other places, and it’s been harder and harder to keep in touch with them, so I think that was definitely crucial for me.” Participant 5 felt lucky to have had really good mentors throughout her career: She said,

> It’s been through having mentors both at my institution and elsewhere has really shown me to know how to lead my relatively small but sometimes challenging team effectively, how to make them want to do their best work and how to keep on going.

In summary, women Education Technology leaders in higher education built a network of mentor relationships through professional conferences and organizations. These participants appreciated and trusted others’ willingness to share stories and goals that united participants and leadership capacities during career paths. Network mentors

were vital at all stages of career development for these participants to help them with persistence in the workplace.

Workplace relationships.

The second type of relationships discussed by participants were those that developed and were nurtured in the workplace. These relationships were significant for the following reasons: professionalism, support, connections, setting examples, modeling current practices, quality, and latitude. Participants in this study described how vital workplace relationships were for them at the beginning of their careers in higher education as well as at the time of their interviews. Workplace relationships provided knowledge and direction at critical crossroads during workplace trials, including adaptations to newer leadership styles and technology innovations. Different levels of the workplace relationships provided some structure to understanding the way in which workplace relationships were established and nurtured. Participant 1 provided a comprehensive glimpse at the variety of relationships present in her workplace:

> If you look at the support that I had found, so many mentors and stuff like that, that have come in and out of my life, it is strong support. That's the support within the university. It's peer mentors. It's mentors at my level, at the manager/director level and also the female mentors I had at the dean's level. That kind of stuff that I would seek out. So it's more stuff that I would seek, rather than it is people that are actually getting to me.

Participant 2 echoed this sentiment, indicating that "bosses, friends, and colleagues in mentoring have been a mix of all." She credits the variety of people she has encountered as having helped her to persist in her career.

Supportive relationships with supervisors. Participant 2 had some bosses who's interactions developed into lifelong relationships for work and for school. "They were good mentors and helped me to see options and things that I needed to do, like education-wise, to prepare myself for the next step." Participant 10 remembered a former boss who had influenced Participant 10 in the way she leads today. This person was . . .

> . . . a certain leader who certainly to this day is still influential in terms of how I think of leading and the kind of leader that I want to be in terms of day to day. In the last 10 or 15 years, and I do not get quite as much support in that regard, I receive a lot of a lot of pats on the shoulder or pat on the back, nice job, and okay but not quite the same really inspiring mentorship / role model that the former boss was like.

To remember that kind of relationship demonstrates staying power for supportive supervisory relationships. Her role model from years past still held influence for how she lead and put together a team at work. Participant 3 articulated that the best bosses she ever had were notably supportive of her in similar ways:

> They valued what I brought to the table. They did not see me as a threat, which can often be a challenge, but they supported me. They saw how I could help them, and then they supported me, and they also cared about my professional development.

Participant 9 needed support from her immediate supervisor and from whoever was in charge from an administration level, and she said that was because the department was "kind of tossed around like a hot potato," elaborating that:

> Sometimes we started off in administrative affairs. Then we were an entity under the president's office. We are currently part of academic affairs, and I think that is the best fit for us. I need the support of the provosts in this case again. When a person says Educational Technology, people cringe because they don't understand it. They don't want to admit they don't understand it. They also know usually what you're asking for is going to cost a lot of money. So I need the support of an understanding from a layman's terms, someone who knows this is why everything costs so much. This is why all the moving pieces and parts cost so much. I need support rather than in some cases, when you say something about IT, you get the eye rolling.

Participant 8 has had a number of really good managers who were good leaders and good mentors:

> They gave me opportunities when I needed them and also gave me the ability to spread my wings and figure out what I was going do, telling me what to do or what they thought was right but to sort of give the ability to make me make my own decisions.

With her comment about the non-threatening aspect at the workplace, these types of relationships allowed her to pursue and achieve her goals. In the same way, Participant 12 contributed career success to a supportive supervisory relationship:

> I started in 1999 after getting a terminal degree, so it was a "really weird jump" to go from scholarly pursuits to an Educational Technology position. I worked for a wonderful woman who has been my director and my mentor that entire time.

> Sadly, that boss is retiring this year, and so that was going to be a real change but I worked for her for 18 years.

For Participant 12, her career path has shown her strong relationships with mentors for many years but now that one mentor is retiring, she faces uncertainty in the workplace.

Supportive relationships with others. For the women in this study, supportive workplace relationships were not limited to supervisory positions. They spoke of finding support for their work from a variety of people in their workplaces. Participant 5 stated that she was "fortunate to have just lots of great people who've been really positive . . . I have been really fortunate to take the time to work with me and let me learn from their examples." For Participant 5, relationships across all levels provided her with examples about how to follow, and in turn, how to lead. Participant 12 found value in combining the support from her director with support of staff:

> I have had the support of an amazing director and female director, which is wonderful, and support of a good staff. I have always had staff who's been willing to come along with me and even if my ideas are quirky, they're willing to kind of stand by me and try and see and willing to reach.

Participant 6 also found multi-directional support:

> I am very thankful for all the people who helped me along the way. Ironically, some of the people that helped me be the best that I was, were the people I did not always get along with and really challenged me to think outside of what I thought was the norm or what I thought would be the correct way to go. My support group, so to speak, had been everything from colleagues and friends and family,

to those kind of nemesis at work that make a person do better because they may rub you the wrong way.

Her comments about challenge, correctness, and conflict reflect how relationships for her come in all patterns and with different communication styles, but still work for her.

To sum up this section, workplace relationships are comprised of "go-to people" during early days in a career as well as later days in a career pathway, when an individual has worked 5, 10 , 15 or more years of their lives, like participants' careers. Colleges expect leaders in this field to be current and up-to-date in their knowledge, and communication between workplace mentors was a must for survival in the ever-changing world of Educational Technology. Trust was a key factor for most of these participants in their workplace relationships. For the participants in this study, having a variety of relationships in the workplace helped with many issues including providing support at critical crossroads, creating connections, quality work, providing modeling and work examples, latitude, and collegiality. For them, the interweaving of that variety of relationships provided an ever-changing view of their career paths.

A summary of relationships.

To conclude Thread 1 about relationships, women in Educational Technology leadership roles in higher education gathered and weaved relationships from an early stage in their careers to becoming mentors themselves mid-career. Because of the significance of early relationships, the women continued to seek counsel from those who helped them early on and acknowledged the importance of continuing the practice of creating, choosing, and continuing relationships for those new in the profession.

Relationships were an important thread for continued successful practices in leadership roles in higher education for participants.

Thread 2: Leadership

Participants described how their leadership evolved through the course of their career. Women in this study defined leadership and commented on the substance of leadership style and how they learned to lead. Two categories surfaced: vision and working as a team. Vision codes that surfaced included: articulate (25 occurrences), innovate (6), building (10), and open (40). Teamwork codes included: quality (46 occurrences), delegate (115), goal (14), direction (66), manage (67), and roles (34). See Figure 4 for a visual representation of categories and codes woven into this thread.

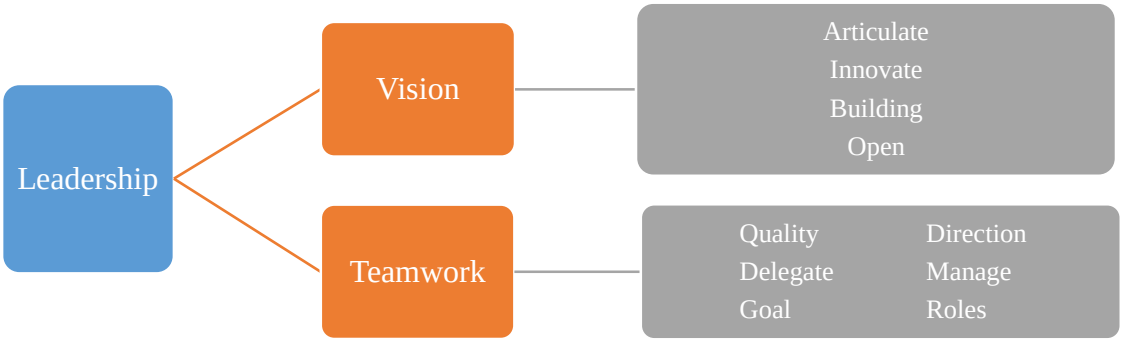


Figure 4. Thread 2, Leadership Code Map.

Vision.

Participants felt that an open and trusting leadership style allowed them to do more. Vision and the ability to be approachable were key ingredients for their leadership success. Participants mentioned key behavioral terms such as motivation, openness, honesty, and willingness to take risks. The women participants offered a patchwork of definitions for vision, how leaders are held accountable and provide guidance, how

leaders provide patterns or examples to staff, and how leaders are strength builders for teams using intuition and nurturance to help and to support staff members.

Leaders as pattern makers. The role of leadership in providing organizational vision was described by participants in various ways, primarily centered on strategic planning, setting direction, and motivating others to perform. For Participant 7, "Leadership is thinking strategically for the organization. It was important to be very adaptable and flexible as well. Leaders should enjoy people and human relationships." She believed strategy, adaptation, and flexibility are important for leaders to connect with people. Participant 5 thought there are issues that force flexibility because of uncertainty in the workplace.

> There were the main things within our control that help leaders process, and I also have to be flexible, but with a backbone. I have to be able to go with the flow. A person also has to have a strong vision of what a person wants to accomplish and what a person will want to do.

Vision was important to Participant 5 as well as having flexibility to deal with how accomplishments will be strategized or patterned for success.

Participant 12 summarized her thoughts on leadership as "working to not only set a direction but to drive that direction and drive the people that need to implement what's needed to get there." Similarly, Participant 1 highlighted one of the most important aspects of leading as "guiding people in a direction consistent to vision so first of all you have to provide a vision for people to where they know where they're going."

For Participant 6, being a leader and providing necessary vision to a team as well as an organization can be very challenging but also very rewarding. Vision, for her,

included a patchwork of positive and negative issues at the workplace. She elaborated that:

> [Leadership is] setting the sense of the direction for the organization or group or the team wherever a person might be within her professional career. Leadership really means going to be out front and showing them where to go pointing the right direction. It is also motivating staff by explaining why you need to head someplace and also being able to step up, if things don't work out. Leadership means a person takes the blame, instead of passing it off. You're the one who made the decision and it's going to stop with you. At the same time, it's also celebrating all of the good stuff that happens in organization and letting your people know what they're worth.

Likewise, Participant 7 stated how important vision is to guide and support workers. "Leadership means taking the first [step] for the team and to work with all the team members. It was important to get to know them and support them. It was also important to work with them so workers developed."

Participant 10 thought leadership means inspiring people to be their best and to accomplish common goals. "I got to know them, advocating for our team or our group in the context of understanding the requirements or activities that were necessary and so not wasting people's time." For this participant, her firm beliefs with providing patterns and examples to model at the workplace were very important and contributed to the vision she created.

Participant 11 had been managing a team for about 4 or 5 years at the time of her interview, and so it was definitely something she had thought a lot about. In the beginning,

> It was really about getting tasks done, and I have learned it is about finding the interests of employees especially and figuring out what that connection could be. It is not always necessarily work-related but personal and creating this connection with them so that they want to do more. I wanted to grow, and I ended up being a better leader because I was able to guide them and to mentor them and get them to a better place as a person and not just an employee.

For Participant 11, vision was about people, connections, and motivating teams to do more as she guided and supported them.

