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Career Commitment of Women in University STEM Leadership Roles: Professors, Chairs, and Deans

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Abstract

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Dissertation Submitted in Partial Fulfillment

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Abstract

Despite the increased numbers of women in STEM over the last 2 decades, women are more likely than men to leave a STEM career. It is important to have women's perspectives within the workplace and to have female role models from different backgrounds to support and encourage female students to move into STEM careers. The purpose of this phenomenological qualitative study was to identify how female STEM university leaders perceive the influence of their personal vision and work-life balance on their career commitment. The framework included two concepts: Boyatzis' ideal self and Poulose and Sudarsan's work-life balance. The phenomenological design of the study centered on interviews with 14 women from California State Universities. The interview questions were framed by two research questions focusing on how female STEM tenure/tenure-track faculty, department chairs, and deans perceived personal vision and work-life balance influencing their career commitment. Data were coded and organized with a spreadsheet and patterns were grouped into the resulting themes: Doing What They Enjoy, Lady's Work, Motivation, Always Working, Support for Work-life Balance, and Competitive Culture. Findings were that personal vision and work-life balance are perceived as strengthening career commitment if they are developed, valued, and supported and that work-life balance can influence career commitment, so the balance should also be supported for women in STEM careers. This study contributes to positive social change by informing STEM women on self-advocacy and university administrators on how to support women in STEM careers, possibly increasing the retention of women in STEM careers with hopes that they move into leadership roles.

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Dedication

I would like to thank my husband and daughter for always making me laugh when I needed it most. I also want to thank my parents for always encouraging me to continue my education, and my father- and mother-in-law who believed in me. To all my friends and family who always asked how my dissertation was going and encouraged me to keep going, I love you all.

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Chapter 1: Introduction to the Study

In a world driven by innovation and technology, it is essential to have diverse perspectives to stay relevant to global competitiveness. A diverse workforce contributes to creativity, productivity, and innovation (Olsen et al., 2016; Wiley & Monllor-Tormos, 2018). Diversity training involving an inclusive climate also helps with decreasing turnover (Zhang & McGuire, 2021). With women making up over half the population, it is beneficial to have their perspective in science and engineering research and projects, yet women are underrepresented in science, technology, engineering, and mathematics (STEM) careers (Blackburn, 2017; The State of the U.S. S&E 2020, 2020).

When girls move into college STEM programs, it may be difficult to fit in. Female STEM college students benefit from having a female role model they can relate to and feel less isolated within the STEM community (Cheryan et al., 2017; Helman et al., 2020; Jaeger et al., 2017). Having women in STEM leadership roles at the university level is vital for the retention of females in STEM careers. Mentors and role models can help female students connect their agentic and communal career goals to their pathway to a STEM career because having this connection is a predictor of women choosing or staying in STEM majors (Helman et al., 2020; Riegle-Crumb et al., 2020).

Mentoring and mentorship programs have seen an impact on career commitment of women in STEM (Spangle et al., 2021). Women have a higher attrition rate than men have in STEM careers, meaning they are more likely to leave STEM than their male counterparts (Flaherty, 2018; Fouad et al., 2017; Riegle-Crumb et al., 2020). Studying

career commitment among women in STEM university leadership roles who have stayed committed to their careers may reveal insight into retaining these leaders and role models.

Having a desired future and hope to achieve it can create motivation to change in ways to move towards that future. Conceptually speaking, Boyatzis and Akrivou (2006) called this desired future the *ideal self*. In order to have an ideal self, a person must recognize their core identity and create a vision of the future based on that identity. Among women in engineering, career commitment is often influenced by personal vision because it can lead to meaningful work and motivation (Buse & Bilimoria, 2014; Van Oosten et al., 2017). Because personal vision and work-life balance may overlap, especially for women, work-life balance is also an important aspect of career commitment. Women in STEM leadership seek more support with work-life balance and to a greater degree than their male counterparts (Brue, 2019).

This chapter incorporates research on women's personal vision, work-life balance, and career commitment of in STEM fields. It also includes descriptions of unique barriers women in STEM face as they function in stereotypical, masculine environments that imbue all STEM workers with masculine attributes, and experience added pressure to be the ideal worker while still having family and household responsibilities. This chapter includes the discussion of the underrepresentation of women in STEM fields, and the importance of women in university STEM leadership roles. The chapter identifies the two theories that contribute to the conceptual framework of the study, international change theory (ICT) according to Boyatzis and Akrivou (2006) and work-life balance according to Poulose and Sudarsan (2014). They provide a lens for

analyzing the data collected. I discuss a rationale for using these two theories for the phenomenological qualitative study of career commitment of women in university STEM leadership roles. The chapter concludes by looking at the assumptions, scope, and limitations that the study will need to consider in determining the influence of personal vision and work-life balance of the retention of women in STEM leadership positions.

Background

Over the last 2 decades, the United states has focused much attention on STEM education to increase STEM grades and to increase the number of people in the STEM workforce (Maltese et al., 2014). In 2001, the No Child Left Behind Act of 2001 (NCLB) narrowed the focus of K through 12th-grade education to mathematics and literacy in the hope of competing with other nations (Maltese et al., 2014). Although NCLB did not meet its goal of 100% of students reaching math and literacy competency by 2014, it helped increase the National Assessment of Educational Progress (NAEP) scores and increase the number of young children interested in math and science. As a result of this emphasis, K-12 education has an equal amount of male and female students taking advanced science courses. However, despite this growing interest in K-12 STEM, gender disparities still exist in higher education, and more so in the STEM workforce (Statistics, 2018; The State of the U.S. S&E 2020, 2020). The STEM career environment influences women's decisions to choose and/or stay in a STEM career.

Among the reasons that influence women's decisions to leave STEM careers is the masculine and stereotypical culture, where they feel isolated and lack role models (Cabay et al., 2018; Carli et al., 2016; Cheryan et al., 2017; Cundiff & Vescio, 2016;

Gossage, 2019). Increasing and retaining female representation is essential to balance out the masculine STEM culture and establish relatable role models to mitigate that feeling of isolation. Women also leave their STEM careers because they feel they have fewer opportunities than their male counterparts (Hart, 2016; Lester et al., 2017; Lopez et al., 2018). Women in STEM report feeling that the work policies and procedures they encounter often ignore the issues that are unique to women, such as family responsibilities and the lack of time to do the work they feel is meaningful to them (Hart, 2016; Lester et al., 2017; Lopez et al., 2018). Williams et al. (2017) surveyed college and university STEM administrators to rank strategies for increasing female representation and retention in STEM professorship, finding that female STEM administrators value teaching, services, and administrative experience higher than their male counterparts valued them. Women in STEM university leadership roles may benefit from having more support for what they perceive to be meaningful contributions to the institution, in other words, their personal vision (Buse & Bilimoria, 2014; Van Oosten et al., 2017).

In researching personal vision, the concept of the ideal self emerged. The ideal self is a component for therapeutic intervention and intrinsic motivation; it is the driving force of intentional change and the spark that creates a personal vision (Boyatzis & Akrivou, 2006). Boyatzis's ICT centers on the realization of the differences between a person's ideal self and real self, and setting an agenda that focuses on improving the individual's strengths to achieve the ideal self (Boyatzis, 2006). Buse and Bilimoria (2014) used several scales to survey a sample of 495 female engineers. These researchers used the Ideal Self Test (Boyatzis et al., 2010) to measure personal vision and the

Commitment Scale (Blau, 1985) to measure career commitment. They found that the ideal self, work engagement, work relationship with supervisor, age, and the number of children impacts female engineers' persistence to stay in their careers.

Van Oosten et al. (2017) examined the outcomes of women in a professional development lab, a woman who lead an engineering team reported that developing a personal vision lead to the discovery of her value and strengths and made her more confident and authentic in her leadership, ending her search for other jobs. Other women reported through surveys and interviews, success of the program in the form of promotions, self-efficacy, and stronger relationship with mentors (Van Oosten et al., 2017). In a similar and more recent study, an engineering company implemented a professional development course for women, to develop their personal vision and gain confidence in their knowledge and skills within their field (Houghton, 2019). Participants reported an increase in confidence, improved career focus, and recommend it to other women in the program. The number of female employees increased by 4% in 6 years, the number of women in leadership roles increased from 27% to 30% within 5 years, and the retention rate of women at the company went from 7% to 9% within 1 year (Houghton, 2019). Personal vision can be a powerful tool for women, as seen at these engineering companies. It has the possibility of increasing the retention of women in STEM leadership roles within universities as well.

Personal vision may include reaching a balance of work and family responsibilities. Many women in STEM graduate programs are concerned about managing a STEM career, marriage, and family in the future (Cabay et al., 2018; Canetto

et al., 2017). Work-life balance is a crucial aspect of career choice for women (Jaeger et al., 2017; Wickersham & Wang, 2016). Researchers also found that women place more importance on balancing life and work then men do; more women than men find it challenging to obtain a satisfying work-life balance (Brue, 2019; Chung & van der Lippe, 2018; Fayaz Khan & Fazili, 2016). Even at the leadership level, female STEM university administrators ranked accommodation for mothers, gender-equity research, and support for work-life balance higher than the male participants ranked them (Williams et al., 2017).

Poulose and Sudarsan (2014) and Shobha Gunajo (2017) found that work-life balance can influence well-being, emotional intelligence, work environment, and family responsibilities. Isaacs (2016) found that prioritizing work before family can be detrimental to relationships, including the relationships with the children in the family. In a recent study, full-time female faculty at a medical school participated in a semistructured focus group to discuss the factors that affect their advancement (Lopez et al., 2018). Data analysis revealed that work-life balance and lack of institutional support caused much stress. Lopez et al. (2018) found that each department had its own rules about maternity leave, and those departments with more flexibility had more employee job satisfaction. Through a review of work-life balance, Isaacs (2016) stated work-life balance is a means for control; when someone feels in control of their work, then they are more likely to feel in control of their life. Women in male-dominant organizations have resisted the masculine norms, trying to maintain a healthy work-life balance, leveraging their differences, and finding support through friends, family, and coworkers (Mullet et

al., 2017). Brue (2019) found that female STEM practitioners, educators, and industry leaders, who focus on increasing the number of women in STEM, gain the most support in work-life balance from their spouse or significant other and value informational and emotional support over appraisal and instrumental support.

More institutional support for work-life balance may help women stay in STEM careers. For example, a university had conducted a professional development for both men and women faculty in STEM to gain awareness and learn ways of supporting and including women in STEM, such as strategies for integration work and life, increasing competency, and finding more opportunities to be involved (Smith et al., 2018). Smith et al. (2018) believed that professional development for women is a great way to support women; however, to change the culture, everyone should be involved in the professional development. Both men and women had increased job satisfaction and after 3 years, the percent of women in tenure and tenure-track STEM positions moved from 32% to 38% (Smith et al., 2018). Work-life balance is used as a valuable lens for the study of the perceptions of women in STEM university leadership and the role of work-life balance on career commitment.

While researchers have examined the effect of personal vision on retention, there is a noticeable gap in the literature. Much of the qualitative research about the perception of work-life balance in STEM gathered data from female college STEM students. Only a few studies found collected data from STEM faculty. Hart (2016) interviewed STEM faculty from one university and Lopez et al. (2018) interviewed full-time faculty from an academic medical center, both asking about how the organization hinders or supports

their success and advancement in their careers. While Van Oosten et al. (2017) followed the process and results of female STEM faculty in a workshop series that helped women develop their personal vision. The research literature lacks qualitative research exploring the personal vision of women in STEM university leadership roles, such as tenure/tenure-track faculty, department chairs, and deans.

A substantial amount of research explores why women leave STEM careers. Still, there exists a gap in the research literature examining what keeps women committed to a STEM career, such as personal vision and work-life balance, once they enter the field. I addressed the gap in the literature and contribute to the body of knowledge by focusing on the how personal vision and work-life balance influence commitment to one's STEM career, specifically of female STEM tenured and tenure-track faculty, department chairs, and college deans. Examining career commitment may contribute to the understanding of how to retain women in university STEM leaders. It is crucial to retain female STEM leaders to ensure visible role models for other women aspiring to move into STEM careers (Cabay et al., 2018; Cheryan et al., 2017; Cundiff & Vescio, 2016; Schluter, 2018) and to make the workplace more supportive of and attractive to women (Olsen et al., 2016; Wiley & Monllor-Tormos, 2018; Williams et al., 2017).

Problem Statement

Women in STEM careers are more likely to leave their STEM career then men are (Flaherty, 2018; Fouad et al., 2017; Riegle-Crumb et al., 2020). Female role models in STEM professions have shown to be more effective in helping to retain females in STEM careers; however, the lack of representation, especially at the managerial and leadership

levels, poses a problem (Cundiff & Vescio, 2016; Hideg & Shen, 2019). Women are underrepresented in STEM leadership roles, and improving representation is needed to help retention efforts. In 2017, women comprised only 29% of science and engineering occupations; more recently, women make up 27% of computer and mathematical scientists, 18% of physicists, and only 16% of engineers, which illustrated some of the largest gender gaps among STEM fields (Cheryan et al., 2017; The State of the U.S. S&E 2020, 2020). Fouad et al. (2016) found that career commitment impacts the persistence of female engineers in their careers. Perhaps career commitment may influences the retention of women in university STEM leadership roles, another area where women are underrepresented (Blackburn, 2017; Canetto et al., 2017). For this study, the problem under examination was how women are more likely than men to leave STEM careers.