Leaders as mapmakers. The ability to recognize and define leadership skills and mapping leadership styles emerged as important points for participants in providing vision to lead their respective organizations. As Participant 10 noted:

> I think I am pretty passionate about maintaining my integrity. I believe in walking the walk. I believe that if a person was planning to do something, then simply do it. I consider those to be my golden rules of leadership.

Participant 4 thought, "Leadership is context dependent, and it's fluid for me. It changes depending on the needs of constituents or stakeholders working with environment I am operating in and all those other variables."

For Participant 1, leadership is manifested and displayed in various ways, including training, emotional intelligence, and soft skills: "I have attended leadership trainings. There are caveats in leadership. There's the emotional intelligence. There's all

of the soft skills. There's also the hard skills – the difference between a leader and a manager, that kind of stuff, also." Like Participant 1, Participant 4 considered her leadership styles encompassed specific skill sets:

> I took a number of leadership courses in my own doctoral studies and spent 10 years working on it. But, I think a couple of styles of leadership I resonated most closely with. One style of leadership was to listen and another was the notion of on service or servant leadership with the idea I was working in service to others.

In summary, participants agreed that vision was vital for success in their field and in the leadership styles important to them. Words like motivation, honesty, and strategy revolved around transparency in their workplaces for them to succeed as leaders. Like tapestries, vision to these women meant patterns, accountability, and definitions for planning, for strategy, and for work completion.

Teamwork.

Teamwork surfaced as participants described their working relationships and how to get jobs completed. For participants, building teams took great energy, a great deal of organization and planning plus a deal of negotiating with a variety of staff skills. Participants worked toward achieving goals and finding out how to get the most out of their teams by using leadership at every point of contact.

***Leaders as strengths builders*.** It was important for participants to locate talents and skills within their staff, and they purposefully worked to develop those strengths. For Participant 2, the definition of leadership meant to create work that is meaningful for a team.

It is recognizing the strengths of the folks that I work with, whether it be the people who work directly for me, or the people that I end up working with based on work assignments and stakeholders. A person needs to trust the institution, and so being able to find ways to communicate with them and to draw out their strengths and to utilize those strengths to achieve the goal as well. For the people who work for me, I take the time to find out what they feel their strengths were in, areas they think they like to improve in, what their interests and goals were. I kept trying to make sure that the work that they were given helped them to work on those areas, while stretching them a little bit to maybe areas that they might not be so comfortable in, but may benefit them in the long run. So it was a matter of just being able to learn who you're working with and to communicate effectively with. I put them into the situations where they could be successful while also learning from difficulties. It is important to take advantage of those strengths/areas as they work, their daily work environments.

To Participant 9, leadership was about more than leading.

Leading the group of people you are in charge of, but it's also doing much more than that. It's mentoring, caring, and nurturing. Leadership is also being involved with and not just telling them what to do but showing them how you want it to be done. So it's also kind of like parenting and is constantly changing, constantly challenging. But it is what you have to do to make sure that your ways are demonstrated to your constituents. In this case, it's the campus community and in the Educational Technology world.

As a leader, Participant 9 demonstrated that she cared and could commiserate with problems, but as a leader she would communicate that each problem was important. Participant 8 also spoke about communication when discussing team building and leadership in her workplace:

> Leadership is setting a good example and providing good advice to staff. Leadership is listening to problems and trying to think of ways teamwork can work. Leadership is being open to solutions that cross boundaries. IT can have little silos, and it is important to be open to helping others and meet[ing] people's needs.

Leading by nature versus nurture. Some participants found they had natural abilities and tendencies to lead teams. According to Participant 3, learning how to lead includes coming into one's own sometimes by accident:

> Leadership is a quality that's not role specific; so they only tell people, especially up-and-coming people, who are not in leadership positions. They always say anybody can be a leader. Leadership is a quality that some people innately possess and are kind of born with and comes naturally. Leaders do it almost accidentally like as a default and then for other folks it's hard, and they have to learn how to do it. I kind of count myself in that, in the former group.

Participant 3 lets it be known that building teams is natural yet almost by default, if it works. Like a stitch that sometimes needs to be re-done in a pattern; she says, sometimes it does not have to re-done.

In summary, teamwork allowed workers and staff members to grow, encouraging participants to be better leaders as well as better people. Teamwork generated motivation

and connections so that team members were productive and performed in a positive fashion for the university. One aspect of leadership for participants was the view of how a team worked. It was important for leaders to involve team members and to incorporate a sense of trust and dedication to completing tasks. Professional development for team members surfaced as an important issue with participants and most thought it was motivating for team success.

A summary of leadership.

Both vision and teamwork were important to participants when they defined leadership transformation through their careers. Participants were asked to define leadership and how they learned to lead. Vision surfaced because participants felt that an open and trusting leadership style created a positive working relationship for team members. For example, building teams was vital due to the nature of the work environment including strategic planning, setting direction, and motivating staff. Participants compiled a patchwork of leadership definitions, shared leadership accountability practices and patterns, how important strength building is for staff, and the fluidity of nature versus nurture leadership styles.

Thread 3: Persistence

Participants discussed how persistence kept their career moving forward with or without backward steps. The women in this study reflected about values and relationships during their interviews concerning persistence. Values were important because of the technical aspects of leadership and respecting an organization's culture. Relationships were vital to improve the workplace and allow change to happen at universities. The threads of persistence, relationships, and leadership began to interweave as participants

shared similar experiences, with variations as well as contrasts. Experiences of participants revealed their strengths and a thread in the tapestry of these experiences surfaced about persistence. As participants discussed their attempts to improve Educational Technology in higher education, their persistence would benefit their schools. For participants, creating ties that would bind for the good of workplace relationships, balancing designs for work as well as staff, and always thinking about self-care were important aspects of their persistence at work. Persistence codes included: willingness (15 occurrences), strength (18), energy (4), perspective (8), change (31), tough (12), luck (14), challenge (9), respect (21), and service (24). Figure 5 illustrates categories and codes woven into this thread.

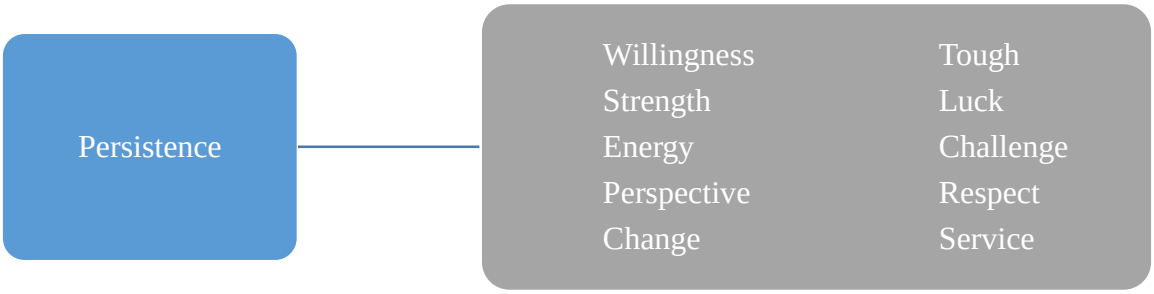


Figure 5. Thread 3, Persistence Code Map.

The ties that bind.

Making connections and ties that bind people who work closely together are highlighted in this section. Participants reflected about how personal values as well as behaviors played a part in their leadership roles when discussing persistence. Alignments with values helped them to engage with workers on the job and also to identify values needed to create excitement and commitment at work. Participant 1 summarized:

> Persistence means to maintain relationships with people that are providing results for the organization. Persistence also means to support the team, giving the team what they need and to be there for people at the workplace. If a person persists, she goes to bed at night really tired. But, to persist also means to wake up fresh every day, that every day is a new day. I am not afraid to say I am sorry or to acknowledge when I have made a mistake. I love it when the whole team gets credit for persistence for completing job tasks.

Thus, for Participant 1, persistence is a combination of learning, re-learning, and having no fear. Participant 8's comments corroborated sentiments about the necessity of being open to change and learning new things:

> I try to keep an eye on the culture and the pulse of the organization. I know I have to share my knowledge across the silos of my university. I look for opportunities for change at the same time, always attempting to cross those university silos.

Because she is aware of institutional barriers, Participant 8 keeps a close tab on organizational culture and her finger on the pulse of the institution she serves.

Participant 5 underscored the belief that she had to build strong relationships and really know people in order to persist in her career:

> I had to be able to talk to them and find out what concerns they had and also what people on my staff were excited about. I have to have a good network outside of my institution. It is important to have a conversation with the bigger world out there.

Participant 1 expressed similar thoughts about the importance of developing and maintaining working relationships, stating, "Persistence means to maintain relationships

with people that are providing results for the organization. Persistence also means to support the team, giving the team what they need and to be there for people at the workplace." Thus, the weaving together of persistence with relationships was important for Participant 1.

Self-care cross-stitching.

Participants discussed the importance of self-care and double checking, like a cross-stitch, to make sure they were taking care of themselves, both personally and professionally. Participant 11 recognized the self-care that is important to be able to persist, along with organization and reflection.

> Persistence means remembering to take time for myself. Persistence also means to be prepared for the next day and being organized so I can do it all over again. In order to have persistence, I have to step back, think, and just be myself.

For Participant 11, preparation and ongoing ritual tasks such as being well organized and taking care of oneself was important in order to persist.

The world of work taught Participant 7 how to look at work issues from many perspectives, including what has been best for her personally. She said, she "learned about persistence from an early age. I found that new work situations force adaptation and how to adapt. I would always prepare for the worst but to always expect the best." Experience, both good and bad, was a good persistence teacher for her.

Self-care also includes thinking about and reflecting upon what persistence means for each individual. To Participant 6, persistence "is grit and integrity." She said, "There is no magic bullet," and she felt she would not get there overnight. But when she wakes

up every day, it is a new day. Participant 6 demonstrated persistence "by being familiar with her workers, being welcoming, and being open."

> To Participant 9, persistence had a strong foot hold in her personal belief system: Persistence is something I have to do, and I want to do, but also persistence is what I believe in, what I am doing, and I believe in my team. At the end of the day, I am handling young people's lives by providing them with the tools they need to obtain an education. I do what I have to do to get the staff doing what they need to, so that the university succeeds.

For Participant 9, persistence was a list that involves beliefs, tools to use, motivating staff, and finding success at her institution.

Participant 10 felt that persistence was not a given, but takes years to learn, and that it was important to realize that:

> Quantities of caffeine contribute to my persistence, and I think if anyone is to be successful in life, they need to have or find or refined what matters to a person, an individual. It took me many years to figure out. It really mattered to me to work for someplace where I was in alignment by value. I say that good leaders learn how to take those values and then make sure that they are balancing them right and to be professionally engaged.

Participant 10's value alignment paralleled her work ethic and how she balanced her contribution with persistence.

Participant 2 also reflected on contribution and how she used self-care as a persistence strategy to move into new areas of inspiration and creativity. More specifically, she sought to "find out what roles or responsibilities I might be impacting

with technology across those spaces. Look outside of higher ed. Make sure you have looked and you understand what your other opportunities are. Not limit yourself." Her idea of stretching and moving outside the institution and not setting limits on herself were important to her.

Overall, participants recognized persistence as a healthy work motivator that helped get job tasks completed, both as campus leaders and as Educational Technology leaders. Participants realized how personal values and behaviors played a part in how they led strategy and how they led constituents in Educational Technology. They mentioned personal strength, getting to know people, and how persistence was important to them.

A summary of persistence.

All in all, participants in this study described persistence, and reflected on how they performed and what kinds of results persistence brought to the workplace. Flexibility and adaptability in their particular field were important to participants. Also, there were many personal beliefs and values shared when participants talked about success for their organizations and how reflection about roles and activities made persistence work for them. Belief in team building and providing leadership and guidance to their teams was very important. Organization and preparation were key ingredients to developing relationship persistence as it provided links and communication for staff. Persistence meant ties that bind, balancing designs for projects and designs for people, and practicing vital self-care in order to meet challenges on career paths. According to participants, persistence meant being honest and fair when dealing with staff and with leadership teams. So, with personal, behavioral, and environmental traits at the forefront,

these women reflected on persisting with success and with failure and not having fear holding them back from pursuing what would be beneficial for their institutions.

Thread 4: Advice

Participants discussed advice given to them from early times in their career, throughout their career, and up to present times in the field (at the time of their interview) and what advice they would give a woman entering Educational Technology leadership in higher education. During the first round of interviews, participants were asked who had given them good advice in the past and in more modern times, close to the time of their interview. In the second round of interviews, participants were asked what advice they would share with a future woman leader in Educational Technology in higher education. Advice ranged from career advice to personal advice to common sense advice. In today's world, advice was not always given in person. For these women leaders in higher education in Educational Technology, there was often a person sharing advice on a daily basis. In today's computer world, persons were giving advice online, screen to screen. But, in the early days of their careers, many participants would seek advice from family or friends. At the time of their interviews, participants were finding advice from all levels of university as well as professional organizations. A breakdown for this section on advice included educational advice they received or had given, advice from family at home or family at work, and managing emotions. The codes for advice dealing with education included: being thankful (83 occurrences), learning by example (16), learning for itself (22), and listening (44). Codes for advice from family included: family and friends (25), comfort (11), paths (54), and opportunity (23). The codes for managing emotions were: cry (6), trust (25), difficult (14), and confidence (9). Figure 6 illustrates

the connections between categories and codes for this thread of data dealing with advice.

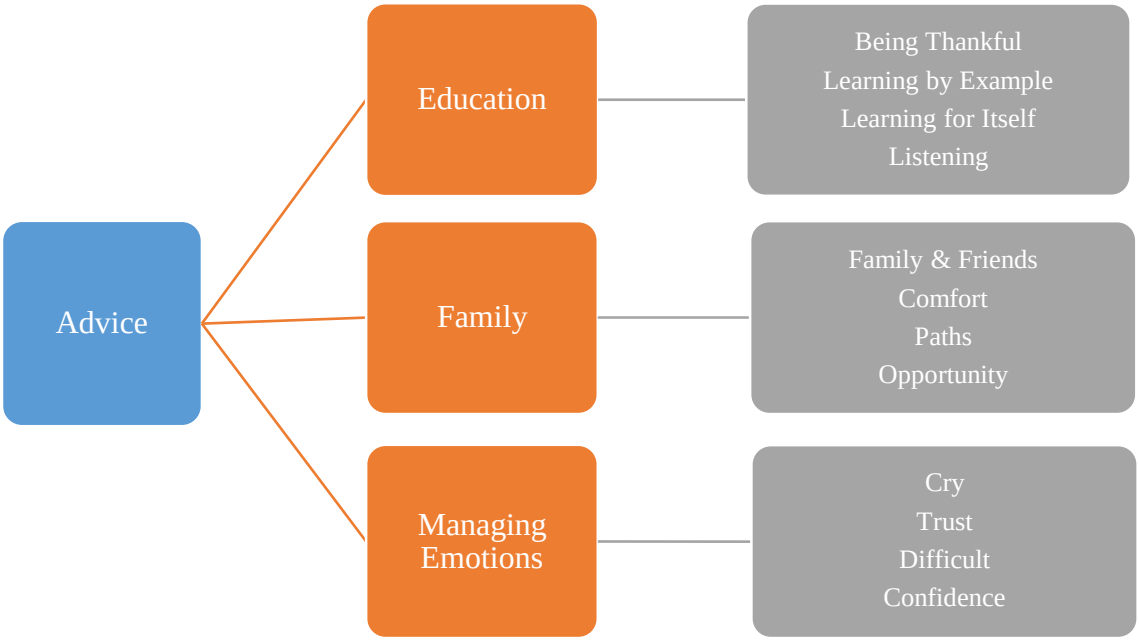


Figure 6. Thread 4, Advice Code Map.

Educational advice.

For participants in this study, education was repeatedly referred to as a stepping stone for advancement and for success at their university. Participants possessed a variety of types of degrees and came from a wide range of backgrounds, but a key component to the stories of these women was education. They spoke about seeking degrees or credentials, but they also spoke about how important continuing education and professional development was for them. These important career strategies could be shared with women leaders in Educational Technology at the higher education level, specifically, how participants described education. Participants mentioned personal commitment to lifelong learning and taking risks at mid-career for lifelong learning.

Personal commitment to lifelong learning. An early piece of advice that Participant 2 got was to think about taking care of her education before beginning a family. She was told, "Get as much education as I possibly could before I had a family and kids." This advice stuck with her, and she now passes it on to others:

> I still give that advice to people. Recently, I hired a woman who is finishing up her master's degree. I said to her, "Are you complaining? Go for your doctorate. Get all that before you have all those other things in life which might get in the way." That piece of advice was probably the one that really helped me to be able to do some of the things that I have done, that helped build my journey.

Participant 2 shared her reflections on what worked for her; she also shares it with staff who were completing degrees at early career stages. Participant 11 has done the same.

Participant 11 encouraged others "to ask questions. Learn. Research. It gets easy to not want to feel dumb sometimes." She believed learning is transformational and sought to research and question continuously. Participant 10 described how there is a world of opportunity within her institution and what it offers.

> I would also continue to counsel that young woman to make sure that she would be taking advantage of every opportunity that her institution provides her. I would alert her for additional learning whether that be professional learning, or learning with Educational Technology or obtaining higher degrees.

Participant 10 commented about opportunity that awaits for a young woman in this field, either from pursuing advanced degrees or institutional support.

For Participant 5, education was also very important:

> I advise future leaders to just try and learn as much as you can. Regardless of gender, but I think it's especially important for women just because of the range of assumptions that are sometimes made and the different kinds of pressures that women sometimes have to face. We have to have a good network of people to trust and can talk to, to watch and emulate and finally, to always ask for advice.

Participant 5 brought into view the gender issue and how a good network of trust and communication can make a great difference.

According to Participant 2, for a future woman leader, her advice would be to get education.

> To learn everything I can get in, involved in, in the organization, as I can, really finding out what's happening in the student affairs space. Go for a degree when you have the time and the energy and [are] not weighed down with other outside responsibilities. Get as much education as you want. To get that broad knowledge base because it's the breath that really help[s] you to understand the higher levels of all of the responsibilities and management and all the players that get involved in implementations. Get some depth in different areas. Make sure you get set for a broader view. Know what vision is.

Her legacy involved education, management, and vision and to always look for that broader view when approaching tasks.

Taking risks during mid-career for lifelong learning. A piece of advice that has served Participant 2 well was not being limited by her current professional position.

> When I first came out of my master's, I sat behind a desk. I coded. I was with other introverts. That was not my personality. So I remembered one of the

> manager's at the company said, “Just because this is the job you have now doesn’t mean it’s the job you will always have.” So I ended up going back to school for my doctorate, kind of going in a direction that uses my computer skills but in a much different way than sitting and coding every day. Good advice it proved to be.

Providing an example of furthering her career via education was important for Participant 2:

> The best thing I could do is to leave a legacy of other people who [I] have helped to get into the field and encourage them. I’m hoping I will have been able to mentor other women and minorities to enter more STEM related higher ed leadership positions.

For Participant 8, the advice to go to school to get her doctorate was the best thing that ever happened to her.

> Going back to school for the terminal degree was the hardest 4 years of my life, but it was probably, and it seems like silly to do it at my age. I am not 42 either, right? Why was I doing this, right? Why did I go get my doctorate when I was, when I was 45? It changed the way about, I thought about . . . Furthering her education gave me some opportunities to do this teaching that I would not have had otherwise. I think my goal now is to retire from the job but continue teaching. The terminal degree gave me a different end goal. I think going back to school was the best advice I have ever gotten. That opportunity to think differently about my next 20 years of life.

For Participant 8, the complexity of returning to school at middle age was changing her view and allowing her to consider other occupations – an additional piece to her tapestry.

In general terms, Participant 6 remarked, "I want to be known for taking risks, for asking good questions, and for organizing for future generations of learners." Her involvement with newer ways of constructing learning and not always succeeding the first time allowed her to use her talents and her knowledge.

There were several references from participants to go get further education, never stop inquiring, and to do one's research while in the job. Participants pushed for advancement for women and minorities, colleagues, and students involved in Educational Technology to go forth and find out how to lead. They spoke about taking risks, organizing, and sharing successes and failures. The long hours they put into their jobs would make for even longer days and weekends with the seeking of education, but these participants were strong and enforcing that it was critical for their contributions as leaders and visionaries in higher education to continually seek educational pathways. All in all, it took personal commitment, institutional support, and a willingness to take risks for these participants to pursue lifelong learning.

Family advice – From roots to leaving a legacy.

For participants in this study, there were families at play: one at home and one at work. It was important to maintain the advice from childhood, to student days, to career days and then share it with colleagues at work. Women spoke of parents and children and also what kind of interpersonal relationships they established at their places of work, and how important it was to maintain those relationships. According to Bandura (1995), there exists a concept of family at home and a concept of family at work. Bandura stated

"Under conditions of adversity, families that have an efficacious outlook are likely to be more satisfied with and attached to their community because they believe they can change things for the better" (p. 16). Participants acknowledged generational guidance to trailblazing technology in the vast territory of higher education.

Guidance from generation to generation. Participant 1 explained the best advice given to her came from her grandfather, who said nobody could ever take away education. "He said, 'They can take away your personal belongings and they can take away anything that you own, but that education, that learning, is something nobody will ever take away from you.'" To this day (the day of Participant 1's interview), she remembered how important those words from her grandfather had become during her career journey. Participant 6 stated that her father established an excellent work ethic that she has tried to model throughout her life:

> Before my career even started, I got advice from my parents. That [is], the family I was born into. That's where I found what norms are and what my life and my value system is. From my dad, I learned the value of hard work. He really liked to help people. We need to go back to those simple things in life that make a difference.

Participant 6 pursued work with high expectations and a need to help others. Making a difference was very important to her.

Participant 9 said she . . .

> . . . had this conversation with my daughter just the other day. I told her the world has lost communication skills. I told my daughter to put her phone down. Learn

how to talk to me. For me, communication is a key element for success and for motivating others.

Participant 9 shared personal glimpses of how work communication and home communication intertwined and became useful for her and a reminder of how to not lose those communication skills.

***Trailblazing technology*.** Participants modestly shared their thoughts on professional contributions they made in their workplaces in the context of thinking about their legacies. Participant 9 simply stated, "I would like [it] to be know[n] that I made incredible things happen."

Working environments were important to Participant 11, as was the impact she had on future professionals: "I kind of hope in the end, that people say I was a great asset to us and being able to groom people and mentor people and help them figure out how they can make the environment better." Grooming and mentoring were important issues for Participant 11, and she connected them with making the work environment better.