Many unique barriers exist for women in STEM fields, such as the masculine and stereotypical cultures of some STEM fields, where women feel isolated and lack role models (Cabay et al., 2018; Cheryan et al., 2017; Lavorata, 2017). For example, Carli et al. (2016) found that, separately, men and scientists are typically perceived as agentic, while women are generally seen as communal. Even in fields with a higher proportion of women, female scientists were perceived to be closer to the stereotypical agentic scientist then the stereotypical communal female (Carli et al., 2016). Not fitting into the stereotypical STEM role is an issue for many women. Promoting and illustrating the communal side of STEM can attract more women to STEM (Helman et al., 2020). Organizations may inadvertently promote gender bias. Women in science and engineering feel that men are given more opportunities for management and promotions

and that promotional processes are gender bias (Lester et al., 2017; Lopez et al., 2018). Hart (2016) found that leaders often ignore issues for women, whether advertently or inadvertently, through policies and procedures they implement.

Unique issues for women include the struggle to balance family and work, the competitive nature of the field, and the perception of the ideal worker, discouraging women from moving into and staying in STEM professions (Cabay et al., 2018; Canetto et al., 2017; Fouad et al., 2016; Hart, 2016; Lester et al., 2017). The number of women in STEM careers has increased slowly over the last 40 years; but, the retention of women in STEM careers has not improved. Female university administrators place more importance on female retention efforts than their male counterparts do, which is part of why university STEM leadership roles need more female representation (Sgoutas-Emch et al., 2016; Williams et al., 2017). While there is a substantial amount of research on why women leave STEM careers, there exists a gap in the research literature examining what keeps women committed to a STEM career once they enter the field.

Purpose of the Study

The purpose of this phenomenological qualitative study was to identify how female STEM university leaders perceive the influence of their personal vision and work-life balance on their career commitment. Although 20% of engineering graduates are women, only 11% of engineers are women (Fouad et al., 2017). Fouad et al. (2017) surveyed 1,464 women who had left engineering within the last 5 year prior to the survey, and 16% of them left because of work-family balance. Flaherty (2018) found that women in astronomy were being hired for tenured faculty position at the same rate as

men were within the first 4 years of earning a Ph.D., but then men take a large lead as time goes on. One reason was because women were leaving at a higher rate than men and suggested ways to minimize the challenges of a two-body problem—trying to find two jobs geographically near each other for two partners in a relationship—and of having children. Kahn and Ginther (2015) analyzed data from the National Science Foundation's NESTAT database to find that women were more likely than men to leave engineering at 3 to 4 years after graduating with a bachelor's in engineering degree, due to family responsibilities. If work-life balance is negatively influencing persistence in STEM career women, perhaps the solutions to career commitment are creating a personal vision and finding that balance of work and life.

Boyatzis and Akrivou (2006) explained how the ideal self leads to personal vision, which they describe as the image of what a person wishes to be. They also explain how personal vision can be a strong motivator for intentional change to move towards a goal. Bernasconi (2017) found that goal setting is associated with motivation, persistence, and commitment among female secondary students in STEM courses. Buse and Bilimoria (2014) developed a survey based on the 5-factor Ideal Self scale, collecting a total of 495 responses from female engineers. The five factors are as follows: (a) hope, the possibilities and feelings of one's vision; (b) sense of purpose, how much personal vision is associated with a purposeful life; (c) holistic vision, how much one's personal vision includes one's values and philosophies and contributes to others and the community; (d) deeper meaning, how well one's personal vision includes family and social relationships and physical and spiritual health, and (e) fun; how well one's personal vision includes fun

and leisure activities. Buse and Bilimoria (2014) used the Ideal Self Test (Boyatzis et al., 2010) to measure personal vision and the Commitment Scale (Blau, 1985) to measure career commitment. They found that personal vision, which is the ideal self and whom one would like to develop into, influences work engagement, and work engagement influences the success and career commitment of women in engineering and faculty positions.

Work-life balance is defined as the balance of personal, societal, and organizational life; it influences productivity, job performance, career commitment, and intent to leave or quit (Fayaz Khan & Fazili, 2016; Poulose & Sudarsan, 2014; Shobha Gunajo, 2017). Shobha Gunajo (2017) collected 150 questionnaires from individuals in the health care industry and found a gender difference in perspectives of work-life balance, that women more than men experienced a more difficult time balancing work and life and place more importance on that balance. Poulose and Sudarsan (2014) analyzed literature to improve the definition of work-life balance and categorized the factors of work-life balance as individual, organizational, societal, and other factors (see Table 1).

I used a phenomenological design to explore the current experiences of female STEM leadership at the university level and expand on research by Buse and Bilimoria (2014) and Poulose and Sudarsan (2014). Buse and Bilimoria and Poulose and Sudarsan that found career women, in general, are more inclined to persist in their careers if they had a positive personal vision and a balance of work and life. Unlike past research, I focused on women in university STEM leadership roles and their perceptions of how

personal vision and work-life balance influence their career commitment. The findings can be used to assist college administrators in creating a culture and work environment supportive of female STEM leaders.

Table 1

Factors of Work-Life Balance

Individual	Organizational	Societal	Other
Personality Well-being Emotional intelligence	Work arrangements Work-life balance practices and policies Organizational support Superior support Colleague support Job stress Role conflict Role ambiguity Role overload Technology	Childcare arrangement Spouse support Family support Social support Personal and family demands Dependent care issues Family quarrel	Age Gender Marital status Parental status Experience Employee level Job type Income Type of family

Research Questions

RQ1: How do female STEM tenure/tenure-track faculty, department chairs, and deans perceive personal vision influencing their career commitment?

RQ2: How do female STEM tenure/tenure-track faculty, department chairs, and deans perceive work-life balance influencing their career commitment?

Conceptual Framework

In this study, I used Boyatzis's intentional change theory (ICT) in combination with Poulose and Sudarsan's research findings on work-life balance as a lens to analyze and interpret data collected. Boyatzis's ICT states that the ideal self is who one wants to be, or in other words, a personal vision for life and work; whereas the real self is who one

is now and how others view them (Boyatzis & Akrivou, 2006; Boyatzis & McKee, 2006; Goleman et al., 2013). ICT describes a process of obtaining a desirable, sustainable change in behavior and perception to reach goals in life or at work (Boyatzis, 2006; Seal et al., 2006). When someone realizes the differences between their real self and their ideal self, they can become motivated to change and develop skills that lead them to their personal vision (Boyatzis & Akrivou, 2006; Buse & Bilimoria, 2014). Boyatzis and Akrivou (2006) examine a variety of theoretical foundations that view the ideal self as an essential part of intrinsic motivation. The researchers concluded that the ideal self is the driving force for intentional change towards personal vision.

Components of personal vision, or the ideal self, include the "image of the desired future, hope, and a comprehensive sense of one's core identity, or the real self" (Boyatzis & Akrivou, 2006, p. 624). Boyatzis and McKee (2006) stated that the ideal self cannot exist without the real self. People must recognize what their ideal self is compared to their real self, and this comparison helps create the motivation to change. Boyatzis and McKee (2006) interviewed two high achieving business leaders that used the discovery of their ideal self as a way to reignite their passion for their work. They reflected on their strengths and weaknesses, leading them to a learning agenda to achieve their personal vision. ICT applies not only to an individual but also to teams within a department or entire organization (Boyatzis, 2009).

Two other studies that were similar to each other discussed the results of a professional development workshop, helping female STEM faculty and female engineers develop strategies around barriers, leadership skills, and personal vision. Afterwards,

women were receiving job promotions, increasing their self-efficacy, knowledge, and skill, and becoming closer to their mentors (Houghton, 2019; Van Oosten et al., 2017). Personal vision is something that is used often in developing knowledge, skill, and confidence.

Because ICT describes the ideal self as personal vision, it is the appropriate framework to study the personal vision of women in STEM careers. Buse and Bilimoria (2014) also used ICT as the framework for their research on how personal vision may enhance work engagement and retention of women in engineering professions. They found that the ideal self impacts work engagements, and work engagement impacts career commitment to engineering. In the Ideal Self Scale of the ICT, items that are related to work-life balance include family issues, well-being, and leisure time.

The research of Poulose and Sudarsan (2014) on work-life balance was used as a lens to identify the role of work-life balance in determining the level of career commitment of female university STEM leaders. Work-life balance is a complex and challenging process of adjusting working life and family/social life (Maxwell & Mcdougall, 2004). Poulose and Sudarsan (2014) described it as the balance of societal life, personal life, and organizational life, which has become essential to organizational effectiveness. Factors that influence work-life balance include well-being, emotional intelligence, work support, work policies and programs, job stress, childcare responsibilities, and family support (Fayaz Khan & Fazili, 2016; Poulose & Sudarsan, 2014). This is seen in a study by Shobha Gunaji (2017) about gender differences in perceptions of work-life balance, which included wanting better childcare options and

flexible hours. The women perceived health and exhaustion as more of an impact on work than men perceived them, so work-life balance is important for productivity (Shobha Gunajo, 2017). Outcomes affected by work-life balance are job satisfaction, career satisfaction, organizational commitment, employee turnover, absenteeism, retention of employees, job performance, productivity, family satisfaction, life satisfaction, leisure satisfaction, burnout, and health (Fayaz Khan & Fazili, 2016; Poulose & Sudarsan, 2014).

For this study, I examined personal vision and work-life balance influences on career commitment. Informed by Boyatzis's ICT and Poulose and Sudarsan's work-life balance, the conceptual framework was a strong foundation for exploring the career commitment of women in university STEM tenure/tenure-track faculty and administrators by examining their perceptions of personal vision (ideal self vs. real self) and work-life balance and their influence on career commitment.

Nature of the Study

Previous researchers used quantitative means to study personal vision, work-life balance, and career commitment using the Ideal Self Scale (Boyatzis et al., 2010), the Work-Life Balance Scale (Nitzsche et al., 2014; Thompson et al., 1999a), and the Career Commitment Scale (Blau, 1988), respectively. I took a qualitative approach and a phenomenological design to explore the current experience of female STEM leadership at the university level. A phenomenological design utilizes interviews, observations, and/or surveys to understand the perspectives and experiences of the phenomenon (Creswell, 2018; Patton, 2015). A phenomenological approach is appropriate for this study given the

focus is on the perspectives and experiences of this community of STEM university leaders. According to Creswell (2018), a phenomenological qualitative study should include five to 25 interviews, and according to Morse (2000), at least six are needed. I anticipated data saturation at about 12 semistructured interviews, and 14 were actually conducted to ensure data saturation. Semistructured interviews characterized by consistency of question order and delivery helped ensure reliability of results.

The framework of the study includes two concepts: the personal vision and work-life balance. Personal vision is the image of a person's ideal self, a comprehensive sense of their real self as the core identity, including the level of hope, self-efficacy, and optimism to achieve a person vision (Mosteo et al., 2016). A person recognizes who they are now and who they picture themselves to be in the future. The ideal self scale (Boyatzis et al., 2010) includes an item about the involvement of family and fun in one's personal vision, tying personal vision to work-life balance. I examined the influences of personal vision on career commitment, particularly the intent to stay or leave a women's STEM career in university leadership.

Work-life balance is the balance of an individual's personal, social, and organizational life (Poulose & Sudarsan, 2014). Within a work environment, it is described as the adjustment of working patterns in order for employees to combine work and other responsibilities and aspirations (Maxwell & Mcdougall, 2004). Fayaz Khan and Fazili (2016) described work-life balance as the prioritizing of one's career, ambitions, leisure time, family time, and spiritual development. Work-life balance can influence pathways, which in turn can modify their career goals into something perceived as more

attainable (Cabay et al., 2018). STEM careers can be demanding with hours, especially if one wants to move towards and men tend to be willing to sacrifice family and social life for work then women are, while women may not have the choice to do so (McCabe et al., 2019). Work-life balance puts women at a disadvantage for promotions and moving towards a personal goal. I examined how work-life balance and personal vision are related and how they influence the career commitment of women in university STEM leadership roles.

Qualitative data were collected via semistructured interviews consisting of questions on personal vision and work-life balance. The interview questions prompted participants to describe their personal vision, work-like balance, and career commitment, and how they have influenced each other. A few researchers used Likert scales to measure personal vision, work-life balance, and career commitment: the Ideal Self Scale (Boyatzis et al., 2010; Buse & Bilimoria, 2014), the Work-Family Culture Scale (Thompson et al., 1999a), the Career Commitment Scale (Blau, 1985), and the Career Commitment Measure (Carson & Bedeian, 1994). Some of the items were reworded to become open ended questions in order to have deeper answers about personal vision, work-life balance, and career commitment. The interview ended with asking them if they would like to add anything else. I then used a qualitative analysis, coding transcripts by hand and organizing the codes into themes guided by the research questions.

Participants identified as female and working as a university STEM tenure/tenure-track faculty, department chair, or college dean for at least 3 years, which is based on the research by Buse and Bilimoria's (2014), Kahn and Ginther (2015), and Flaherty (2018).

Buse and Bilimoria found that career commitment of female engineers is influenced by age and number of children, especially in the earlier years of their careers. When Kahn and Ginther studied the likelihood of women staying in engineering after graduation, they found that women are significantly more likely to leave engineering then men are at 3 to 4 years. Flaherty saw that women tend to leave after about 4 years. Given these studies, women in STEM leadership roles at the university level may experience a similar departure trend. My sample included women who have persisted for at least 3 years because this may be the departure point for many women. Interview questions guided the discussion towards understanding how female university STEM faculty and administrators perceive their personal vision, work-life balance, and career commitment.

Definitions

Key words drawn from the research associated with the Ideal Self Test and work-life balance are as follows:

Career commitment: A person's level of commitment to their career; a person's level of intention to stay in their careers (Buse & Bilimoria, 2014; Fouad et al., 2016).

Core identity: A person's strengths, traits, and other dispositions (Mosteo et al., 2016).

Deeper meaning: A person's values, philosophy, and calling or purpose (Mosteo et al., 2016)

Fun: The result of intrinsic motivation and self-satisfaction attach to the holistic imagery created (Mosteo et al., 2016).

Holistic vision: An integral imagery of the future (Mosteo et al., 2016); values, philosophy, and contributions to others and the community which frame a complete personal vision (Boyatzis et al., 2010).