Participant 5 also focused on human interaction and development of future leaders in the field. She took on difficult tasks with the intent to improve morale and productivity in her staff:

> I think empowering workers to do great things with that vast and tangled and complicated collection of resources. I've been the one to sort of bring them together and show a path. I want to say it's going to be bringing together things that were separate and didn't need to be separate and presenting them in a way that makes sense to the people I serve.

She acknowledged her efforts to bring people together with presentational style that is understandable and working to bring the efforts of staff together. This effort has served as her legacy as a trailblazer who builds a path for her staff and leads the way to innovative practices on her campus.

Participant 8 stated that offering a sense of togetherness in an institution with disparate colleges will be her legacy: "I think my signature accomplishment would be the bringing together in my current role where I oversee the learning management system for the entire university. I bring together the disparate colleges in this decentralized model." Her hope is that her work builds cohesion among colleges for a more successful institution.

Participant 9 spoke about the glass ceiling at her workplace and how important a particular skill set can be for a specific job.

> Have to have a strong work ethic, no entitlement. Get in there and get the job done. Expect to work long hours, especially when everybody else is packing up their backpack and leaving. You may have to stay late and finish things. That glass ceiling has broken a little bit. You just have to prove yourself and stick up for yourself.

Participant 9 described extra time and effort it took to prove herself.

As she moves into retirement and thinks about her legacy (in the future at the time of this study), Participant 3 stated that she would like to live a full life with many years.

> I would like to think that I would be ancient at my retirement. I would have many retirements, because they would bring me back from retirement to do lots of special projects. I would like to think that everybody would say that I was a

connector; I was integral to the success of the most crucial projects at the institution over the past decades. I hope I am remembered that I had really developed the talent pipeline.

Environments of home and work played essential roles for women in this study when describing useful advice from their roots and leaving a legacy. Home advice came from family members whose values were instilled and modeled for participants. Home advice also was shared with future generations as participants would pass on advice to their own children about what is important in "today's" workplace (i.e., the workplace at the time of their interview). There was also a family at work for these women. They felt interpersonal relationships were important for growth and development with colleagues, but also how they wanted to be viewed after they retired or left their workplace.

Managing emotions.

This study revealed a multitude of ways in which participants managed emotions during their careers. Participants revealed how various techniques have worked to their advantage, and they offered to share some advice on the balance of emotions and how to manage them. Some participants used silence. Some participants used reflective strategies. But, all in all, they felt a need to manage emotions and shared their reflections during this study. For further clarification, I categorized by comparing and by contrasting segments into considerations about positive emotional management and negative emotional management.

***Positive considerations for managing emotions in the workplace*.** For Participant 1, a piece of advice that has served her well is "silence is often mis-interpreted but never

misquoted." For her, this piece of advice stated the power of being quiet and listening instead of just answering before you know the answer or before you have all the details.

Participant 4 shared that preparation is a key to success:

> Over-prepare, over, over, over prepare. Have a million backup plans in your back pocket. Keep expectations low, and then just be very pleasantly surprised when something goes really well. That way, everybody gets to shine. "Do I really need to stand my ground on this?" is a good reminder at work, too.

There is a multitude ways to strategize at the workplace with Participant 4's advice. Her list is about over-preparing, but also to stand ground when items are important to pursue.

Participant 11 focused on communication and self-advocacy as strategies to manage emotions in her workplace:

> I want to listen, take notes, pay attention, and then ask the questions. I began to advocate for myself. I think there are so many times that I either didn't think I should. I thought I was asking for too much. I thought I was advocating for myself, and I wasn't. I needed to brag and put myself in the middle of things, get involved in things. There were a lot of times I kind of sat back and observed. I had a lot of good stuff in my head, and then I found out later that I didn't say something. I have regrets about being passive in my communication style. And, most importantly, learn how to improvise.

Participant 11 found she needed to be more vocal, and when needed, how to create and to improvise. Self-advocacy was an important issue for her, and she repeated it several times.

In discussing her advice to a future leader, Participant 8 emphasized that being a women should not hold one back:

> Make sure that you always have a voice at the table. If you don't feel like it, [you don't] like what's happening, to find someone to help you get that voice. To always be honest with people about what you know and don't know is also important. Because if you try to, if you try to put a facade on things, I think, as a woman, it will make you look worse.

***Negative considerations for managing emotions in the workplace*.** Participants also shared negative aspects of managing their emotions in their workplaces. This list included the sense of being limited by a job, or if there was time to pursue other locations to work and to advance a career, to not have fear, to never showing staff you sweat or cry. And this list also reflected the ability to learn as you go, especially if you were young and lacked experience.

Participant 3 learned at the first place she ever worked:

> Know when it's time to go and why some people stay too long in a position. I didn't want to be that person. I was kind of feeling blocked. I worked there for 6 years. I was working when they got a consultant to come in and kind of be like a career coach. She basically did, like, career therapy. I could not grow anymore. I was just really searching myself and trying to find the flaw in myself that was blocking me from moving forward. She met with me. She was an outsider. She had no preconceived notion. She said everybody's got things they need work on. The consultant told me, "Own who you are. You are not going to change your personality and become somebody different. Nor do you want to."

Six months later, Participant 3 had a new job that gave her new perspective. She added:

> I was overthinking it. It was time to move on. The answer was simpler than that, so when I coach people I say work on this, work on that, but don't try to be a different person. The pendulum can go too far in the other direction. I say to definitely cultivate relationships both laterally [and] down the chain. Everybody potentially has something to offer you – admins, even the people who are doing the grunt work. If they're your allies, they will help you. They're more valuable. Get them to like you and respect them and the respect goes back to you. Take a project and do it well, blowing it out of the park.

Participant 3 also shared the following about how to handle news that should not be ignored:

> Be reliable. Be competent – reliably competent. If your goal is leadership, you have to be a little bit paranoid. I don't mean that in a negative sense. You have to be open and aware of what's going on at your institutions. When the president sends out an email about restructuring at the highest level, which does happen today, don't ignore that. Don't say that has nothing to do with me.

For Participant 3, advice has helped her stay current on what's happening around her and involved at her workplace and to not ignore communications that may have an impact on her work.

Participant 5 advised to seek mentors and admire others who do well. She stated,

> To over-communicate and do not be afraid. If you think you're overcompensating, you probably are. I was always looking at people, telling people what I want them

to know and what they should know. That was something I need to keep hearing and doing, for myself as well as others. I advise future leaders to find mentors and don't be super picky about where mentors are coming from. Find people who [are] either at other institutions or people that I really admire because of the way they go about their business.

In her style of leadership, Participant 5 would over-communicate because she felt there was a need to do that in order for progress to be made. Mentors were also very important for her career success.

Additionally, Participant 10 declared that having conversations that may not be pleasant is not to be avoided. "I think my signature accomplishment is that I was not afraid to have difficult conversations in a respectful and meaningful way. I made the staff I interacted [with] feel happier about their purpose of the university."

One piece of advice from Participant 9 was about crying and not letting people see you cry or sweat.

> Never let them see you sweat, see you cry. I was told that early on. Don't let them see you cry. I do not mean that lightly. You have to demonstrate a certain amount of strength because sometimes crying is a good way to just kind of get it out of your system. The perception is crying is a sign of weakness. It was not necessarily the case for me. I thought a good piece of advice for me was to always demonstrate. Let them know that you are tougher than you may feel. Make sure you have customer service skills, listening skills. Always be able to compromise.

So for Participant 9, emotional well-being and communication skills were important. She took the turmoil that came with her job seriously but mentioned that managing strength does not mean a person is not crying inside herself, but holding on to some dignity.

Participant 10 advised:

> You can't cry and swallow water at the same time. Of all of the pieces of advice, that one has probably had the most direct impact on me. It is still the same. Swallowing and crying. I think that phrase still serves me well. I encourage myself to have confidence in approaching individuals. Speak to them early. Maintain those relationships as best I can. For as long as I can.

For her, advice is about confidence and maintaining composure with relationships.

Participant 12 had a really jarring experience with a vendor early on in her career and shared the anecdote. She was not trained how to manage her emotions at the time of this experience, but this anecdotal evidence describes what she went through as a young, inexperienced worker.

> I was not being taken seriously. Being young and being optimistic, I had gone to an all-girls college; and in anyone's eyes, I was not equal in IT. I had an experience in which a vendor, and kind of like mockingly, said to me, I remember his words to this day, "Like look at the warm fuzzies right back at yeah." I felt like if I were a man; that is not [at] all how you would have taken my valid complaint. I remember going into the female boss and saying I could not believe this happens. It was horrible for me. My boss said in the nicest way possible. "You are going to have to learn to kind of get used to it, that. Work around it like that is the reality of the situation. You have to figure out a way to go around it.

> You need to figure out the mechanism to work." Now I try and ask a trusted [male?] colleague to bring up an idea instead of me. All those silly tricks that you read about. They actually really did work.

Even though Participant 12's struggle has remained with her about that episode, she learned to go to others to seek advice and to practice how to deal with mockery.

In today's higher education Educational Technology world, for women leaders, participants, who have worked in the field and experienced all the hurdles women can face, gave advice developed through the years. But, in the early days of their careers, many participants would seek advice from family or friends. At the time of this study, participants found advice from individuals working at all levels of university jobs as well as professional organizations. How they managed their emotions while performing and while leading was revealed in this segment. Advice ranged from using silence as a technique so one is not misquoted to how to figure out strategies and mechanisms for dealing with negative job-related experiences.

A summary of advice.

Participants received a tremendous amount of advice in their early years (that stuck). Participants received advice all throughout their careers, and later on in careers, participants passed that advice on to constituents freely and openly. Participants were candid and reflected honestly about how important education was and still is at any time in a career. Participants felt advice can be given to anyone and received from anyone at any time. Participants gathered advice that worked for them individually. Many pieces of advice overlapped (i.e. came from more than one source), from parents to bosses to network contacts to colleagues, and if the advice was good, participants repeated that

advice to others on similar career paths. Participants were asked what would be their signature accomplishment at their retirement party. Respondents shared a variety of meaningful successes and personal glimpses into their careers at higher education institutions in leadership roles in Educational Technology. From generational guidance to trailblazing technology in the vast territory of higher education to positive and negative considerations for managing emotions in their workplaces, participants shared information about how they appreciated advice received and learned.

In addition, advice from participants and signature accomplishments participants achieved during their careers were extracted from interviews with multiple perspectives and relationship building evident in the results. Advice participants received during early years on the job to present day (at the time of their interviews) to what kind of advice they would give a future leader in Educational Technology in higher education was discussed. Participants were reflective, honest, and positive, which in turn, may give hope for future leaders in a higher education Educational Technology setting. Categories (and codes) that supported this thread (advice) included: education (being thankful, learning by example, learning for itself, listening), family (family and friends, comfort, paths, opportunity), and managing emotions (cry, trust, difficult, confidence), and advice was elicited for future leadership in Educational Technology not yet created. The various threads of information that came to light in the data interplayed throughout interviews from relationships formed, to leadership styles developed, to persistence that accumulated, and finally, to advice received. Threads knitted together, sometimes needling, sometimes haunting, to form an interesting unique tapestry of what it is like to be a woman and a leader in Educational Technology in higher education.

Connecting Threads to the Research Question

The central research question in this study was: What are the experiences of women who persist in Educational Technology leadership positions in higher education? The experiences of participants in this study unfolded or emerged from the data and highlighted career and educational backgrounds to answer this question. Four threads of experiences for women in my study surfaced: relationships, leadership, persistence, and advice. With relationships, participants reflected about network relationships and workplace relationships, both equally important to them. With leadership, participants voiced concerns about vision and teamwork, both deemed essential in higher education workplaces. With persistence, participants reviewed how values and relationships interplayed with the idea of persistence and how much a motivating factor a value or a relationship is. With advice, participants remarked about upbringing from family members and advice from the past that was still applicable to society at the time of this study. Participants also reflected upon how important advice was to receive throughout a career as well as how important it was to give advice to mentor new young leaders in the world and what leaving a legacy meant to participants. Participants did not hold back about legacy building and what stirred meaning into them and the fabric they were weaving in the culture of higher education institutions at the time of this study. The tapestry of these women leaders has been full of richness and textures, of challenges and patterns of experiences. Education, mentors, family (both at school and home) and how hard participants have worked captures an essence of these trailblazers who contributed to the 21st century higher education system. I now offer specific connections to the research question based on the four threads of information found in the data.

How Vital Are Relationships?

Women leaders in Educational Technology described their need of mentors throughout their careers – from early relationships, to present day workplace at the time of their interviews, and for future leaders. Behavioral, personal, and environmental considerations theorized by Bandura played parts in the responses of women selected to be interviewed. Participants in this study mentioned that network relationships as well as workplace relationships were considered vital for career success. Consistency in behavioral aspects of participants' reactions to stimuli during their career path was important. Network mentors who helped participants built confidence in participants and allowed them to continue on their career paths without being on campus, but through professional organizations. Environmentally, participants shared how face-to-face as well as online learning, networking, and leading formed their pathways and energized their workplaces.

Defining Leadership

In Bandura's book, *Self-Efficacy in Changing Societies*, he stated that self-efficacy theory allows a look at leadership using personal, behavioral, and environmental concepts. Self-efficacy theory states that "young people's beliefs in their personal efficacy to manage the demands of rapidly changing societal conditions help them to meet these challenges" (Jacobs, 1995, p. vii). For participants in this study, the work environment and its tasks included the office but also the ability to balance home life and graduate degrees. Job autonomy was very important to participants. Leadership styles demonstrated by participants were personal but constructed by experience and career choices.

And Yes, She Still Persists

Self-efficacy is apparent with persistence in this field of work. High levels of self-concepts, use of high-level learning, and a zest for furthering one's educational journey were present in comments made by participants in this study. According to Bandura (2008), "Societies eventually benefit from their persevering efforts" (p. 17).

Advice Takeaways

There was a tremendous amount of soul searching and advice seeking when participants began their careers in Educational Technology leadership roles in higher education. As time went on in their careers, participants continued to seek knowledge, advance degree completion, and personal connections by networking professionally online and on campus. As each participant shared their stories, the takeaways – the data – that emerged from their interviews began to interlock and coalesce into a single key term: education. The forceful transformation of technology has allowed participants to reap what they have gone through with diversified backgrounds and degrees to share similar and parallel reactions to interview questions about advice.

As a researcher, my initial reaction to participants' stories was that each respondent made significant contributions to their field of expertise, although some would probably say they were hardly experts in their fields. What were surprises? What were highlights? What issues showed parallel examples in participants' voices throughout the 20 interviews? Education. Education was a key term in most responses; educational backgrounds, continuing education, and a search for knowledge within careers. The backgrounds of participants demonstrated a variety of majors in undergraduate degrees, numerous master's degrees, and some with finite degrees. Applying Bandura's Self-

Efficacy Theory to this part of the study, Bandura stated that a good educational model "must provide effective strategies on how to reconcile conflicting interests, develop a common sense of mission and purpose and mobilize community support for educational improvement" (Bandura, 1995, p. 23).

Another data type mentioned repeatedly as being important was work experience from college days to outside academia to contributions participants made to their field at the time of this study. Work experience meant finding mentors and believing in relationship building at all levels of their institutions. Experience meant something to participants; it didn't matter what type of institution they worked in – whether public sector, private college, or research university. According to Bandura (1995), and he mentioned the family at home but this could apply to the family at work as well, "Under conditions of adversity, families that have an efficacious outlook, are likely to be more satisfied with and attached to their communities because they believe they can change things for the better" (p. 16).

A highlight for me was how women respondents transformed personally as well as professionally during their careers. Stories about bosses and children in the same breath occurred. Stories about leadership and mistakes were told in the same sentence. Participants had much to share and to reflect upon with questions I posed. Most responded candidly to the questions saying, "That's a really good question." It highlighted the importance of the study when I heard those responses. Sometimes, it felt like no one had asked them to define leadership or what good advice might be? I felt the timing was right to ask those questions.

Qualitative Study Map

Overall, findings from this study made me reflect on these participants and their experiences while they were leading Educational Technology units and initiatives in a postsecondary environment. I noted overlapping responses where participants used terms like “trust” and “transparency” to how networking and mentoring held such important positions in their experiences. A qualitative approach allowed me to go into their worlds briefly, and I was able to capture responses that revealed pieces to unknown circumstances, as well as highlights and surprises that occurred along the research interview processes. Guided by Bandura’s Self Efficacy theory, I was able to construct personal, behavioral, and environmental components of effective leadership styles from participants’ narratives. This process enabled me to effectively use the four threads of information evident in the data to respond to the research question: What are the experiences of women who persist in Educational Technology leadership positions in higher education?

Lived experiences of women in this study centered on establishing and maintaining relationships, acknowledging the tenets of effective leadership in their work, persisting in terms of remaining true to their values and relationships, and giving and receiving (and following) advice. See Figure 7 for an illustration of the threads and categories that, when combined, weave an accurate tapestry of the lived experiences of women Educational Technology leaders in higher education. The tapestry includes threads about relationships, leadership, persistence, and advice.

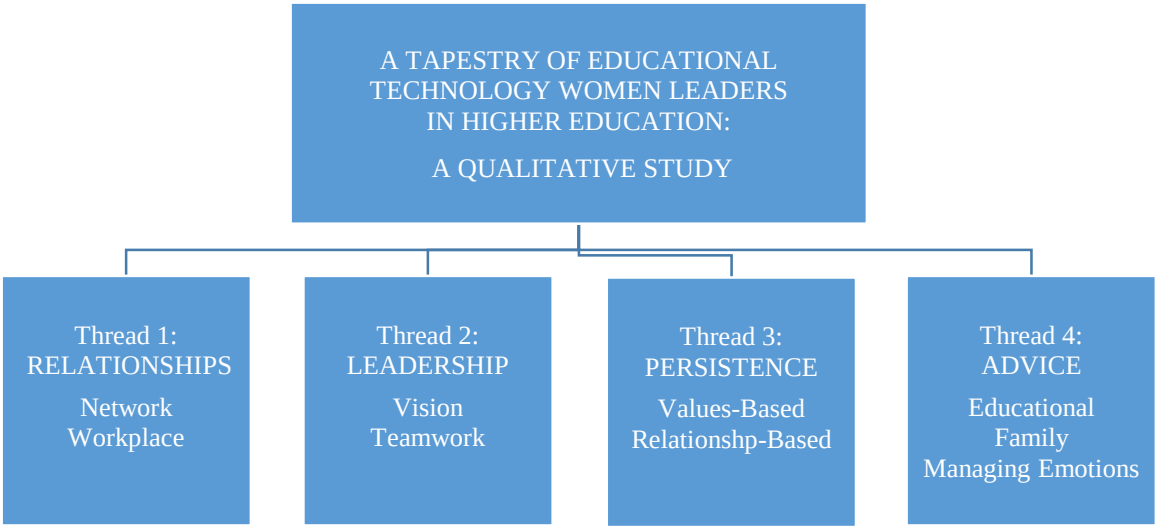


Figure 7. Qualitative Study Map.

Summary

In this chapter, I presented four threads of data and the categories and codes associated with them substantiated with direct quotes from study participants. I also described theoretical elements such as personal, behavioral, and environmental issues and relationships that emerged from data analysis. The map in Figure 7 provided a format which led to the assertion that "Women leaders in Educational Technology in higher education were reflective in practice, and would continue to persist in their chosen fields for future leadership potential and growth and would create a legacy of mentoring and persistence."

Chapter V includes a discussion, interpretations, and affirmation of findings compared with the literature. Further, I suggest implications and recommendations for future research, discuss the limitations of this study, and provide concluding remarks.

CHAPTER V

DISCUSSION

In this chapter, I discuss the findings from Chapter IV and the four threads of descriptive concepts revealed during data analysis: (a) relationships, (b) leadership, (c) persistence, and (d) advice. In this chapter, I review how descriptive concepts affirm findings of the literature review and Bandura's Self-Efficacy theory including personal, behavioral, and environmental considerations. I also offer thoughts on the implications of this study, recommendations for further research, and concluding remarks.

Weaving Threads Into a Tapestry

Carole King released her album *Tapestry* in 1971. Five tunes from her album found their way into this study's backdrop, and hence, the title of this study. Extracting lyrics that parallel the way the participants viewed themselves guided me as a writer and motivated me as a performer to get the task of writing this dissertation completed. In Chapter IV, the first thread of information dealt with relationships. The song from *Tapestry*, "You've Got a Friend" (King, 1971/1999, track 7) parallels mentorships formed during participants' journeys from the beginning of their careers to developing talent and continuing working relationships throughout their career. Song lyrics such as "when you're down and out and you need a helping hand" reflect the need for relationships in vital leadership roles for women in higher education.

The second thread of data identified in Chapter IV for this study dealt with leadership. Leadership is reflected in the *Tapestry* song, "Where You Lead" (King, 1971/1999, track 8) and is could be considered King's definitive song for leadership and how to instill in followers their multiple roles. "If you're out on the road, feeling lonely and so cold, all you have to do is call my name, and I'll be there" (King, 1971/1999, track 8). Leadership evolved for many participants; but as they began careers and took risks, they also began to appreciate the constancy and consistency of leadership and how important it was to build teamwork among Educational Technology workers in higher education.

Thread #3 addressed persistence, and can be reflected in the *Tapestry* song, "I Feel the Earth Move" (King, 1971/1999, track 1) due to how participants continued to stay on their career tracks and kept abreast of new issues in the field of Educational Technology in higher education. Persistence meant working long hours, never giving up, and utilizing values they had been taught and relying on relationships they developed along the way.

The fourth thread of data that emerged from data analysis in Chapter IV was advice. Advice could be addressed in the song from the *Tapestry* album, "You Make Me Feel Like a Natural Woman" (King, 1971/1999, track 12). This song reminds me that when the lyrics "Looking out on the morning rain, I used to feel so uninspired" (King, 1971/1999, track 12) can be turned around when someone gives advice to an individual starting out in Educational Technology at an early age, or mid-career, or as a swan song at a retirement party. By being open to meaningful advice and being willing to leave a legacy by giving advice, which can begin way before a retirement soiree, participants

learned how to receive advice, how to share advice, and why leaving a legacy is important to them after working in this field.

Finally, in the title track ("Tapestry"; King, 1971/1999, track 11) from the album *Tapestry*, lyrics weave a multitude "of rich and royal hue[s]

" (King, 1971/1999, "Tapestry," track 11) as did this study while recording experiences of career journeys of women in higher education leadership roles in Educational Technology. Because of the complex issues facing higher education today, study participants and this writer go forth with "an everlasting vision of the ever-changing view" (King, 1971/1999, "Tapestry," track 11).