Hope: The affective driver caused by the degree of optimism (Mosteo et al., 2016); the possibilities and feelings of one's personal vision (Buse & Bilimoria, 2014).

Ideal self: Who a person wants to be and what they want to accomplish, leading to one's personal vision (Boyatzis & Akrivou, 2006). Ideal self is comprised of hope, self-efficacy, optimism, and core identity (Buse & Bilimoria, 2014; Mosteo et al., 2016).

Personal vision: The image of a person's ideal self, of what they wish to become or accomplish in work and life (Boyatzis & Akrivou, 2006).

Real self : Who a person is at the present time (Buse & Bilimoria, 2014). How a person acts and how others view this person; the comparison of the real self to the ideal self results in identification of one's strengths and weaknesses, leading to your personal balance sheet. (Boyatzis & McKee, 2006).

Sense of purpose: The articulation or realization of deep dreams (Mosteo et al., 2016); understanding one's legacy or calling and prioritizing things that are important to one's vision or passion (Boyatzis et al., 2010; Buse & Bilimoria, 2014).

Work-life balance: The balance of an individual's personal, social, and organizational life (Poulose & Sudarsan, 2014). Within a work environment, it is described as the adjustment of working patterns for employees to combine work and other responsibilities and aspirations (Maxwell & Mcdougall, 2004). It is also describes

as prioritizing between career and ambition on one hand, compared with pleasure, leisure, family, and spiritual development on the other (Fayaz Khan & Fazili, 2016).

Assumptions

One assumption of this study, based on research previously mentioned by Buse and Bilimoria's (2014), Kahn and Ginther (2015), and Flaherty (2018) was that female STEM university leaders, who have been in a STEM leadership role for at least 3 years, have a stronger career commitment than those with less than 3 years of experience. To keep this assumption from affecting the interview questions, I asked open-ended questions that help the participant describe their career commitment to a university STEM leadership role.

Another assumption was that participants with young children have more difficulty with work-life balance than those participants without young children. To avoid a limited interpretation based on children-oriented questions, I asked participants a general question about how balancing work and life has been for them. Responses pertaining to children organically came up in the interview. A few questions asked about balancing work and family or social life, so the conversation yielded information about the participant having any children and how having children influenced personal vision or career commitment. Because not all participants would be parents, "social life" was included in the interview questions pertaining to work-life balance. Also, "family life" is not just children, but also partners, parents, and other close family. Thus, the responses from interview questions associated with balancing work and family or social life

revealed the participants definition of their work-life balance, including marriage, partnerships, friendships, and close family relationships.

A third assumption was that the participants would know what their personal vision and work-life balance were and already realized how these views influenced their career commitment. To address this assumption, the questions were open ended, with several questions guiding the participant to describe their career commitment and describe how personal vision and work-life balance has influenced their career commitment. I also could not assume that the participants would be willing to share personal experiences regarding personal vision and work-life balance influencing their career commitment. To help alleviate participant concern, the invitation informed participants of the purpose of the study and that participation is voluntary and confidential.

Scope and Delimitations

Influences of career choices start at a young age and evolve across events and stages of life; there is no one pathway to choosing a university STEM leadership role. Although boys and girls in K-12 education enroll in advanced science courses at the same rates now, male students are more likely to take engineering and computer science courses (Donmez, 2021; Statistics, 2018). The curriculum is set, but the support for gender equity needs improvement. At a young age, girls already perceive certain career choice to be “for boys” while other choices are more “for girls” and interventions have been implemented to expose girls to STEM in grade school to help increase the number of girls interested in STEM careers. (Donmez, 2021; George et al., 2020). Some

researchers have examined life experiences of female college STEM students because this is when a more pronounced gender disparity emerges, and colleges have also had interventions to increase the number of female students in STEM majors (King & Wajngurt, 2021; Statistics, 2018). Exposure to STEM at a young age and having a continued support in creating a science identity is essential in choosing STEM as a career (Jaeger et al., 2017; Wickersham & Wang, 2016). As the problem statement section noted, researchers tend to examine barriers encountered by the few women who move into a STEM major or career. Considering research within a higher education setting, a majority of studies included data from a sample of female STEM students, with little focus on women working in university STEM leadership roles. This study contributes to the literature both by focusing on women in STEM leadership roles and by exploring positive factors, such as life balance and personal vision that may promote career commitment.

Hart (2016) and Lester et al. (2017) used Acker's theory in their studies on gender in organizations and because gendered organizations and policies are considered barriers to career women, Acker's theory was considered for my study. However, Acker's theory focuses on policies and practices only, while ICT and work-life balance encompasses a broader examination of barriers that can include policies and practices. The studies by Hart and Lester were more about what hinders women in careers, while ICT and a good work-life balance can be ways to support women in careers. A focus on support for women in university STEM leadership roles is the scope of this study, not what hinders them.

Limitations

Three limitations are addressed in this research design: voluntary participation, time, and my own bias of the topic. First, participation in this study was voluntary, but I had to ensure that I identified participants that had the same experience and obtain rich data (Patton, 2015). In order to interview enough participants, the invitation was sent out to several California State Universities (CSU). To facilitate buy-in, the invitation explained the need and purpose of the study and that their responses are confidential and private. It also described the criteria for participation, so that volunteers would know which experienced phenomenon was of interested and who fit the selection criteria. However, this did not ensure that those who responded fit the criteria. Two did not, leaving me with 18 respondents representing nine CSUs. However, data saturation was reached at the 14th interview, and the last four interviews were cancelled. Out of 23 CSUs, only seven were represented.

Another limiting factor was time, which effects the number of volunteer participants and interviews conducted, as well as the choice in methodology. Given more time, I may have interviewed the remaining four respondents. This would have added more time to transcribing, coding, and analyzing. Also, given more time, I may have done a different selection process to have more CSUs represented. The quality of the information from the interviews are highly dependent on the interviewer (Patton, 2015). With 14 interviews, I met the suggested number of participants for a phenomenological approach which is usually require five to 25 participants (Creswell, 2018; Morse, 2000).

Having enough interviews and wording the interview questions appropriately enriched the information given.

The third potential limiting factor for this study was the bias that I may have towards STEM careers. Bracketing one's experiences is part of the challenge of interviewing (Rubin, 2012). As a part-time STEM faculty member and full-time tutor program coordinator at a 4-year university with a family at home, finding a work-life balance has been difficult for me. Like many in the female STEM faculty community, I struggle with personal vision and work-life balance, influencing my career commitment. I mitigated this potential bias by working with my mentor and committee to design interview questions that allowed respondents to share their personal experience and provide reliable, valid, and objective responses. My STEM experience gives an advantage by adding credibility to the study and by creating an understanding and trusting relationship with the participants.

Significance of the Study

Understanding personal vision and work-life balance and how they influence women's career commitment may help university administrators improve the retention rates of their female employees in STEM leadership roles. The research cited earlier clearly indicates that low retention and career commitment of women in STEM positions is a problem (Canetto et al., 2017; Cheryan et al., 2017; Cundiff & Vescio, 2016; The State of the U.S. S&E 2020, 2020; Williams et al., 2017). It is important to have female representatives to give different perspectives, to be role models for other women who aspire to move into STEM, and to support women in their department. Female

representation can increase job satisfaction, which is associated with retention and career commitment. Results from this study could help university administrators create practices and policies that provide more professional opportunities and create equality for women within the community of STEM leaders. Hence, this study could have a positive impact on career commitment of women in STEM leadership positions.

Much of the research about women in STEM careers tends to focus on the negative factors hindering women from going into or advancing in STEM careers. This study stepped away from examining the negative factors that hinder women in STEM and, instead, focused on positive factors that contribute to career commitment. Women in university faculty positions want work that is meaningful to them and allows for flexibility, but they also perceive that organization gender bias does not allow them to pursue these paths, discouraging them from staying in their career (Fouad et al., 2017; Hart, 2016; Lester et al., 2017). Allowing women to work towards their personal vision and giving them more choices that help them balance their work and life may increase their career commitment. This study builds on Mullet et al. (2017) and Shobha Gunajo's (2017) findings by examining the perception of how personal vision and work-life balance contributes to career commitment may help understand ways to retain women in STEM university leadership roles.

Because women make up about half the students graduating with a bachelor's degree in science or engineering (The State of the U.S. S&E 2020, 2020), it is beneficial to have their views and ideas for STEM department and curricula planning. Men tend to move into engineering and physical sciences more than women do, while women tend to

move into social and behavioral sciences more than men do (The State of the U.S. S&E 2020, 2020). Engineering and physical sciences departments will need more female role models for aspiring female scientists. Women in STEM leadership provide role models and different perspectives to support female STEM students (Cheryan et al., 2017; Jaeger et al., 2017; Williams et al., 2017). Female STEM students will benefit from having a mentor and role model to relate to. Furthermore, female representation in the workplace contributes to creativity, productivity, innovation, labor market competitiveness, social performance, and job satisfaction for all employees (Olsen et al., 2016; Smith et al., 2018; Wiley & Monllor-Tormos, 2018). Understanding personal vision and work-life balance and how they influence a woman's career commitment may help university administrators improve the retention rates of their female employees in STEM leadership roles by creating practices and policies that lead to more professional opportunities and create equality for women within the community of STEM leaders. The results of this study can enlighten STEM departments on how to create a work environment that encourages the commitment and retention of females in STEM leadership roles. These role models can help more women move into the STEM fields, giving back to the community.

Summary

Although the plethora of research on barriers and hindrances unique to women in STEM careers has been important in understanding why women choose other avenues or choose to leave STEM fields, it is time to explore what helps women stay in their STEM careers. Women are already underrepresented, and with them more likely than men to

leave once in a STEM career, the world of STEM is lacking the female perspective. Without the input and views of women in STEM careers, STEM may lack creativity and competitiveness. Further, women aspiring to move into STEM careers lose out on a relatable role model. The purpose of this phenomenological qualitative study is to understand how women in university STEM leadership roles perceive the influences of their personal vision, conceptualized as the ideal self, and work-life balance on their career commitment. The conceptual framework is based on Boyatzis's (2006) ICT and Poulose and Sudarsan's (2014) definition of work-life balance. The nature of the study is framed around these theories which are viewed as influences on career commitment. The results of this study will help institutions focus on creating policies and procedures that strengthen career commitment and create a culture that promotes the retention of female representation within university STEM leadership roles.

The next chapter dives deeper into the conceptual framework through a literature review. I discuss the underrepresentation and retention efforts of women in STEM fields. The literature review includes a discussion of empirical synthesized studies raising factors that impact career commitment of women in university STEM leadership roles, and how personal vision and work-life balance are connected to career commitment.

Chapter 2: Literature Review

Women in STEM careers are more likely to leave their STEM career then men are (Flaherty, 2018; Fouad et al., 2017; Riegle-Crumb et al., 2020). The purpose of this phenomenological qualitative study was to identify how female STEM university leaders perceive the influence of their personal vision and work-life balance on their career commitment. Personal vision was an interesting concept to consider because several research studies concluded that students and employees use personal vision as motivation to improve work engagement and become goal-oriented (Bernasconi, 2017; Boyatzis & Akrivou, 2006; Buse & Bilimoria, 2014; Howard, 2015; Mosteo et al., 2016). Developing personal vision along with leadership skills and strategies to overcome unconscious bias and other barriers can lead to increase in self-efficacy and job promotions (Van Oosten et al., 2017). Personal vision can also be called the ideal self, and Buse and Bilimoria (2014) found that the ideal self impacts work engagement and that work engagement impacts career commitment. Work-life balance is one of the most common barriers to career women, especially in STEM careers (Canetto et al., 2017; Lopez et al., 2018). Brue (2019) found that women in STEM careers seek emotional and informational support primarily for their work-life balance from their spouse/significant other and/or their female co-workers. Supporting work-life balance may help improve the career commitment of women in STEM leadership roles and knowing how to strengthen their career commitment may help institutions retain their female STEM leaders.

This chapter is an explanation of how personal vision as described by Boyatzis' (2009) ICT and how work-life balance as described by Poulose and Sudarsan's (2014)

determine career commitment. ICT and work-life balance are the conceptual framework for this study. In this chapter, I define the concepts and describe how they are associated with career commitment, in addition to the rationale for using these concepts for my study. I also discuss how women are underrepresented in STEM education, careers and leadership (Blackburn, 2017; Cundiff & Vescio, 2016; The State of the U.S. S&E 2020, 2020). Women face many unique barriers while in STEM fields, due to the masculine culture, stereotypical threat, and family/household/childcare responsibilities (Cabay et al., 2018; Cheryan et al., 2015; Gossage, 2019; Hart, 2016; Olsen et al., 2016; Ro & Loya, 2015). I discuss efforts taken to increase representation of women in STEM careers, and how researchers found that having women in leadership roles increase recruitment and retention efforts and their effectiveness (Helman et al., 2020; Williams et al., 2017). The literature will conclude with a discussion on factors that affect commitment of women in STEM leadership roles, including how it is connected to personal vision and work-life balance.

Literature Search Strategy

The main database used was Walden's Thoreau, which is a multidatabase resource. Another database used was the University Library catalog from the state university that I work at. Lastly, the Google Scholar database was also used. Some of the catalogs that these databases pull from are EBSCO, Chronicles of High Education, National Science Foundation, Proquest, PsycTESTS, and SAGE. The most helpful database was EBSCO, and the most helpful keywords were *career commitment*, *work-life balance*, and *intentional change theory*. The search included peer reviewed resources

only and published within the last 5 years. However, some articles on the conceptual framework went back further to find the origin of the theories used. I continuously checked for updated or newer articles being published to add to the literature review, exhausting the databases from Walden Library, the University Library, and Google Scholar.