The four threads of data woven into the tapestry of lived experiences of women in this study combined in such a way as to present a bigger picture of women in two newer views: a "communication quilt" and a "sampler of grit." A communication quilt contains pieces of relationships and advice from participants. The quilt represents parts of network and workplace relationships along with advice from those areas. A sampler of grit is a combination of how participants demonstrated leadership and persistence. Samplers represent a variety of leadership styles along with flourishes of persistence that allowed participants to needle their way through adversities, cross-stitch with others, and shape and then frame their career paths.

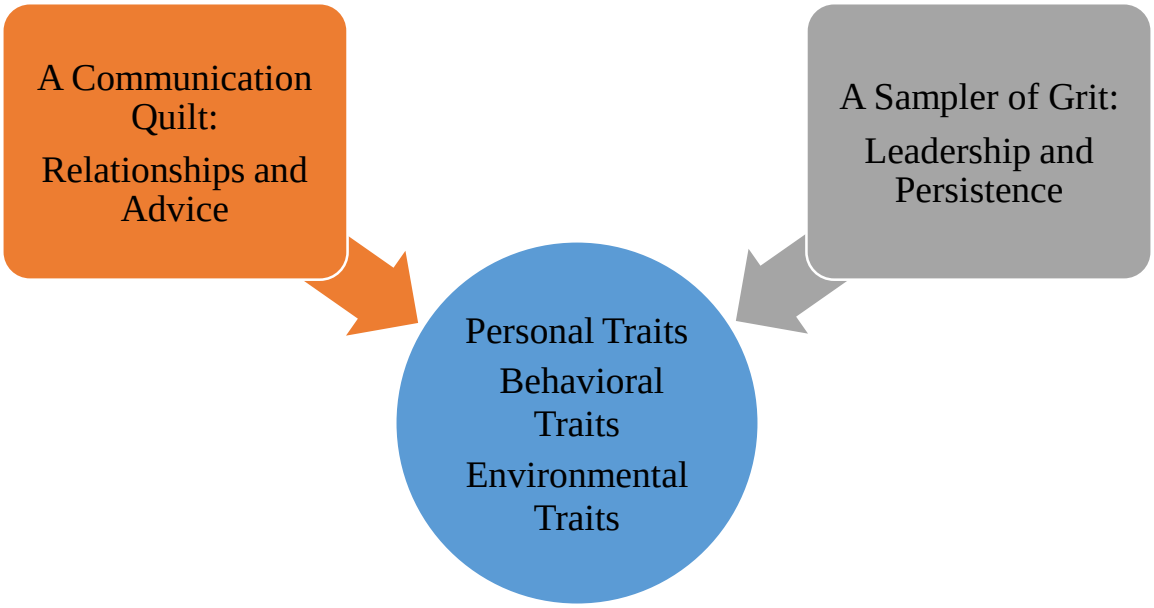


Figure 8. Personal, Behavioral, and Environmental Traits in a Discussion About a Communication Quilt and a Sampler of Grit.

A Communication Quilt: Relationships and Advice

Information on relationships and advice from participants created a communication quilt full of pieces, threads, patterns, and stitches to follow and to model. For participants in this study, there were two categories of relationships. First, the participants were involved with network relationships. Secondly the participants were involved with workplace relationships. Inside those complex relationships were personal, behavioral, and environmental traits.

With network relationships, Educational Technology leaders offered ideas on the importance of connection, success, engagement, and experience. Connections were collected through online professional groups and organizations that dealt with Educational Technology. Participants were adamant about forging relationships on both fronts. Howcroft and Trauth's (2008) study contributed knowledge on a need that

sufficient attention be given to women in the field, and suggested women's working relationship to Educational Technology needs to be pursued so individuals entering the field have a better perspective and understanding of women working as instructional designers, distance education coordinators or other educational technology leadership roles and what they need to succeed. Threads of information on building relationships at various levels in networks as well as workplaces created a pattern for reference, a pattern for skill sets, and a pattern to share with staff. All of these patterns are parts of the communication quilt participants began to sew by sharing their stories.

In addition, success was attributed to network relationships for two reasons. Participants found through network relationships, they kept in touch with trends and how network peers were transforming institutions. They also described the importance of engagement within network relationships. Participants found the vitality of new learning to be helpful in their own career paths, and much of participants' learning was due to forming and maintaining network relationships. Lastly, through experience with network relationships, participants felt a professional bond that reinforced their beliefs and values toward institutional improvement in Educational Technology. Drury (2009) studied three women technology leaders in higher education and was concerned that there had been a loss of women workers in Educational Technology due to economic and social reasons but also due to lack of one critical component on the job – mentoring.

For participants, a second set of relationships were developed at the workplace. One piece or characteristic of workplace relationships that participants found rewarding was how people were available to discuss work issues with and how there were many opportunities to help each other out face-to-face. Participants also said that their

workplaces allowed ideas to be shared and that was important. Through workplace relationships, participants felt their institutions were organizational, developing, and helpful. They also felt that professionalism was apparent at their workplaces for the most part, and they enjoyed the collegiality of those around them.

Social isolation has been studied by both Stoilescu and Egodawatte (2010) and Hargittai and Shafer (2006), and participants appeared to be bucking a trend that saw undergraduate women in Educational technology not experiencing the same type of communication setting as participants, which may give impetus to using results of this study, and experiences of participants as examples of how to incorporate factors contributing to those experiences into undergraduate studies someday so that social isolation does not occur early on in women's careers.

Dugan et al. (2013) reinforced "sense of belonging" issues participants faced and how engagement in community can be advantageous for women in Educational Technology. Participants realized it was up to them to begin and maintain sociocultural conversations to grow and to extend work place patterns they started. Participants related to how open communication allowed them to contribute to their institution's welfare and to teammates they were leading.

For participants, advice was found in three places: through education, through family sharing wisdom, and by managing emotions. All dialogues, conversations, and electronic messages in their day-to-day workplaces and networks contributed to their communication quilt.

Education allowed participants to develop, to lead by example, to continue learning, and to listen. Development for participants included undergraduate and graduate

degrees in a variety of fields. For many, education was modeled for them either through family or by mentors in their profession. Participants sought continuing education to keep up on best practices in their fields. For all participants, as leaders who are learning, they found that listening was an important skill to possess and was learned through experience. Dakers et al. (2009) voiced a concern that secondary education needs to be relevant to technology in career fields for both boys and girls. How has that relevancy transferred to this study? Women in this study felt an overwhelming desire to continue learning and training, because of work requirements, but also because of a personal need to know. Participants came from a variety of academic backgrounds and held a variety of degree levels, but were in agreement about how important this personal trait of continuing education was for their own self-discoveries as well as ability to make institutional contributions.

Participants received advice from family and friends, comfort from people they trusted, learned models they emulated, followed paths where they learned the most, and lastly, explored opportunities for themselves, and in turn, for future leaders. If a communication quilt had images, there would be family trees and roads to travel upon for these women.

For participants, lasting advice from family members left a huge imprint on participants, along with advice from friends. Participants found comfort with people they trusted and lasting relationships meant a great deal to them. Participants found mentors and looked up to people who modeled exemplary work ethics and responsibilities. They considered their paths to be intertwined with advice as they learned and sought opportunities that left a legacy for others to follow in the same career path. Miles (2009)

remarked how social factors such as role models, family, peer groups, and teachers all had a profound impact on women who selected technology as a field. Even though this study showed that there was reluctance among women to enter due to stereotypical beliefs, participants in this study found that social factors were extremely important to their personal and behavioral growth, and in turn, contributed to the well-being of their institutions. The support of family and friends strengthened the fabric in participants' workplace tapestry.

The communication quilt we developed in this study contained a segment about advice on managing emotions. Several participants mentioned how they would hold back crying at work and were advised to never let anyone see them cry, even though they felt like crying. Participants found trust between leaders and employees to be critical for leading and completing work. Working with difficult tasks and difficult people were also mentioned as part of workplace issues that had to be dealt with. Participants realized they needed to manage their emotions in order for their work to proceed and found various strategies to do so. Each participant found her own unique way to manage emotions. Airini et al. (2011) contributed to this personal trait of managing emotions with a study about women's development in higher education leadership roles. Personal circumstances became a thread in Airini et al.'s results, and they noted a need for women and their advancement in higher education leadership to be supported. And lastly, participants discussed how important confidence was because without it, there was not much that could be accomplished. Confidence, for some, was innate, but for others confidence came with experience. These findings are important so that we can understand and develop meaningful career trajectories for women in this field.

A Sampler of Grit: Leadership and Persistence

Women leaders in Educational Technology in higher education agreed that leadership and persistence are important when developing personal, behavioral, and environmental traits at the workplace. For participants, their shared experiences about leadership fell into two parts. The first part was vision. The second part of leadership was about teamwork. For participants, shared experiences about persistence included a variety of professional practices and terms.

Vision, to participants, included articulation, innovation, building institutional goals, and open communication styles. Participants found that articulation allowed them to deal with and merge with the various offices they worked with. Gallant (2014) believed underrepresentation of women in Educational Technology has been a global issue and advocated for formal leadership training for women rather than just having women lean on experience. Many participants relied on experience to figure out leadership styles without specific schooling or training in higher education leadership.

Without articulation, many participants felt their work would be slowed, so it was very important to them. Most felt a willingness to articulate well at team meetings. Because of the ever-changing nature of the Educational Technology field, participants felt innovation became a constant necessity in workplaces. Through various means such as online networks or professional organizations, participants were part of a bigger picture of innovation and implemented necessary innovations at their institutions. Goals at participant institutions were part of strategic plans, and it was participants' duties to meet goals using best practices with Educational Technology. And lastly, vision would

not commence if not for open communication styles. Collaboration and openness was mentioned by participants as a priority for understanding and for being part of strategic plans at their institutions.

The second aspect of leadership for participants in this study was teamwork. For them, issues about teamwork included quality, delegation, goals, direction, management, and roles. For these participants, quality work was essential for them. Many participants held terminal degrees and realized how planning affects outcomes and in due course the quality of outcomes. Several participants worked with staff and saw the need to delegate tasks and duties for the betterment of their institution, or the bigger picture. For their "team," participants agreed that delegating work provided a scope and a sequence to getting work completed and was a critical component of leadership skills. Teamwork also required setting goals and being flexible when attaining them. Giving direction to a team was one component of teamwork, and for some participants, directing a staff was a new type of leadership skill that some learned as they proceeded, with mentor help or with professional development that online network and organizations provided. Managing teams became very important during day to day operations participants were responsible for. Schedules and weekly meetings enabled most participants to stay on task with their institutional goals. Roles played a part in the team building process for participants. Some participants felt that roles were flexible when they worked one on one with staff versus when they led staff. Participants found they wore many hats and displayed a variety of roles to include and to realize talents of their team members and their Educational Technology leadership abilities. Coder et al. (2009) determined women were not entering and staying in technology careers, and women's work in technology needed a re-design

of artistic, social, and conventional ways in which women work. Participants in this study described a need for design teams, social teams, and team meetings to achieve their goals at work.

For participants, persistence was characterized by many different things. Persistence included: willingness, strength, energy, perspective, change, toughness, luck, challenge, respect, and service. For some, a willingness to try new avenues to achieve objectives and be successful for their institutions was vital. Participants also mentioned strength in beliefs and values as well as physical strength were key for persistence to exist. Energy levels were discussed and how to achieve a work-life balance with enough energy to successfully complete job duties. Another surprising finding when studying persistence was the idea that sometimes an issue is all about perspective. Whether talking about a staff member, a boss, or themselves, participants felt changing a perspective in regards to an issue was one way to persist in solving that issue. Persistence was also about change and how Educational Technology is in a constant state of flux. Participants felt it was important to be able to change and to adapt to changing trends; this was an ongoing concern for them. For some participants, toughness came into play when decisions had to be made and someone had to make them, a resilience so to speak that allowed them to strengthen their workplace and their team and provide a well-intended structure to their culture. And with some humor, participants agreed that sometimes persistence is prone to luck. They realized that luck is not an everyday happening, but they remarked how it interplayed with other events at work. Additionally, participants understood the challenge of persistence and that persistence is not a given. It is work. But, they also recognized with persistence, there is respect along the way. They found

respect with peers, with bosses, with staff and experienced the appreciation of a job well done. Finally, persistence was about service. To participants, service meant serving a community and their institution where they worked, where they met opportunities with gusto and where they built a tapestry of culture that they found so important.

Implications

Findings from this study may inform women leaders in Educational Technology in higher education about relationships, education, and administrative practices along their career paths. At the time of this study, there was tremendous growth in technology, especially online in higher education. Participants in this study were building foundations, relating experiences, and sharing advice about what would help others in the future. I believe this study illuminates stepping stones for future research as well. With that said, implications for relationships, education, and administration are discussed.

Implications for Relationships

Relationships developed at the workplace were vital to participants, and their stories could create a handbook or "to do" list of how to succeed or how to persist. Networking also was mentioned as a vital link for campus and off-campus relationships for these women. Several participants mentioned continuing education early on was important in order for a job to go more smoothly and in order for women to achieve higher rankings at their university jobs.

Implications for Education

Another finding was how important education was for these participants in a variety of majors at three levels– bachelors, masters, and terminal degrees. Participants considered how critical it is to keep updated with Educational Technology and to join

professional organizations. They felt a need to explore other campuses online to view what was happening with peers. They also declared a need to be informed about the latest technology available to them so they could pass that information on and help students succeed at their campuses.

Implications for Administration

I think participants were careful with discussion about administrative practices at their work areas for several reasons. One reason may have been fear of retaliation for saying something that might not be viewed favorably by their boss. Another reason may have been the type of interview question posed. But, I think participants had other reasons as well that were not discussed but could be part of their reality. One may have been job security with all the changes and cuts to budgets occurring in higher education at the time of this study. Another could have been participants may not have had much contact with their administration on a day to day basis. A few participants mentioned deans and meetings but in the siloed-world of academia at the time of this study, there may have been implications for what kinds of relationships were happening with administration and women leaders in Educational Technology. This relationship between participants and their administrators was never really discussed and may prove to be another aspect for future study. Because the parameters of this study were followed, gaps in knowledge have become apparent suggesting a need for more research. There is still groundwork to be done for women who are underrepresented at administrative meetings, and perhaps, undervalued for the tremendous work they are doing.

Recommendations for Future Research

Recommendations for future research for women working in leadership roles in Educational Technology in higher education include several avenues. Recommendations include interviewing more women, studying women and professional development, women in administrative areas, and relationship building across the career paths of women. There is also room to consider research for funding programs that support this field as well as the critical need for continuing education.

Because this study interviewed 12 participants, another study could interview more women. Participant backgrounds could be more specific, a two-year college, a four-year campus or a research university, public versus private because the constituency they serve varies, and could direct a different type of interview questioning. The age and educational background could be more specific in another study because experience could be seen as beneficial or detrimental, antiquated due to technology's high demand for servicing constituents at the university level. The literature mainly focused on Educational Technology workers instead of leaders. The literature did mention training and types of degrees but with this study, we saw there were a variety of bachelors' degrees as well as graduate degrees. Additional studies about training and specific leadership degrees would be helpful, providing practical and insightful knowledge for future generations.

Hoyt (as cited in Northouse, 2007) summarized how women, leadership, and change evolve by stating "changes in organizational culture, women's career development, mentoring opportunities for women, and increased numbers of women in strategic positions will increase the presence of women in prominent leadership roles" (p. 278). This study collected mentorship experiences, leadership experiences, and important

advice for future women leaders in this particular field of work. So for future research, glimpses into an organizational culture and its work by women leaders in Educational Technology could be enhanced, calling into play career and professional development funding practices, mentoring opportunities, and strategies to put more women in leadership roles in higher education.

Conclusion

This journey has really just started for women, when I think about the tapestry woven by participants and their willingness to share their voices, their stories, their weavings, and their unravelings. First, I learned that there is more to learn about their leadership abilities and how women are learning to lead. Secondly, the complexity of the higher education institution in today's world let me witness the patterns participants set for themselves, for their staffs, and for their institutions. Third, participants' stories contained many threads, were multi-faceted, and brought many perspectives about transformational practices and important skill sets for future Educational Technology women leaders. Finally, participants emphasized particularly how important persistence is in our uncertain world and how leaders should continue to build the legacies they have been laying foundations for. I leave the reader with words from Carole King's title song, "Tapestry."

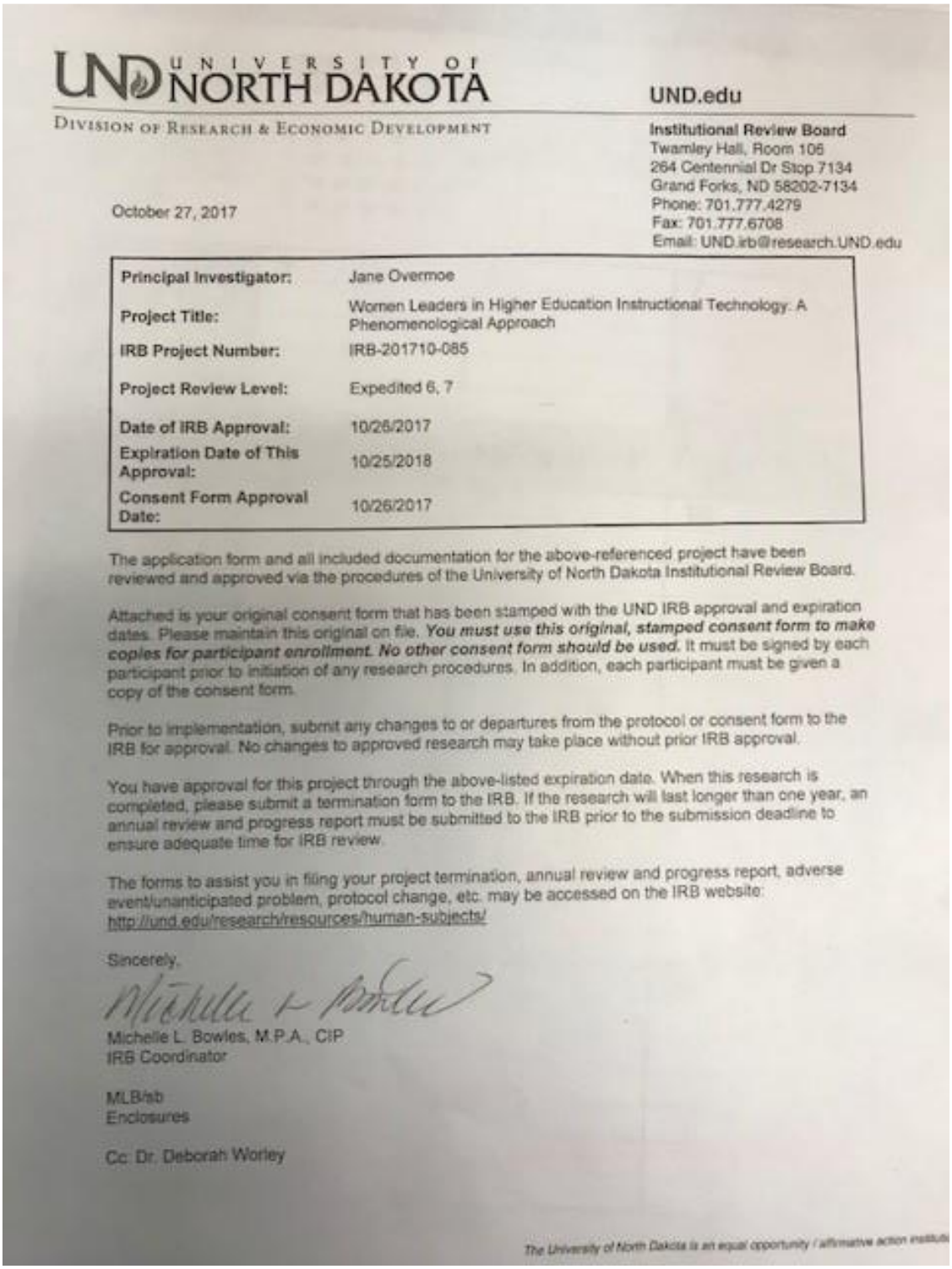
She moved with some uncertainty
As if she didn't know
Just what she was there for
Or where she ought to go
(King, 1971/1999, track 11)

My hope is that this study shed a brief illumination upon that 21st Century tapestry that describes working women leaders in Educational technology in higher education.

APPENDICES

Appendix A

IRB Approval Form



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Institutional Review Board
Twamley Hall, Room 106
264 Centennial Dr Stop 7134
Grand Forks, ND 58202-7134
Phone: 701.777.4279
Fax: 701.777.6708
Email: UND.irb@research.UND.edu

October 27, 2017

Principal Investigator:	Jane Overmoe
Project Title:	Women Leaders in Higher Education Instructional Technology: A Phenomenological Approach
IRB Project Number:	IRB-201710-085
Project Review Level:	Expedited 6, 7
Date of IRB Approval:	10/26/2017
Expiration Date of This Approval:	10/25/2018
Consent Form Approval Date:	10/26/2017

The application form and all included documentation for the above-referenced project have been reviewed and approved via the procedures of the University of North Dakota Institutional Review Board.

Attached is your original consent form that has been stamped with the UND IRB approval and expiration dates. Please maintain this original on file. ***You must use this original, stamped consent form to make copies for participant enrollment. No other consent form should be used.*** It must be signed by each participant prior to initiation of any research procedures. In addition, each participant must be given a copy of the consent form.

Prior to implementation, submit any changes to or departures from the protocol or consent form to the IRB for approval. No changes to approved research may take place without prior IRB approval.

You have approval for this project through the above-listed expiration date. When this research is completed, please submit a termination form to the IRB. If the research will last longer than one year, an annual review and progress report must be submitted to the IRB prior to the submission deadline to ensure adequate time for IRB review.

The forms to assist you in filing your project termination, annual review and progress report, adverse event/unanticipated problem, protocol change, etc. may be accessed on the IRB website: http://und.edu/research/resources/human-subjects/

Sincerely,

Michelle L. Bowles, M.P.A., CIP
IRB Coordinator

MLB/sb
Enclosures

Cc: Dr. Deborah Worley

The University of North Dakota is an equal opportunity / affirmative action institution

Appendix B

Recruitment Email

Fall 2017

Dear Research Participant:

I am writing to let you know about an opportunity to participate in a research study about women leaders who work in higher education Educational Technology. This study is being conducted by Jane Overmoe at the University of North Dakota. This study will include approximately two hour-long interviews via Video conference. Your name was found from the EDUCAUSE website.