I started with keywords such as *female*, *STEM,* and *leader**. Barriers and recruitment to STEM majors were the main results of this search when using these terms. Additional key words came about through the initial search, such as *administrat** and *retention*. Using the Subjects and Author Supplied Keywords within the article details was essential in finding more keywords to continue to search and saturate the topic. In searching *work-life balance*, I found that a variety of terms were used to describe the same concept. Sometimes it was *career-life balance* or *work-family balance*. It did not always have a formal term, but simply explained the balance of family responsibilities and work responsibilities.

As I searched, I focused on finding solutions, which led to personal vision. *Personal vision* became another key word and the ICT emerged as another keyword. A major discovery was the PsycTESTS database where I was able to find scales used in the articles I found, such as the Work-Family Culture Scale (Thompson et al., 1999a), the Ideal Self Scale (Boyatzis et al., 2010), the Career Commitment Scale (Blau, 1988), and the Career Commitment Measure (Carson & Bedeian, 1994). To saturate the topic even more, I also looked through Walden dissertations, using keywords *STEM, female, work-life balance, personal vision, ideal self, intentional change theory,* and *career*

commitment. A few of the resulting studies helped with structure of my study and supporting factors of my study (Gossage, 2019; Sheppard, 2016).

Conceptual Foundation

Commitment to one's major was described as the level of participation, performance, and retention in the major (Wuhib, 2014; Wuhib & Dotger, 2014). Organizational commitment is the level of intent to leave or to stay in an organization (Poulose & Sudarsan, 2014). It is important to examine commitment because it is a high organizational commitment is associated with lower turnover intentions and higher job satisfaction (Fouad et al., 2016). Buse and Bilimoria (2014) used Blau's (1988) Career Commitment Scale to measure female engineers' level of intention to stay or leave their career. Another scale is the Career Commitment Measure, which measures the level that a person identifies or is attached to their career (Carson & Bedeian, 1994). Buse and Bilimoria (2014) were interested in the relationship among personal vision, work engagement, and career commitment of women in engineering professions. They found that the ideal self, as conceptualized as the ideal self, impacts work engagement, and that work engagement impacts career commitment (Buse & Bilimoria, 2014).

Boyatzis's ICT states that the ideal self is who one wants to be, or in other words, a personal vision for life and work; whereas the real self is who one is now and how they are viewed by others (Boyatzis & Akrivou, 2006; Boyatzis & McKee, 2006; Goleman et al., 2013). Moving the real self towards the ideal self is a form of improving emotional intelligence. How and why a person develops their emotional intelligence depends on the individual, the job demands, and the organizational environment (Boyatzis, 2001). Each

individual employee has their own vision, values, knowledge, and ability; each job has its own function, tasks, and role; and each organization has its own culture, climate, structure, and systems. Aligning the components of the individual, the job demands, and the organizational environment maximizes employee stimulation, challenge, and performance (Boyatzis, 2001; Seal et al., 2006). An individual's personal vision is an important aspect to understand when examining career commitment. Upon realization of the difference between the real self and the ideal self, an agenda for effective change can begin to move towards that personal vision.

Effective change results from an evolutionary process and not just a single event. Sustaining a desirable change takes effort and determination, and it is easy to fall back to where things were comfortable. ICT explains the process of obtaining a desirable, sustainable change in behavior and perception to obtain one's life and career goals (Boyatzis, 2006; Seal et al., 2006). First, a person must realize the differences between their ideal self and real self, their strengths and weaknesses. This recognition is used as motivation to change and develop skills that lead to one's personal vision. Boyatzis and Akrivou (2006) and Buse and Bilimoria (2014) found that personal vision was a common difference between women who persisted in engineering careers and women who opted out of engineering careers, connecting personal vision to career commitment. According to Goleman et al. (2013), without personal vision there is no passion. Personal vision, or the ideal self, include the image of a desired future, hope, and a comprehensive sense of one's core identity, or the real self (Boyatzis & Akrivou, 2006). Boyatzis and McKee (2006) stated that the ideal self cannot exist without the real self because they must be

compared to create the motivation to change. Although much of ICT is described within the scope of an individual, it can apply to a team, organization, or community (Boyatzis, 2009). For the scope of this study, the individual ICT aspect will be used.

According to Boyatzis and McKee (2006), the next step to change is to create an agenda to build up strengths while reducing the gap between the idea self and real self. Then the change is implemented through experimenting and modifying to see which ones work and are effective, followed by practice for mastery (Boyatzis, 2006; Boyatzis & McKee, 2006). The cycle then starts over again, continually comparing the real self and ideal self and moving towards a new personal vision. Because ICT describes the ideal self as personal vision, it is the appropriate framework to study the personal vision of women in STEM careers. Understanding the ideal self is to understand personal vision, and personal vision has helped women in engineering persist in their careers (Buse & Bilimoria, 2014). I explored how personal vision can help women in university STEM leadership roles focus on a goal that in turn helps them persist in their career. The Ideal Self Scale also consists of items that are related to work-life balance include family issues, well-being, and leisure time, which connects the ideal self to work-life balance.

The second concept explored was Poulose and Sudarsan's (2014) work-life balance, described as the balance of societal life, personal life, and organizational life, which are essential to organizational effectiveness. Work-life balance, like change, is a process, a complex and difficult one. It is described as the process of adjusting working life and family/social life (Maxwell & Mcdougall, 2004). Having multiple life roles may cause work demands to influence demands outside of work, which can in turn influence

the individual's health and work performance (Kalliath & Brough, 2008). Factors that influence work-life balance include well-being, emotional intelligence, work support, work policies and programs, job stress, childcare responsibilities, and family support (Fayaz Khan & Fazili, 2016; Poulose & Sudarsan, 2014). Work-life balance can be a personal goal for many women. If not for the organizational support of family responsibilities, many women would leave their jobs. Researchers, such as the one by Shobha Gunajo (2017), have shown that women are more effected by work-life balance than men are.

Shobha Gunajo (2017) designed a questionnaire to study gender differences in the perception of work-life balance. A total of 150 employees, male and female, from the health care industry responded, showing that women more than men value flexibility to meet emergencies at home and childcare responsibilities. Some women mentioned that if their department was not supportive and flexible about their family responsibilities, they would have left. Their career commitment would have been lowered. Outcomes affected by work-life balance are job satisfaction, career satisfaction, organizational commitment, employee turnover, absenteeism, retention of employees, job performance, productivity, family satisfaction, life satisfaction, leisure satisfaction, burnout, and health (Fayaz Khan & Fazili, 2016; Sheppard, 2016; Shobha Gunajo, 2017; Smith et al., 2018). Women more than men value work-life balance (Chung & van der Lippe, 2018; Lopez et al., 2018). In recent studies, women in engineering careers, academic science careers, and STEM doctoral programs have discussed work-life balance as a barrier to advancing and also a

reason for leaving STEM (Cabay et al., 2018; Canetto et al., 2017; Fouad et al., 2016). These studies are explained in more detail in the following sections of this chapter.

Da Silva (2019) used Poulose and Sudarsan's (2014) concept of work-life balance as one of the factors contributing to occupational stress. However, Da Silva's focus was on occupational stress and not just on work-life balance. Da Silva found, through quantitative methods, that leaders that show gratitude towards their employees can positively affect the relationship between perceived transformational leadership and occupational stress. Ani (2017) interviewed eight leaders to explore their lived experiences as leaders and their support for employees seeking work-life balance and job satisfaction, discussing Poulose and Sudarsan's work-life balance in the literature research. However, the participants were leaders in the automotive industry and also focused on the cross-cultural environment. Ani (2017) concluded that incentives, bonuses, flexibility, more time to themselves, and better cross-culture environment training are essential to supporting work-life balance and job satisfaction. I expanded on Poulose and Sudarsan's (2014) concept of work-life balance by using it to identify the role of work-life balance in determining the level of career commitment of female university STEM leaders.

For this study, I examined how personal vision and work-life balance influenced on career commitment of female STEM leaders in post-secondary institutions. The proposed study used Boyatzis's ICT and Poulose and Sudarsan's definition of work-life balance as a lens to explore the career commitment of women in university STEM tenure/tenure-track faculty and administrators by examining their perceptions of personal

vision (ideal self vs. real self) and work-life balance, and their effect on career commitment.

Literature Review Related to Key Variables and Concepts

The following section includes literature review related to underrepresentation of women in STEM careers, barriers unique to women in STEM, efforts made to attract women to and retain women in STEM, and factors effecting career commitment. It also includes literature review that connect personal vision and work-life balance to career commitment.

Underrepresentation and Retention of Women in STEM Careers

While more women than ever are choosing an education or career in STEM fields, they still remain underrepresented (Blackburn, 2017). In 2011, females represented about 25% of those graduating with a bachelors in geosciences, engineering, economics, math, computer science, physics, and chemistry, as appose to the 72% of those graduating with a bachelors in life sciences, psychology, and social sciences (Ceci et al., 2014; Cheryan et al., 2017). The same holds true for doctoral programs; men are more likely to persist in an engineering program then women are, and male seniors more than female seniors were likely to say they intend to be an engineer in 5 years (Corbett & Hill, 2015). The number of female STEM graduates effects the number of females moving into STEM careers. In 2015, women made up about 26% of CEOs and 22% of employees in computer science, math, and engineering (Cundiff & Vescio, 2016)**.** Women are also underrepresented in leadership roles, in general (Hideg & Shen, 2019). For example, women hold 19.9% of boards of directors, 25% of board seats, and 4% of board chairs in large publicly listed

companies, even though women in leadership roles are associated with better organization financial performance and a lack of representation slows down the progress of quality within a workplace (Avolio et al., 2020). Female STEM faculty in departments with a small representation of women feel less professionally satisfied than female STEM faculty in departments with higher female representation (Griffith & Dasgupta, 2018). Griffith and Dasgupta (2018) found that underrepresentation can change the perception of a department, finding the climate to be unfavorable, and leading to retention risks. Being underrepresented in both leadership roles and STEM careers, women have to face several barriers in order to persist and progress in their career.

Women have a high attrition rate in STEM careers. For example, a survey by Fouad et al. (2017) showed that that 27% of women who received an engineering degree left the engineering field. In another study, they found that women are more 3 to 4 time more likely than men are to leave an assistant faculty position in astronomy (Flaherty, 2018). Analyzing the National Science Foundation data, Corbett and Hill (2015) found that 65% of engineering graduates initially take engineering jobs, but by the 10-year mark, men's retention levels off at 40% over the next 30 years of experience, while women's retention continues to decline slowly to 20% by the 30-year mark. It is similar for computer science. The gender gap in retention rates are primarily due to women leaving the STEM labor force more than men leaving the STEM labor force (Kahn & Ginther, 2015). In a recent study, retention was found to differ depending on the specific STEM field (Gumpertz et al., 2017). Gumpertz et al. (2017) analyzed institutional data from four large land grant institutions to examine differences in retention and promotion

of women and underrepresented minority STEM faculty. They found that women tended to leave before tenure sooner than men. They also found a significant gender difference in retention in engineering departments, but no significant gender difference in retention occurred in other disciplines (Gumpertz et al., 2017). If retention rates are not significantly different, than the underrepresentation in those fields remain the same because men and women are leaving at about the same rate.

Barriers Women Face in STEM Fields

Underrepresentation of women in science has become of high interest to researchers in the last decade (Avolio et al., 2020). Avolio et al. (2020) conducted an intensive literature review of 470 research articles that focused on possible contributions to the underrepresentation. The factors were grouped into five categories: individual, family, social, educational, and labor-economic (see Table 2).

Avolio et al. (2020) concluded that self-efficacy was a major exploratory factor and that biological factors, skill, and performance were not contributing factors to underrepresentation in science fields. Discrimination is also not a contributing factor, but underrepresentation is due to sociocultural factors such as gender roles and work-life balance (Avolio et al., 2020). Underrepresentation was also examined within three stages: career choice (before college), career persistence (college progression), and career development (career progression; Avolio et al., 2020). Even at the career stage, development and progression, in other words, moving towards a personal vision or goal, are important to persisting in a science profession.

Table 2

Factors Contributing to Underrepresentation of Women in Science

Individual	Family	Social	Educational	Labor-economic
Biological aspects Personality Self-efficacy Attitude towards science	Family support Background Parents' education Stereotypes of science in the family Work and family conflict	Cultural beliefs about gender and science Lack of congruity Segregated communities Lack of networking opportunities Racial barriers Lack of role models	Pedagogy in science Academic performance Belief about ability in science Vocational expectations and stereotypes	Lack of information about careers in science Vertical and horizontal segregation Wage gaps

Women face unique barriers while in STEM majors or careers. One common barrier is the stereotypical and masculine culture, which can lead to the feeling of isolation. Women feel they do not fit in or are not part of a team. It is difficult to find a mentor to relate with. After interviewing 28 women in STEM university programs, Cabay et al. (2018) found that the masculine and gendered culture is one of the reasons why women leave STEM programs. Cheryan et al. (2015) found similar results through a review of literature of stereotypes within computer science, concluding that the stereotype of computer scientists being "geeky" males that play video games and love sci-fi still impacts the retention of women who move into that field. Carli et al. (2016) dove deeper into the stereotype of scientists, collecting surveys from 94 undergraduate students. The researchers concluded that women are perceived as communal, meaning they tend to have intrinsic motivation to help others, while scientists and men are

perceived as agentic meaning they tend to want to work alone. Carlie et al. (2016) found that women are perceived as not “fitting into” the role of a scientist (Carli et al., 2016). However, being able to connect the communal and agentic goals to the pathway to a STEM career is highly important for career commitment (Helman et al., 2020; Riegle-Crumb et al., 2020). It is important to widen the perception of “scientist” to include a diversity of goals and create a sense of purpose and belonging for anyone moving into STEM, whether female or male, agentic or communal.