If you agree to participate, please respond to this email. I will then set up a time for the interview.

Contact Information:

Jane Overmoe

Email: overmoej@gmail.com

Phone: 701-330-8397

Thank you again for considering this research opportunity.

Appendix C

Interview Schedule – Round 1 Interviews

Participant	Doodle Scheduler	Zoom Interview Link	Date/ Time	Consent Signed	Resume	Transcribed (Uploaded)
1	x	x	11.10 / 11:00	x	x	x
2	x	x	11.10 / 2:00	x	x	x
3	x	x	11.13 / 4:15	x	x	x
4	x	x	11.13 / 5:00	x	x	x
5	x	x	11.13 / 6:00	x	x	x
6	x	X rescheduled	11.17 / 4:15	x	x	x
7	x	x	11.21 / 6:00	x	x	x
8	x	x	11.21 / 7:00	x	Linked in	x
9	x	x	11.27 / 4:15	x	x	x
10	x	x	11.28 / 7:00	x	x	x
11	x	x	11.29 / 4:15	x	x	x
12	x	X rescheduled ill 12.4 / 5	12.04 / 4:30	x	x	x

Appendix D

Interview Schedule – Round 2 Interviews

Participant	Doodle Scheduler	Zoom Interview Link	Date/ Time	Transcribed (Uploaded)
2	x	X	12.15 / 4:00	x
3	x	X	12.14 / 6:30	x
5	x	X	12.18 / 6:30	x
6	x	X	12.14 / 4:30	x
8	x	X	12.22 / 4:30	x
9	x	X	12.19 / 4:00	x
10	x	X	12.18 / 5:00	x
11	x	X	12.19 / 5:45	x

Appendix E

Consent Form

The University of North Dakota

Consent to Participate in Research

TITLE:	Higher Education Educational Technology Women leaders: A Qualitative Approach
PROJECT DIRECTOR:	Jane Overmoe
PHONE #	701-330-8397
DEPARTMENT:	Department of Educational Leadership (Higher Education)

STATEMENT OF RESEARCH

A person who is to participate in the research must give his or her informed consent to such participation. This consent must be based on an understanding of the nature and risks of the research. This document provides information that is important for this understanding. Research projects include only subjects who choose to take part. Please take your time in making your decision as to whether to participate. If you have questions at any time, please ask.

WHAT IS THE PURPOSE OF THIS STUDY?

You are invited to be in a research study about women leaders in Educational Technology at the higher education level because you have been identified as a person in this role from your college web site. The purpose of this research study is explore the "experiences" of women leaders in Educational Technology at the higher education level.

HOW MANY PEOPLE WILL PARTICIPATE?

Approximately 8-12 people will take part in this study at the University of North Dakota. The interviews will be given over Video conference.

HOW LONG WILL I BE IN THIS STUDY?

Your participation in the study will last approximately two visits. You will need to connect via Video conference two times. The visit will take about one hour with a follow-up interview lasting one hour.

WHAT WILL HAPPEN DURING THIS STUDY?

This study will involve questions. If you would prefer not to answer, please feel free to skip the question(s).

WHAT ARE THE RISKS OF THE STUDY?

There are no foreseeable risks to participating in this study.

WHAT ARE THE BENEFITS OF THIS STUDY?

You will not benefit personally from being in this study. However, we hope that, in the future, other people might benefit from this study because the experiences of today's higher education women IT leader may present new knowledge for tomorrow's leader.

WILL IT COST ME ANYTHING TO BE IN THIS STUDY?

You will not have any costs for being in this research study.

WILL I BE PAID FOR PARTICIPATING?

You will not be paid for being in this research study but you will receive a gift card.

WHO IS FUNDING THE STUDY?

The University of North Dakota and the research team are receiving no payments from other agencies, organizations, or companies to conduct this research study.

CONFIDENTIALITY

The records of this study will be kept private to the extent permitted by law. In any report about this study that might be published, you will not be identified. Your study record may be reviewed by Government agencies and the University of North Dakota Institutional Review Board.

Any information that is obtained in this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. Confidentiality will be maintained by means of . . .

- Coding procedures and plans to safeguard data will be done by primary researcher, Jane Overmoe. Data will be kept in my personal computer. I am the only person who will have access to the interview data.
- If we write a report or article about this study, we will describe the study results in a summarized manner so that you cannot be identified.
- The interviews will be recorded via Video conference and the subject has a right to review/edit the recordings. I will have the only access to the videos and they will be erased five years after the dissertation is published.

IS THIS STUDY VOLUNTARY?

Your participation is voluntary. You may choose not to participate or you may discontinue your participation at any time without penalty or loss of benefits to which you are otherwise entitled. Your decision whether or not to participate will not affect your current or future relations with the University of North Dakota.

If you decide to leave the study early, we ask that you call me at 701 330 8397 or email at overmoej@gmail.com.

CONTACTS AND QUESTIONS?

The researcher conducting this study is Jane Overmoe. You may ask any questions you have now. If you later have questions, concerns, or complaints about the research please contact Jane Overmoe at 701-330-8397 during the day and night. The advisor for Jane is Deborah Worley at 701-777-3140.

If you have questions regarding your rights as a research subject, you may contact The University of North Dakota Institutional Review Board at (701) 777-4279 or UND.irb@research.UND.edu.

You may also call this number about any problems, complaints, or concerns you have about this research study.

You may also call this number if you cannot reach research staff, or you wish to talk with someone who is independent of the research team.

General information about being a research subject can be found by clicking "Information for Research Participants" on the web site:

http://und.edu/research/resources/human-subjects/research-participants.cfm

I give consent to be audiotaped during this study.

Please initial: ____ Yes ____ No

I give consent to be videotaped during this study.

Please initial: ____ Yes ____ No

I give consent for my quotes to be used in the research; however, I will not be identified.

Please initial: ____ Yes ____ No

Your signature indicates that this research study has been explained to you, that your questions have been answered, and that you agree to take part in this study. You will receive a copy of this form.

Subject Name: _____

_____ _____

Signature of Subject Date

I have discussed the above points with the subject or, where appropriate, with the subject's legally authorized representative.

_____ _____

Signature of Person Who Obtained Consent Date

Appendix F

Codebook of Pre-Existing Codes

Pre-Existing Codes	Number
Category: Personal	20
Subcategory 1 Expression	0
Code Negative words	243
Code Positive words	32
Code Technical words	107
Subcategory 2 Style	31
Code Open	40
Code Closed	0
Code Neutral	0
Code Work relationships	259
Category: Behavior	2
Subcategory 1 Leadership skills	212
Code Skills	30
Code Organization	37
Code Technical ability	
Code Invisible rules	0
Subcategory 2 Communication skills	12
Code Direct	66
Code Indirect	12
Code Technical	
Code Proactivity	1
Category: Environment	19
Subcategory 1 Culture	18
Code Daily routine	1
Code Occupational tasks	5
Code Real time	187
Code Online time	13
Code University environment	47
Subcategory 2 Climate	0
Code Organizational	
Code Groups	32
Code Roles	34

Appendix G

Comprehensive Codebook

Categories	A = A priori C = Co concurrent P = Pre-existing	Number
Technology	P	151
Advice	C	64
Legacy	C	1
Change	C	31
Gender	P	1
Education	C	59
Professional development	A	50
Relationships	C	29
Network	C	51
Mentor	C	44
Roles	P	34
Higher education culture	P	1
Service	C	24
Students	C	47
Vision	C	14
Advocacy	C	2
Support	C	118
Round 1 Question 8 Key Terms chronological speaker 1-12		
Team	C	51
Organization	C	37
Energy	A	4
Charts	P	1
Success	A	55
Failures	A	4
Values	C	23
Balance	P	7
Model	P	10
Example	P	16
Round 1, Question 7		

Categories	A = A priori C = Co concurrent P = Pre-existing	Number
Learning	C	6
Innovation	A	14
Luck	A	26
Development	C	9
Confidence	A	1
Bravery	A	1
Grooming	A	1
Brag	A	1
Challenge	A	9
Round 1, Question 6		
Facilitator	A	3
Building	C	10
Perspectives	P	8
Listening	P	41
Transparency	C	11
Risk	A	4
Mansplain	P	1
Open	C	40
Engaging	A	12
Manage	C	67
Respect	C	21
Servant	A	3
Service	A	24
Round 1, Question 5		
Path	A	54
Opportunity	C	23
Experience	C	33
Intimidated	A	3
Affinity	P	1
Persist	C	20
Accommodating	A	0
Flexibility	C	3
Help	C	93
Cool	A	9

Categories	A = A priori C = Co concurrent P = Pre-existing	Number
Adventure	A	3
Bartender	A	1
Roller coaster	A	1
Crazy ride	A	4
Crossroads	C	1
Adoption	C	3
Round 1, Question 4		
Advice	C	61
Strength	A	18
Goal	P	14
Tough	A	12
Cry	A	6
Trust	C	25
Tricks	A	3
Round 1, Question 3		
Listening	C	3
Freak out	A	2
Silence	A	2
Blunt	A	4
Support	P	
Direction	C	66
Difficult	A	12
Direct	A	
Puzzle	A	1
Resilience	C	3
Flexibility	C	1
Trust	C	
Round 1, Question 2		
Training	C	11
Mentors	C	44
Conferences	C	
Leadership	C	212
Weaknesses	A	3
Latitude	A	1

Categories	A = A priori C = Co concurrent P = Pre-existing	Number
Professional	C	
Experience	P	
Challenge	P	
Thankful	C	83
Colleagues	P	4
Support	P	
Comfort	A	11
Glean	A	1
Friends	A	25
Ideas	C	16
Navigating	A	1
Recognizing	A	3
Crucial	A	2
Crawling	A	1
Willing	A	15
Round 1, Question 1		
Caveats	A	1
Strengths	C	10
Quality	P	46
Explicit	C	7
Articulate	A	25
Servant	P	1
Delegate	P	115
Decisions	P	1
Available	C	9
Backbone	A	1
Example	C	1
Boundaries	C	1
Wasting	A	1
Connection	A	12
Motivate	C	3

Appendix H

Memoing Example

Using Joseph Maxwell (page 28) question as guide.

What prior experiences have I had that are relevant to topic or setting?

Memo about: Codes, categories, and their relationships Initial thoughts on data analysis Memos are ways of summarizing where you are at during your analysis and potential interpretations you may have about your data. Analysis is saying: What does the data say? Interpretation is saying: What does it mean?

There are several layers of professional interest I hold with technology pursuits in education. The first layer is curriculum and its design for learners and for leaders. I have taught at secondary and higher education levels with numerous classes. Some of those classes went online in 2003 with a 1-to-1 laptop conversion at a high school with 1500 students (9-12). I had nine different classes including Modern Literature, Creative Writing, Research Writing, English 10, British Literature, Speech, and four levels of English 10. I felt the need for further design capability so I went back to school for a specialist degree in education and technology. The online classes provided a scope and a sequence to put courses online and share with students and colleagues. From that experience, I took a higher education position to share how to build online coursework with a small Midwest university and learned the reticence and resistance of vested professors about going online. This experience demonstrated the slowness of how transformation occurred at the higher education level versus the immediacy of secondary education.

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