Gendered culture continues within the STEM careers. Olsen et al. (2016) found that a gendered organization, in general, impacts women’s advancements in their careers, and Ro and Loya (2015) found that it is more likely to find gendered STEM departments or organizations then other departments or organizations. Hart (2016) interviewed 25 mid-career faculty women in STEM and concluded that the gendered organization contributed to constraints on access to career networks, to unbalanced distribution of labor, and to fewer opportunities for promotions and leadership. Similarly, the National Science Foundation ADVANCE program found that the gender difference also occurs in the advancement of university STEM faculty (Van Miegroet et al., 2019). Administrators are pulled from tenure-track faculty, but with barriers created by gendered organizations, women’s advancement into tenure-track hinders their advancement into administrative roles (Van Miegroet et al., 2019). The masculine and gendered culture also has many women in STEM programs viewing STEM careers as incompatible with childcare and lacking support for family leave and flexible work hours; they start second guessing their future in STEM (Cabay et al., 2018). The research described above indicates that a

stereotypical and gendered culture can affect the advancement of women in STEM leadership roles.

Efforts in Increasing Representation and Retention

Creating an inclusive, diverse climate may add productivity and creativity and decrease turnover rates (Olsen et al., 2016; Wiley & Monllor-Tormos, 2018; Zhang & McGuire, 2021). It may benefit workplaces to hire more women in a male-dominated field. Many colleges and departments have put effort in recruiting and retaining women in STEM programs and careers. Helman et al. (2020) conducted a thorough review of recent studies and found that female students are more interested in STEM as a career if they have seen a female STEM role model, especially if the role model illustrated communal qualities of STEM fields. Williams et al. (2017) explores the attitudes of men and women STEM administrators towards strategies for attracting women to STEM and retain them. After a comprehensive literature review, 44 strategies were selected, placed onto a rating survey, and sent to 1,529 administrators, which include provosts, dens, associate deans, and department chairs, in STEM fields at 96 public and private research universities across the United States. Data collected included 334 complete numerical data (246 men, 88 women), rating the quality and feasibility of each strategy. Interpretation of the results from the quantitative analysis, via ANOVA testing, concluded that female administrators, more than male administrators, rated the strategies higher in quality overall, but not necessarily in feasibility. Williams et al. (2017) found that women more than men gave higher ratings to increasing the value of teaching, service and administrative experience in tenure/promotion decision, increasing flexibility

of federal-grant funding to accommodate mothers, conducting gender-equity research, and supporting shared tenure lines enabling work-life balance. In addition, women thought it was more feasible for women to stop the tenure track for 1 year for childbearing and for universities to support requests for shared tenured lines. Williams et al. (2017) concluded that women in administration are more likely to endorse strategies to attract and retain women in STEM.

Other efforts to increase female representation include mentorship programs, which are also effective in having women feel like they fit in and have more opportunities for growth (Schluter, 2018). Schluter (2018) found that female researchers in computer science who take a male supervisor will have greater difficulty becoming a mentor than if they take a female supervisor. However, there is a growing gap between the proportion of female and male mentoring researchers. Schulter (2018) concludes that the glass ceiling is barrier that prevents women from high achievement and equal access to senior career opportunities. Having a female mentor or role model is important to the success of women in computer science (Schluter, 2018). Another study had a similar result with emphasis on the importance of having multiple mentors of different expertise, especially for the career commitment of women in STEM (Spangle et al., 2021). The above studies on retention efforts discussed that women in higher university STEM positions may result in more effort and effectiveness in increasing and retaining female representation.

Factors That Effect Commitment of Female University STEM Leaders

For this study, career commitment is the level in which a person in tends to stay in their career. This definition is pulled from several studies on career commitment. Wuhib and Dotger (2014) describe commitment to one's major as the level of participation, performance, and retention in the major. Poulose and Sudarsan (2014) describe organizational commitment as the level of intent to leave or to stay in their organization. Fouad et al. (2016) conducted a study that connected level of organizational commitment to level of turnover intentions and job satisfaction.

For this study, I used items from two career commitment measurements, Blau's (1988) Career Commitment Scale and Carson and Bedeian's (1994) Career Commitment Measure. Buse and Bilimoria (2014, p. 7) used Blau's (1988) scale to measure female engineers' level of intention to stay or leave their career, which is why the current study some of the interview questions based on this scale. Modifying Blau's Likert scale statements for engineering careers, Buse and Bilimoria used the following items: (a) "I definitely want a career for myself in engineering or technical management"; (b) "If I could do it all over again, I would choose to work in engineering; (c) "I would recommend a career in engineering to others"; (d) "I am not disappointed that I ever entered the engineering profession". I expanded on these by modifying (b) and (c) into question form for interviews for women in university STEM leadership roles. Instead of a Likert scale, a phenomenological study would require qualitative data.

I modified Carson and Bedeian's (1994) Career Commitment Measure, which is also a Likert scale. It used a different approach to career commitment, focusing on the

level of identification or attachment to one's career. The factors that the Career Commitment Measure by Carson and Bedeian (1994) developed include statements such as "This career field has a great deal of personal meaning to me", "I do not have a strategy for achieving my goals in this career field", "I strongly identify with my chosen line of work/career field", "I have created a plan for my development in this career field", and "The cost associated with my career field sometimes seem too great." These measures showed that career commitment factors are associated with personal vision of the future, having meaningful work, and weighing the costs of having a certain career, especially the cost of family time.

Fouad et al. (2016) used Carson and Bedeian's (1994) Career Commitment Measure to measure the career commitment of female engineers who persist and who leave in engineering. They used several factors in their study, and they found that there was no difference between the two groups when it came to self-confidence, outcome expectations (job tasks, work climate, and multiple roles), career interest, or workplace barriers, but they did find that the results differ when it came to workplace support and occupational commitment (Fouad et al., 2016). Instead of focusing on the barriers, I expanded on Fouad et al.'s study by focusing on the career commitment of women in university STEM leadership roles through qualitative methods. Furthermore, instead of including several other factors that related to barriers, I focused on factors that may have helped these women succeed: personal vision and work-life balance. Because the scales from Blau (1988) and Carson and Bedeian (1994) incorporate aspects of personal vision

and work-life balance, a combination of these two career commitment scales was appropriate to modify into interview questions for the proposed study.

Personal Vision and Career Commitment

Personal vision is the image of a person's ideal self, of what a person wishes to become or accomplish in work and life (Boyatzis & Akrivou, 2006). However, the ideal self can only be recognized once there is a reflection and comparison of the now and the vision of the future (Boyatzis & Akrivou, 2006). A comprehensive sense of the real self includes knowing one's core identity, including level of hope, self-efficacy, and optimism (Mosteo et al., 2016). Resilience is described as self-regulation aiding in the organizing of will to change, moving towards a future accomplishment, and maintaining and sustaining ideal states of life and work despite difficulties. Mosteo et al. (2016) used the ICT as the foundation to describe the ideal self as personal vision. Using a coaching session framed around the ideal self, the researchers hypothesized that the elements of the ideal self and student's resilience would be positively affected. The 76 MBA students attending a leadership development course went to pre- and post-program coaching session as part of the business program. The students took a pre- and post-survey to measure their ideal self and resilience, and all factors of the ideal self and resilience were increased by a significant amount. Personal vision and resilience were connected and can influence retention in career progression.

The ideal self is, after all, the driving force of intentional change, and a change that moves someone towards their personal vision helps increase motivation (Boyatzis & Akrivou, 2006). Buse and Bilimoria (2014) saw the potential of the ideal self as personal

vision and conducted a study on the retention of women in engineering. They used Blau's (1988) Career Commitment Scale and Boyatzis's Ideal Self Test as their instruments to measure career commitment and personal vision. They found that personal vision impacts work engagement. Work engagement is defined as the employee's level of respect and sense of worthwhileness for their work interactions (Buse & Bilimoria, 2014). Buse and Bilimoria also found that work engagement impacts career commitment. Therefore, personal vision indirectly impacted career commitment.

Persistence is one of the outcomes to having strong goal and task orientation (Mullet et al., 2017; Sheppard, 2016). Sheppard (2016) found that persistence, goal-setting, commitment, and self-efficacy influence each other among female secondary students in advanced STEM courses. Mullet et al. (2017) also found, after analyzing a literature review on catalysts of success for women in STEM, that women who view themselves as a scientist—their STEM identity— are more resilient in the masculine culture of STEM. Having a personal vision, created from personal beliefs and values, helps women focus on their goals and on reaching their STEM identity, while still trying to maintain a healthy work-life balance (Mullet et al., 2017). Applying the ICT to these results, STEM identity is part of the ideal self for the female participants in these studies.

Developing personal vision of women in STEM careers may lead to an increase in retention and number of women in leadership roles. A multinational engineering consultancy developed a course, the Women's Development Programme, with the purpose of increasing the number of women advancing and staying in their career (Houghton, 2019). The content of the course involved the flexibility in communication

style, the impact of unconscious bias on career advancement, self-confidence, effective networking, professional branding, presentation skills, career analysis, goal-setting, and action planning. The study heavily relied the work of Van Oosten et al. (2017) about the power of personal vision. From 2012 to 2018, the number of women at the company increased from 24% to 28%, and from 2011 to 2016, the number of women in leaderships roles increased from 27% to 30%. The retention rate also increased by 8%, with less women leaving the business each year (Houghton, 2019). Many of the participants reported greater confidence in themselves, job satisfaction, and movement forward in career progression.

A similar study focused on a professional development course called the Leadership Lab Program, which was created to support women in STEM faculty roles (Van Oosten et al., 2017). The program helped over 50 women understand the barriers they face, recognize their value as women in STEM, develop leadership skill, and develop strategies to grow professionally and personally. Personal vision served as a catalyst for change, growth, self-awareness, and self-efficacy. A follow-up survey 3 years later showed that many of the women who completed the program received job promotions, increased their self-efficacy, mitigated unconscious bias, and became closer to their mentor/coach (Van Oosten et al., 2017). Personal vision is an essential part of leadership for women in STEM careers and may contribute to career commitment.

Male and female STEM leaders tend to have difference preference in the type of work they do; their focus and goals are different (McCabe et al., 2019). McCabe et al. (2019) analyzed data from a 1992 survey of 714 graduate students from the top 15 STEM

universities in the United States, examining differences in their interests, lifestyle preference, and work preferences, that may be associated with becoming a STEM leader 25 years later. Simultaneously, gender difference among STEM leaders were revealed, which included professors, CEOs, and government leaders. Specifically for work preferences, they found that male STEM leaders prefer to travel, take more risks, work for a prestigious organization, and have merit-based pay, while female STEM leaders prefer to receive feedback from supervisors, know if they are doing well, and be satisfied with their work (McCabe et al., 2019). The researchers also found that male STEM leaders and those not in leadership were more willing to work longer hours than female STEM leaders and those not in leadership. Because men and women in STEM have different preferences, there is reason to believe that their personal visions are also different. Personal vision deserves a closer examination as a possible solution to retaining female STEM leaders. My study's analysis examined a direct relationship between personal vision and career commitment.

A sense of purpose is part of the ideal self scale (Boyatzis et al., 2010), which measures personal vision. The ideal self scales defines *sense of purpose* as the "how well one's personal vision includes one's understanding of a purposeful life" (Boyatzis et al., 2010). The sense of purpose category involves statements that relate vision to priority of things that are important to a person, desired legacy in lie, the vision of the future, and clarity of a person's sense of purpose (Boyatzis et al., 2010). Boyatzis et al. (2010) also include on the ideal self scale a category called *deeper meaning*, which include items that relate vision to health and relationships, such as family relationships, physical health,

love relationship, and spiritual health. Boyatzis et al. (2010) also include a category called *fun*, which relates vision to fun and leisure activities. Health, relationships, and fun are all part of having a work-life balance, connecting it to personal vision through the ideal self scale.

In a study by Canetto et al. (2017), graduate students in atmospheric sciences perceived being a professor was in compatible with having a family. They perceived industrial or lab careers as more flexible and compatible with starting a family. Some participants' personal visions were to go into academia, the view of work-life balance in that career moved them more towards STEM careers outside of academia. Some participants in both Canetto et al.'s (2017) and Cabay et al.'s (2018) studies were told not to have children before tenure or implied that they would need to choose between career and family. Personal vision may include career advancement, which may or may not be impacted by work-life balance and family responsibilities, which is why Thompson et al. (1999b) adds in a few items in the work-family culture scale that relate advancement and promotions with flex time and family responsibilities. Carson and Bedeian's (1994) career commitment measure include items about personal meaning, career goals, personal development, the cost, and personal burden of the participant's line of work. Personal vision is associated with personal meaning, career goals, and personal development (Buse & Bilimoria, 2014), and considering the cost and personal burden of a career field is associated with work-life balance (Cabay et al., 2018; Canetto et al., 2017). An individual's personal vision and work-life balance overlap, which is why looking at both factors as possible contributors to career commitment is important to investigate.

Work-life Balance and Career Commitment

Thompson et al. (1999b) developed the work-family culture scale. They proceeded to use it, along with other scales, to examine the use of work-family benefits, the level of attachment to their organization, and work-life balance. The data included surveys from 276 managers and professionals who graduated with an MBA within the prior 15 years. About 42% were women, 74% were married or living with a partner, and 53% were parents. About 61% of men had children, and 41% of women had children. The researchers found that parents used benefits more often than those with no children. Although they found that the perceptions of supportive work-family culture, such as consequences of using benefits, was related to employees' use of work-family benefits, they did not focus on finding differences between genders. Results lead researchers to conclude that availability of and support for using work-family benefits were positively related to commitment and negatively related to work-family conflict and intentions to leave the organization (Thompson et al., 1999b). The results may not be reliable due to the year the study was done, but the work-family culture scale is useful. My study used some of the items to develop open-ended interview questions.

In 2018, Chung and van der Lippe found that context in which work-life balance is examined matters. When studying work-life balance, one must consider the family unit, organization, and country; family culture can be different from organization to organization and from country to country (Chung & van der Lippe, 2018). Because the United States tends to have a culture that includes gender roles, Chung and van der Lippe (2018) predicted that gender differences exist in the perception of work-life balanced in

the United States (Chung & van der Lippe, 2018). Through a thorough literature review analysis, they found that gender matters when it comes to work-life balance and family functioning. They found that men tend to use flexible work to expand their work sphere, while women tend to use flexible work for domestic responsibilities. A common theme was that a healthy organization was one that considered the wellbeing of their employees, where it should not put women at a disadvantage if they use flexible work hours for family reasons (Chung & van der Lippe, 2018). Flexible work hours can help women reduce work-family conflict and increase their time working at their organization. The population for Chung and van der Lippe's study was broad. My study focused specifically on female STEM university leaders and added to Chung and van der Lippe's (2018) results by finding how work-life balance involved flexible work hours and the influence it had on career commitment.

Canetto et al. (2017) and Cabay et al. (2018) studied the perceptions of female students in graduate science programs on family and science-career compatibility. Even though women in science programs have already shown their competence and commitment by completing a bachelor's degree and continuing in a graduate program, there is a substantial gap between men and women who completed a Ph.D. within 10 years (Cabay et al., 2018). Canetto et al. (2017) interviewed 25 female STEM students between the ages of 20 and 33 and with no children. A recurring theme was they planned to have children after becoming tenured because they will not have to worry about childcare affecting their chances at promotions. A few mentioned that they would hope for a partner who is a stay-at-home parent. In a similar study, Cabay et al. (2018)

interviewed 28 women specifically from engineering and physical science programs because they were more male dominant then social sciences and life sciences. The results concluded that there existed a general feeling of lower academic self-competence and lower career commitment in male-dominant environments due to the lack of relatable mentors and support for family issues. One participant was questioned about her commitment to her science career when she did not "drop everything" and prioritize her mentor's experiments before anything else. She understood that her mentor was a new faculty member trying to compete with others to be recognized, but this incident deterred her from an academic research career.

Both Canetto et al. (2017) and Cabay et al. (2018) found that women view a science career as incompatible raising a family, given the work-life balance difficulties that may arise. A common theme between the two studies is that the participants were concerned about sacrificing partner/family time. A few participants from each study mentioned changing majors or giving up an academic science career, illustrating a lower commitment to their field.

In a study that followed students moving from STEM graduate programs to STEM careers, Fouad et al. (2016) examined the career commitment of 250 women who persisted in engineering careers versus 256 women who left. They measured career commitment with the Career Commitment Measure (Carson & Bedeian, 1994). No difference existed in self-confidence or outcome expectations, such as engineering tasks, navigating organizational climate, and having multiple roles. No difference existed in vocational interests or in workplace barriers, as well. The difference was in the

experience of the workplace support and their levels of occupational commitment. The 33.4% of the variance in persistence in engineering careers was explained by turnover intentions and occupational commitment (Fouad et al., 2016). Microaggressions, feelings of isolation, biased evaluations, and lack of support from supervisors adversely effected their commitment to the workplace and the profession. Organizational support for work-life roles has a positive relationship with lower turnover intentions and higher organizational commitment (Fouad et al., 2016).

Lack of support was a recurring theme in studies focused on work-life balance of women at different levels of their STEM education and/or career. For example, Shobha Gunajo (2017) found that a gender difference occurs between perceptions of work-life balance among employees in the health industry, and insufficient leave, vacation, and sick time options affected through work-life balance and often lead to burn out. Fouad et al. (2016) found that the occupational commitment of female engineers was affected by support of work-life balance from the organization. Gossage (2019) found that female engineering faculty that lack of support for work-life balance contributed to barriers to advancement and can affect their a sense of purpose.

None of the studies, however, focus on women in STEM university leadership roles, such as tenure-track and tenured faculty, department chairs, or college deans, which was the focus of my study. Work-life balance is important to female career women and is a concept that women in STEM education and careers have thought about. It warranted a closer look in how it has helped female STEM university leaders become successful.

Summary and Conclusion

This chapter included why personal vision and work-life balance are important concepts to consider when looking at career commitment. Women have different work priorities, having different type of work in STEM to be more meaningful to them than what men find as important or meaningful. Women find work-life balance, especially with a family, as more important than men do. These gender differences warrant a closer examination into personal vision and work-life balance as a way to strengthen career commitment, which may also help retention efforts. In researching retention of women in STEM careers, it was common to see the sample coming from college students in science programs and studies focusing on barriers. It was rare to find literature on what can help women stay committed to their field. This is where personal vision, conceptualized as the ideal self from Boyatzis's (2006) ICT, and work-life balance steps in. Creating a personal vision and obtaining work-life balance are important concepts to consider when examining the career commitment of women in STEM university leadership. Chapter 3 includes the details of the phenomenological design used in my qualitative study to collect and analyze data from interviews with female STEM university tenure/tenure-track faculty, department chairs, and college deans.

Chapter 3: Research Method

The purpose of this phenomenological qualitative study was to identify how female university STEM tenure/tenure-track faculty, department chairs, and college deans perceive the influence of their personal vision, conceptualized as the ideal self, and work-life balance on their career commitment. In this chapter, I discuss how the phenomenological research design was appropriate for the purpose of this study. I played the role of interviewer, collecting qualitative data from the volunteer participants. I explain how I developed the interview questions and how I analyzed the data. Also covered is the trustworthiness and ethical procedures of the methodology.

Research Design and Rationale

The previous chapter described how personal vision and work-life balance are two important factors to analyze when considering career commitment of women in STEM careers. The research questions were based on these two factors and the purpose of this study.

RQ1: How do female STEM tenure/tenure-track faculty, department chairs, and deans perceive personal vision influencing their career commitment?

RQ2: How do female STEM tenure/tenure-track faculty, department chairs, and deans perceive work-life balance influencing their career commitment?

Personal vision is defined as the image of a person's ideal self, of what they wish to become or accomplish in work and life (Boyatzis & Akrivou, 2006). Personal vision can help increase motivation, work engagement, and positive emotion (Boyatzis & Akrivou, 2006; Buse & Bilimoria, 2014; Howard, 2015). Without a vision, there is no

passion (Goleman et al., 2013). The ideal self leads to personal vision, and the ideal self is the driving force of intentional change (Boyatzis & Akrivou, 2006). The ICT states that once someone recognizes their ideal self, then plans can be made to work towards that ideal self (Boyatzis & McKee, 2006). The ideal self is an essential part of personal vision, which is why the ideal self scale has been used to measure the ideal self in studies of personal vision (Buse & Bilimoria, 2014; Mosteo et al., 2016).

Work-life balance is defined as the balance of an individual's personal, social, and organizational life (Poulose & Sudarsan, 2014). It is also described as the prioritizing of career, ambition, leisure and family (Fayaz Khan & Fazili, 2016). Work-life balance is important to career women, especially in the United States where specific gender roles exist (Chung & van der Lippe, 2018; Fayaz Khan & Fazili, 2016). Having a career in STEM is often seen as incompatible with family life (Cabay et al., 2018; Canetto et al., 2017). Work-life conflict is associated with intentions on leaving an organization, and support of work-life balance is associated with career commitment, lower turnover rates, productivity, and performance (Fayaz Khan & Fazili, 2016; Fouad et al., 2016; Sheppard, 2016; Thompson et al., 1999b). Thompson et al. (1999b) used the Work-Family Culture Scale to measure work-family conflict of MBA professionals, in which he found that work-family benefits was associated with higher career commitment.

Career commitment is a person's level of commitment to their career (Buse & Bilimoria, 2014; Fouad et al., 2016). A higher organizational commitment can increase job satisfaction and decrease turnover rates (Fouad et al., 2016). Buse and Bilimoria (2014) used Blau's (1988) Career Commitment Scale, and Fouad et al. (2016) used

Carson and Bedeian's (1994) Career Commitment Measure to measure female engineers' intentions to leave their career and to measure their persistence.

These scales are quantitative measures. I focused on creating open ended questions that assisted in finding a deeper meaning and perspective of personal vision and work-life balance and their influence on career commitment. The items from the Ideal Self Scale, Work-Family Culture Scale, Career Commitment Scale, and the Career Commitment Measure helped identify any keywords, phrases, and coding within the transcripts. I also compared themes and found new emerging patterns that are not associated with items on these scales. The interview questions are further discussed in the methodology section. The other reason to use qualitative measures is because of the purpose of the study. I examined women's perspectives of the influences of personal vision and work-life balance on their careers in university STEM leadership roles. To gain deeper insight, a qualitative measure is more efficient than quantitative methods. Specifically, a phenomenological research design is most appropriate, because it focuses on people's meaning of lived experience through in-depth individual interviews (Creswell, 2018; Patton, 2015), such as perspectives of female university STEM leaders' experience in working in male-dominant field. It is more appropriate to use semistructured interview questions for examining specific factors than unstructured interview questions, which focus on a more general topic (Rubin, 2012). Semistructured interviews increase the richness of the data and can bring about unique perspectives on the same factor.

An advantage of using semistructured interviews is the flexibility to probe for more details, if needed, avoiding rounds of interviews to collect details and saving time (Adams, 2015). The strength of open-ended interviews is that the same questions are asked in the same order to each individual participant, allowing for increased comparability, reduction of effects of bias of interviewer, and facilitation of organization (Adams, 2015; Patton, 2015). On the other hand, using standard open-ended questions is not as flexible as informal conversational interviewing approach. Using careful wording may constrain the naturalness and relevance of questions and answers (Patton, 2015). However, wanting to focus on two specific concepts, work-life balance and personal vision, the informal conversational approach may not lead to a deeper understanding of the relationship among work-life balance, personal vision, and career commitment.

Other qualitative approaches, such as a narrative or grounded theory would not be appropriate. A narrative approach would be too broad for this study because our focus is on two specific factors, work-life balance and personal vision. A narrative study focuses on the life of only a single or a few individuals, while a phenomenological approach describes the experience of several individuals associated with a specific phenomenon or concept (Creswell, 2018; Patton, 2015). Grounded theory goes beyond describing and interviews participants, that all experienced the same process or interaction, with the purpose of discovering a theory or framework for that experience (Creswell, 2018). The purpose of this study was not to discover a theory, but to understand the different experiences of women in STEM university leaders. They did not all experience that same interactions or processes while in their leadership role, which is why a phenomenological

approach is best. It helps find a deeper understanding of their experiences with work-life balance and personal vision. Lastly, ethnography focuses on a culture-sharing group, but uses interviews, focus groups, observations, and participants logs/journals, and the researcher immerses themselves into that group's day-to-day life (Creswell, 2018; Patton, 2015). Time limitations will not allow for ethnography. I inquired about their experiences up to now, while ethnography focus on the current day-to-day life.

A disadvantage to using a phenomenological design is creating the validity and the reliability of the approach. Because I was both the interviewer and the researcher, avoiding bias and assumptions was an essential part when making the interview questions (Creswell, 2018; Rubin, 2012). One solution was to use reliable and valid scales to base the questions off of. This may also help with avoiding bias and assumptions. Having a mentor or methodologist look through the questions may help modify the questions so that they are not assuming an answer or showing bias and are questions that will help answer the research question. More on the research design, interview questions, validity, and reliability will be discussed later in this section.

Role of the Researcher

The researcher plays the role of the interviewer. As researcher, I was aware of my own opinions and experiences and reactions, so that I would avoid potential influences on the questioning and responses (Creswell, 2018; Rubin, 2012). I am a part-time faculty member of a university within the CSU system, and the invited participants were from the CSU system. Relationships with most faculty is none to acquaintances, seeing only a few faculty once in a while for meetings. Relationship status may not affect responses to

interview questions. However, acquaintances increase rapport and trustworthiness. They may come to trust me more quickly than with those who are not acquainted with the researcher. To ensure that any relationship status does not affect the responses, I lead with the fact that the participant is allowed at any time to not respond to any questions or to end the interview. The follow up questions asked for more details or clarification on the responses. Focusing on personal vision first may have helped the participants feel comfortable, talking about what their goals are and what they enjoy about the job. They may have been more comfortable by the time we discussed work-life balance and difficult situations. I, as interviewer, provided a supportive and nonconfrontational environment that creates a comfortable place to respond (Rubin, 2012). In the next section, I discuss more details on selecting and inviting participants, and the process of the screening survey and interview questions.

Methodology

Participants

Participants are women who are tenure/tenure-track faculty, department chairs, or deans within the CSU system for at least 3 years. Flaherty (2018) found that men took a lead in number of hired tenure astronomy faculty after 4 years of earning a Ph.D. and that it is because women were choosing to discontinue the pursuit at a higher rate than men by that point. Based on the research by Buse and Bilimoria's (2014) and Kahn and Ginther (2015), women in STEM tend to leave their careers within the first 3 to 5 years, which is why my study's criteria includes female STEM leaders who have been committed to their tenure/tenure-track faculty, chair, or dean position for at least 3 years. Tenure and tenure-

track faculty are part of the sample because they perform additional tasks such as advising students, chairing senior projects, conducting and presenting research, publishing scholarly work, assisting lecturers and adjunct, and being involved in committees and decision-making. Adjunct faculty and lecturers were not be included, because leadership responsibilities are not often part of their job description.

Participation was completely voluntary. Voluntary participation was used for ethical reasons to avoid coercion of or undue influence on participants. To recruit participants for this study, I sent the invitation by e-mail to the deans and faculty of the STEM colleges within the CSU system, inviting them to an interview. The invitation included the criteria: (a) identifies as a female and (b) has worked in a university STEM department as tenure/tenure-track faculty, department chair, or dean for at least 3 years. The e-mail also included the consent form. To ensure that the participants met the criteria, after consent, I directly asked the volunteers if they identify as female, are a tenure/tenure-track faculty, department chair, or dean in STEM, and have worked as one for at least 3 years. Fourteen participants were interviewed because data saturation occurred, and it fits the number of participants that Creswell (2018) and Morse (2000) suggest.

Instruments

Interviews serve as an effective way to capture people's experiences and to gain a deeper understanding of perspectives (Creswell, 2018; Patton, 2015; Rubin, 2012). An interview guide served as the primary data collection instrument for this study (see Appendix A). The guide contains a series of open-ended questions designed to prompt

reflective responses from participants around the key themes identified as important to their STEM leadership experiences: personal vision, work-life balance, and career commitment. At the start of the interview, I introduced myself and reiterated the content of the consent form (see Appendix A). The construction of the interview questions was guided by the recommendations of Patton (2015) and Seidman (2006). Patton suggested that interview questions should start off with general conversational questions that start the interviewee thinking about the topics. This can help the interviewee become more comfortable and feel that they can trust the interviewer.

More sensitive questions came later (Patton, 2015). Seidman suggested that the questions start with life history, then move into details of experiences, and then reflect on the meaning. As suggested by Patton and Seidman, I started a casual conversation by asking about their path to their current position, which is their life history. Questions that focus on the history and experiences of the participants come next (Seidman, 2006). I asked about goals they wanted to accomplish and how it related to their personal vision. For work-life balance, I asked them to describe how balancing work and family or social life has been for them. Asking interviewees to first describe the topic of the study avoids projecting meaning, encourages authentic descriptions, and helps them focus their explanation once we reached questions about experiences and meaning (Rubin, 2012; Seidman, 2006). Questions about their experiences involved asking them how personal vision helped them be a STEM leader and to describe any challenges in work-life balance and what helped them in balancing work and life. I investigated meaning by asking the participants how their personal vision and work-life balance has influenced their career

commitment, which in turn answers the research questions. I concluded the interview by inviting interviewees to add additional thoughts, and thanking them for their participation.

Data Collection and Analysis

I interviewed 14 participants, including one dean, one associate dean, and two department chairs, and the rest were tenure/tenure-track faculty. To increase the probability of including not just tenure/tenure-track faculty but also department chairs and deans, I invited members from all 23 colleges in the CSU system. According to Creswell (2018), five to 25 participants is recommended for data saturation in a phenomenological approach, and Morse (2000) recommended at least six participants. Data saturation occurs when participants are no longer giving new answers or adding new insight to the data (Creswell, 2018; Rubin, 2012). Data saturation started around the 12th interview, and two more were done to ensure saturation.

As the sole interviewer, the voice recordings form the bases of the data. The sources of evidence were approximately 40-minute interviews. Due to the COVID-19 safer-at-home protocols, participants were given the choice between Zoom conferences or phone interviews, whichever the participant prefers. I transcribed the interviews by hand at first, but given the time it takes I switch to using an app called “Otter”. I made corrections on the transcriptions as I listened to the recordings and removed indicators for confidentiality. I have a private log of participants, assigning them each a number. The transcripts had the participant’s assigned number, instead of their names. I then coded the transcripts by hand, organized the statements associated with each code into a

spreadsheet, found common patterns, and continued to organize and narrow down the themes guided by the research questions. The semistructured interviews increased comparability among responses, and clarifying questions helped include more details about experiences and find a deeper meaning in the responses. The initial analysis of themes was modified, rearranged, and narrowed down several times, and in between each run through, the analysis was left alone for a few days and revisited with fresh eyes. This was repeated until the responses seem to need no changes. Analysis was shared with my dissertation committee to further question or confirm my results.

Issues of Trustworthiness

A thorough research study requires attention to issues of trustworthiness. Reflexivity, a strong literature background, and an approved methodology all contribute to the trustworthiness of this study. What strengthens the trustworthiness are confirmability, credibility, transferability, and dependability.

Confirmability

For confirmability, I reflected on my connection to study's topic. Because I am a part-time lecturer at a CSU, I am acquainted with two of participants. I have no close relationships with any of the tenure/tenure-track faculty, chairs, or deans. If I did, I would not use them in a study, being that it may change the responses. The nonexistent or distant acquaintance status between me and a participant should not affect the trustworthiness of the study, given the steps I have for keeping their privacy and confidentiality. I am also aware of my connection to the study, which may bring up credibility issues. I am a woman in the university STEM lecturer pool, thinking about

leaving the STEM career and moving into an administrative role because of work-life balance and not knowing what my personal vision exactly is. I currently work full-time at the university's tutoring center as a coordinator, with mainly STEM tutors under me, but also tutors not in STEM as well. Administration in student affairs is now a prospective career path instead of continuing the STEM career path. I view full-time teaching as making work-life balance difficult to obtain. My personal vision includes having a full-time job that has decent hours and does not require bringing work home. However, teaching has always been a passion of mine, and therefore, there is conflict in my personal vision. This is why I was interested in studying the experiences of female university STEM leaders, to see what has influenced their decisions to stay in their field, and if work-life balance and personal vision had an influence on that decision.

I avoided my personal perspectives of personal vision and work-life balance as a university STEM instructor by creating interview questions developed from research and approved by my mentor and methodologist, ensuring no questions are begging the question or implying certain desired responses. I also avoided asking any following up questions except for clarification or more details. My own views or implications of my views were not added to the discussion, strengthening the confirmability of the study.

Credibility

The credibility of this proposed study partially comes from the strength of the literature review and research background. The sources came from peer reviewed articles and completed dissertations from the databases of the libraries of Walden University and the university that I work at. Credibility also comes from the saturation of data. Including

14 interviews is considered sufficient for a phenomenological approach (Creswell, 2018; Patton, 2015). To obtain saturation, I continued to do interviews until the responses seem to repeat or not add anything new.

To ensure validity, the study's concepts, tools, and process of data collection and analysis was verified as appropriate and ethical through the International Review Board (IRB approval #01-22-21-0403683). During the interview, participants were given a chance to explain personal vision, work-life balance, and career commitment in their own words, which helped me avoid any assumptions I might have about how they perceive the concepts.

Transferability

Transferability is fairly strong because the participants are from a specific population. Participants must identify as female and have been a tenure/tenure track faculty, department chair, or college dean in the STEM fields for at least 3 years. The analysis can describe experiences of many women within the same population.

Dependability

Having a semistructured interview helped with dependability of the responses. The questions were asked the same way to each participant. There was slight variation in follow up questions for clarification or details, depending on which response need clarification. The interviews were held through Zoom, during the COVID stay-at-home regulations, which may have given participants a more comfortable place to give more genuine or natural responses, increasing dependability.

Reliability

A scholarly and approved data analysis process increases reliability of the study. The coding, themes, and subthemes were reviewed several times. It took 2 months to narrow down the final results. Ever review was separated by a day or two, to look it with fresh eyes. The process was approved by my mentor and another faculty member that headed office hours specifically for Chapter 4. The analysis process was a sufficient way to increase reliability.

Ethical Procedures

Permission to conduct the study was approved by the IRB in February 2021. The invitation e-mail states that participation is voluntary. Even after agreeing to the interview, if a participant decided to not participate or not answer a question, that was their right. Participants were given a choice between a phone interview or Zoom interview. Zoom creates a video file and an audio only file. The video file was immediately deleted and the audio only file was kept and transcribed. A voice recorder was also used as back up. Recordings were not shared with anyone or posted anywhere. Identifiers, such as place of work or people's names were redacted from the transcripts. Interview questions were modified and checked to ensure that the questions were not offensive or uncomfortable. However, if any participants felt like answering a question or decided to discontinue participation, that was their right as a voluntary participant. This did not occur during any interviews for this study.

The recordings and transcriptions will be kept on its own USB drive in a locked cabinet for 5 years, and then deleted. The data will be kept confidential by keeping names

off of the transcriptions. Recordings will not be share with anyone. I will have the only access to the tracking log, which assigned each participant a number. That number will be on the transcripts in order for me to identify the participant in that transcript. When I needed guidance from my mentor on my analysis process, transcripts were not shared. We discussed the process of my analysis and some of the themes that I felt were emerging, but she did not see the transcripts or participant tracking log.

Summary

Women who are in STEM careers are more likely to leave than men are, and many of the women think about leaving early into their careers. The purpose of this phenomenological qualitative study was to identify how female STEM university leaders perceive the influence of their personal vision and work-life balance on their career commitment. I interviewed 14 participants. A semistructured set of interview questions was developed to explore ways that personal vision and work-life balance can positively influence career commitment. The participants fit the following criteria: (a) identifies as a female; and (b) has worked in a university STEM department as tenure/tenure-track faculty, department chair, or dean for at least 3 years. Qualitative analysis was done through hand-coding transcripts and using an Excel spreadsheet to organize the data and continuously group statements and narrow down themes and subthemes. Methodology, instrumentation, data analysis, and trustworthiness were developed as informed by previous research literature related to the female STEM employees, work-life balance, personal vision, and career commitment. In the end, this study contributed helpful

knowledge on how to better support women in STEM careers, increasing retention and moving them towards leadership roles.

Chapter 4: Results

The purpose of this phenomenological qualitative study was to identify how female university STEM leaders perceive the influence of their personal vision and work-life balance on their career commitment. The research questions are as follows:

RQ1: How do female STEM tenure/tenure-track faculty, department chairs, and deans perceive personal vision influencing their career commitment?

RQ2: How do female STEM tenure/tenure-track faculty, department chairs, and deans perceive work-life balance influencing their career commitment?

This chapter includes an explanation of the settings that may have influenced the participants' responses, participant demographics, data collection process, data analysis process, evidence of trustworthiness, the resulting themes and supporting data, and a summary of the results.

Setting

For this study, all participants were drawn from CSUs. In general, at CSUs, about 48.5% of all tenured/tenure-track faculty are female; about 56.4% of assistant professors are female while only to 42.7% of full professors are female (CSU Employee Profile, 2020). Going through all 23 CSU websites, I found the directories for all the STEM departments, which listed the assistant, associate, full professors, department chairs, and college deans, from which I drew the contact for the women I invited to participate in the study. Responses to invitations and consent forms sent, I yielded 14 women from 7 CSUs. About 33.3% of the tenured/tenure-track faculty in the represented departments were female.

Participant Demographics

Out of the 23 CSUs, seven (30%) were represented among the 14 study participants. They represented 3.3% of the population of 423 possible candidates. The 14 participants represented faculty at various stages in their careers and with various roles and responsibilities (see Table 3).

Table 3

Demographics

Demographic information	Number of participants (*n* = 14)
Position	
Assistant professor	4
Associate professor and chair	1
Professor	4
Professor and program coordinator	1
Professor and chair	2
Professor and associate dean	1
Dean	1
Years of Experience	
3 to 5 years	8
6 to 9 years	5
20 years	1
Married	11
Have Children	10

Four participants were assistant professors, one participant was an associate professor holding a department chair title, four participants were solely professors, one participant were a professor and program coordinator, two participants were professors holding a department chair title, one participant was a professor holding an associate dean title, and one participant was solely a college dean. Within their current position, eight of the participants had 3 to 5 years of experience, five of them had 6 to 9 years of

experience, and one had 20 years of experience. Eleven participants are married, and 10 participants have children.

For confidentiality, pseudonyms were given to the participants.

- Alicia: assistant professor, has children, married
- Danielle: assistant professor, has children, married
- Haley: assistant professor, has children, married
- Kelly: assistant professor, has children, married
- Natalia: associate professor, has children, married
- Monique: associate professor and associate chair, no children, not married
- Fabiola: professor, no children, married
- Janice: professor, has children, married
- Liz: professor and former dean, has children, not married
- Carlie: professor and program coordinator, no children, not married
- Britney: professor and department chair, has children, married
- Elsie: professor and department chair, has children, married
- Gabriella: associate dean, no children, married
- Inez: dean, has children, married

Data Collection

After looking though 23 CSU websites and finding emails in each STEM departments directories, I found 423 possible candidates for the interview. I emailed all possible candidates the invitation, in blind copied groups for privacy, and over a span of 3 weeks, in order to spread out the interviews. Twenty responded, in which two did not

meet the criteria. Once data saturation was hit at the 14th interview, I emailed the last four volunteers to inform them the interviews were no longer needed. Thus, a total of 14 individual semistructured interviews were used to guide discussions about personal vision, work-life balance, and career commitment.

Between the beginning of February and mid-March of 2021, one to three interviews were scheduled and completed each week, until data saturation occurred at 14 interviews. All the interviews were 40 to 50 minutes. The meeting began by reiterating the purpose of the study and confidentiality practices. The formal interview and the recording were initiated when the participant indicated they were ready for the interview to commence. The interview encompassed 22 questions (see Appendix A). Interviews were conducted and recorded through Zoom video conferencing, and immediately after each interview the video recording was deleted, and the audio files were kept for transcribing. I removed identifiers by removing names of people and universities, replacing them with "[name]" or "[university]". I transcribed the first four interviews by hand, which firmly connected me to the data, but took a great deal of time. I then switched to using the Otter application to transcribe the rest of the interviews. I still connected to the data by reading through the transcriptions while listening to the interviews and correcting the transcripts and removing any identifiers. The data collection process fully aligned with the process discussed in Chapter 3.

During this time, all participants were working from home due to COVID-19, which created a unique situation. Several participants made statements such as, "Before the pandemic" or "Well, it's different now because of COVID." However, their responses

were mainly about pre-COVID personal vision and work-life balance. Although the statements surrounding COVID were interesting, these statements were briefly mentioned and did not assist in answering the research questions. It may have helped them compare and explain what it was like before in a clearer way. Being safer at home, the participants had a choice to have a Zoom interview or phone interview, and all of them selected Zoom. All but one kept their camera on, and the one participant who did not have their camera on said it was because she was not "camera ready". In the consent form and at the start of the interview before recording, I explained how the video recordings would be immediately deleted and the audio files kept for transcribing without identifiers. I believe the participants were as comfortable as they could be to interview and without major influences on the responses.

Data Analysis

After about seven interviews, I started transcribing and coding to see if themes were starting to form and to have a better feel of when the data will hit saturation. At about the 12th interview, some of the same code words were routinely mentioned and saturation was occurring. To be confident in the saturation, two more interviews were conducted. For the initial coding process, I copied and pasted important statements into an Excel spreadsheet and highlighted the codes word in each statement. I felt these statements were associated with personal vision, work-life balance, and career commitment.

First, these statements were grouped by participant, to see the participant's whole story at once and immerse myself back into each person's interview, creating a better

connection with the data. On a separate tab of this spreadsheet, I took each statement and grouped them into categories associated with personal vision, work-life balance, and career commitment. On a second inspection of the data, I started grouping the statements into themes by the code words highlighted in each statement. On a third run through, I started narrowing down themes, removing any statements that did not seem to fit any of the themes developing or moving some into another theme if it seemed more appropriate. Midway through this third inspection, my dissertation chair and I discussed the coding, themes, and analysis process, and I received confirmation to continue this process with some suggestions on how to move towards the writing process. On the fourth inspection, I started organizing the themes into an order that felt like a natural flow of information. In this process, I further narrowed down which themes truly answered the research question. Themes that did not answer the question were kept aside in case it worked somewhere else in the dissertation.

Additionally, I distinguished between themes and subthemes. I looked through the themes and subthemes several more times to modify where needed, finalize, and feel confident in the themes that were found. The analysis process took about 2 months. During the writing process, there was also some rearranging and changes in the titles of some themes and subthemes. In the end, the results yielded six main themes (see Table 4).

Table 4

Themes, Subthemes, and Coding

Main Theme	Subtheme	Code words and phrases
Doing What They Enjoy	*Helping students*	role models for women in STEM; support for female students; minority; first-gen; equity; accessible; quality education for all; good professor; better teacher; engage students; support students; better advising; provide opportunities
	Supporting faculty	protect; help others become better teachers; talk about teaching and support each other; supportive environment for teacher; mentor program; build confidence; free people
	Collaboration, research, and creativity	collaboration; research; creative job; collaborators; professional development
Lady's Work	*Perception of "lady's work"*	service as women's work; lady's work; wasn't a good fit because of equity work
	The importance of having a voice	Men speak while women are quiet; outspoken; talked over or belittled; speak up for other women; learned to speak up
Motivation	*Personal vision as motivation*	Motivated; inspirational; fills you back up; motivation; worthwhile; meaningful job; sense of purpose; valuable; excited; passion; interesting; important; drive
	Lack of support for personal vision	disenchanted; major disruption; not making a difference or impact; may not do it over again; devalued; dissatisfied

Always Working	*Working mothers*	sacrifice; no social life; not a normal 9 to 5; working all the time; a blur; title matters; having older children; burnt out
	Making work fit the family	Schedule; weekends; work or kids; just how it is; flexibility hours; summers off
	No kids and working all the time	Fight for own time; working all the time; no other interests; assumed can work more; work is life
	Learning to say no or let go	Don't have to do it all; pulled in different directions; learn how to say no; protecting your time; let go of some responsibilities;
Support for Work-life Balance	*Support outside of work*	Nanny; husband; parents; therapist; patching together
	Lack of systemic support	Other countries; 6 weeks not enough
Competitive Culture	*Proving yourself*	macho; have to be the best; trying to prove yourself; enough publications; women have to work twice as hard; guilt
	Research out of reach	finding time; children changed career pathway; not feasible right now with small children; combine research and pedagogy to make time; sabbatical to revive research agenda
	Building a professional community	Mentor; network; other female professors; professional society; collaborators; fine role model; find others in same situation; supportive community

Evidence of Trustworthiness

Evidence of trustworthiness comes from confirmability, credibility, transferability, dependability, and reliability. Although I am acquainted with two of the volunteers, I am not a close acquaintance. With semistructured interview questions, I believe that the trustworthiness was still held despite the acquaintances. Being a woman with a STEM lecturer position at a CSU, struggling with work-life balance and personal vision, the study is important to me personally. I am aware that I have my own perceptions on how personal vision and work-life balance influences my career commitment. That awareness guided me to create questions that did not imply a certain view or desired answer and to remember that follow-up questions were only for clarification or for more detail.

The strength of the literature review and research background adds to the credibility of the study. All sources were peer reviewed and found in Walden University's databases. The data saturation process also adds credibility, guided by Creswell (2018), Patton (2015), and my dissertation mentor, about 12 participants would be enough, and at 12 interviews, I felt data saturation occurring and conducted two more interviews to be assured that saturation was hit, thus, a total of 14 interviews.

All the participants identified as female, had at least 3 years of experience as a tenure-track or tenured professor, department chair, or dean in a CSU. The analysis can be transferred to other women in the same population, describing the experience of many women with the same criteria.

Using the semistructured interview adds dependability to the responses because the questions were asked in the same order and follow-up questions were specifically for clarification and more detail. Starting with a conversational question about the journey to their current position had them thinking about their experiences and loosen up for further discussion. We then moved into personal vision and then work-life balance. I waited to ask about work-life balance because this may be more difficult to discuss depending on how it has influenced their lives. Waiting for more difficult or personal topics until the end, when participants may have had more trust or were more comfortable in the interview, was a strategy suggested by Patton (2015) and Seidman (2006). All the interviews were in similar settings, on Zoom and at home because of the safer-at-home COVID-19 policy, adding dependability through consistency and having a comfortable setting that encourages genuine and natural responses.

Lastly, the reliability of the data comes through the data analysis process. Reviewing the coding, themes, and subthemes several times, narrowing down the final results over a span of 2 months illustrated my determination to know the analysis was thorough and complete. The process was discussed and checked with my dissertation mentor, assuring me that the process was a sufficient way to come to reliable results.

Results

After an analysis of the data collected, six themes emerged: (a) doing what they enjoy; (b) lady's work; (c) motivation; (d) always working; (e) support for work-life balance; and (f) competitive culture. The first three themes help answer the first research

question about personal vision, and the latter three themes help answer the second research question about work-life balance (see Table 5).

Table 5

Main Themes and Subthemes

Main Themes	Subthemes
Doing What They Enjoy	Helping students Supporting faculty Research, collaboration, and creativity
Lady's Work	Perception of "lady's work" The importance of having a voice
Motivation	Personal vision as motivation Lack of support for personal vision
Always Working	Working mothers Making work fit the family No kids and working all the time Learning to say no or to let go
Support for Work-life Balance	Support outside of work Lack of systemic support
Competitive Culture	Proving yourself Research out of reach Building a professional community

Themes

When discussion personal vision, doing what they enjoy was a common theme. Also, associated with personal vision was the perception of "lady's work" and motivation. "Lady's work" was a perception that teaching, service, and mentoring responsibilities were what women wanted to focus on or were given them more often

than men, as opposed to research and publishing opportunities. Personal vision was seen as motivation, whether intrinsic or extrinsic. Thus, three themes emerged: (a) doing what they enjoy; (b) lady's work; and (c) motivation.

The interview then moves into questions about work-life balance. One common theme was how work was nonstop, whether they had children or did not have children. Work-life balance support systems usually came from outside sources because there was a lack of systemic support. Another common theme was how the competitive culture of STEM fields affected their work-life balance. Thus, three additional themes emerged: (d) always working; (e) support for work-life balance; and (f) competitive culture.

Doing What They Enjoy

It was interesting to see how some of the participants knew what their personal vision was and how many of them slowly developed it as they discussed their goals and how they relate to a personal vision. When describing their career goals and personal vision, discussion tended to lean towards what they enjoy about their job. What they enjoyed resulted in the subthemes: helping students, supporting faculty, and other aspects of the job such as collaboration, research, and creativity. Personal vision was mentioned as motivation on several occasions, and also the lack of support for personal vision was mentioned in some of the interviews.

Helping Students

All the participants discussed, at some level, helping and working with students as something they enjoy. Three participants mentioned their goal as being "a good professor" or "a better teacher" for their students, supporting them through instilling in

them the confidence to move forward in their journey. Four participants mentioned how important it was to them that students understood their field, giving them opportunities to do research and apply it to the world outside of academia. Four participants also discussed how they enjoy the connections and relationships they make with students.

For five participants, the goal went past helping students in general into equity and accessibility work and research. They specifically described equity and accessibility as opening up their field to more students, creating a community that includes students from minority and first-generation backgrounds, and removing socioeconomic issues that impede students. For example, Danielle, an associate professor, said that she is dedicated to this work because it "invigorates and inspires" her. Similarly, Liz, a professor and former dean, said that social justice and equity work was something she is "passionate about continuing to push." She had her own motto of staying dedicated to her goal:

> I don't think I'm going to change things like radically, but I have this kind of change theory that is 'Everybody, all the time, little by little', and that'll make a difference. If we all do that, do what we can in the place we're situated, I think the world could change.

Five participants mentioned specifically supporting female students and being a role model for them. In particular, Danielle, an assistant professor, had an interesting outlook on being a role model and tied it to her work-life balance:

> Having two different worlds, like being at work makes you miss the kids, but being at home makes you think about the creativity you get from work. Just talking to students about kids models to them that being a mom and being a

> professor, something I never heard of while in college, that it's okay to bring other aspects of yourself into work. They enhance each other, these two worlds.

Two participants mentioned a high level of dedication. Danielle, a college dean, said, "I feel a big commitment to wanting to widen that door, make it easier and give them more role models and more opportunities to succeed." Fabiola tied her high commitment to her personal vision of being a role model for women in STEM and to hope, a component of the ideal self, according to Boyatzis and Akrivou (2006). She comments:

> There is just nothing else I want to do, I love teaching, love my students. They give me hope for the future. Now we have a Women in Math Club, and I love watching that grow and hearing how these women want to change STEM and have their place in it.

Helping students was a common part of the participants' personal vision and the enjoyment they receive from helping students contributes to their career commitment.

Supporting Faculty

Four participants mentioned how they focused on helping faculty. Each of these four have perspectives informed by their experiences as a program coordinator, a department chair, a dean, and a former dean. Carlie felt a level of professional development in helping faculty focus on what is important to them and how it can help the students instead of focusing too much on publications; it is something she wish she had, "instead of being pulled in so many directions." Elsie had a clear vision of the culture she wanted in the department. She created a new faculty mentoring program, made clear standards and expectations for teaching, was part of the hiring committee to

bring in professors who would help move the department in a new direction, and improved the faculty evaluation process to be an opportunity to grow rather than paper pushing. In general, she wanted to improve work life for faculty, make them feel supported and respected.

> I want to have more conversations about teaching and have a space where faculty would talk to each other about teaching and support each other. Just to have a department where people engage with each other. So, if I can find ways to foster an environment that is intellectually stimulating, it can lead to people being better and feeling better.

Similarly, Inez was also clear in her vision of supporting faculty through a mentoring program and through opening the door to the STEM field to more talented people, looking at the potential and development instead of the focusing primarily on "meritocracy." She mentions that focusing on the type of research and publications someone has completed closes the door and makes the promotion and hiring process less equitable. The scope should include different types of research, such as pedagogical and equitable research, and should include the service and teaching aspects of someone's work experience. With a different perspective, Liz described her vision of helping faculty as "freeing people to do the things that they want to do that would contribute to the goals that we share." She discussed how she is open to different ideas, projects, and personal visions that can all come together to move a department towards the same goal.

In general, these leaders moved from helping themselves be better teachers to helping others be better teachers for the better of the department. Being able to move

towards their personal visions has contributed to the career commitment of three of these participants; however, the former dean felt pushed out of her position because her personal vision was not supported, which is a subtheme we will discuss soon. Fortunately, her career commitment to STEM professor did not waiver, but her career commitment to being a dean was damaged.

Research, Collaboration, and Creativity

Seven participants also enjoyed their university STEM leadership role because of the research, collaboration, and creativity. Britney felt that research and teaching gave her a way to connect disciplines. The collaboration that comes with doing research and projects is something she believes in strongly because of how it "brings different perspectives together and produces more interesting results." Like Britney, Gabriella and Liz also hold collaboration as an important part of their personal vision. Two other participants, Haley and Kelly, also noted that teaching is a "good niche" or a "good fit" because they value research, and being assistant professors gives them that opportunity to explore that passion for research.

With research and collaboration, comes the opportunity to be creative, which Danielle and Monique consciously took advantage of. They both discussed how enjoyed learning new things, creating new materials, and keeping up with their field because it is intellectually and creatively challenging. They enjoy creating new courses, creating new ways to approach concepts, and bringing new ideas to the classroom. In all, seven participants mentioned how they enjoy research, collaboration, and creativity, which contributes to their career commitment.

Lady's Work

Seven participants mentioned topics and experiences that were directly associate with being a woman. One participant used the term "lady's work", and it seemed the most appropriate way to pull all the concerns into one theme. The most common subthemes that emerged were the perception of lady's work and the importance of having a voice. With the first, participants discuss how there exists a certain perception of what responsibilities women were supposed to have or would want to focus on. The second subtheme includes the importance of having a voice within a male-dominated field, especially for career commitment.

Perception of Lady's Work

Four participants mentioned how some responsibilities or educational topics were viewed as more appropriate for women. A tenure-track or tenured position requires work in three areas: teaching, service, and research. When Fabiola was first hired, she felt that she was being pressured to do more of the service work so that the men can have time to do more research. A close female colleague of hers felt the same way. She says it is not like that so much now, but the faculty members are much different than when she started. Research was something she loves to do, especially when it involves working with students. Her personal vision included working with helping students, which is why she tries to find time to do research projects for undergraduates and graduates. If the culture of the department had stayed the same, it may have influenced her career commitment; she may not have accomplished as much research or stayed connected to her personal vision.

Danielle also mentioned that some of her work in mentoring and equity was looked at as being of lesser value than research and presenting at conferences, saying:

> It's not very visible, not something you can really show. And when people talk about equity work, it feels like it isn't actually valued in a real sense. I kind of joke, but it's kind of a real thing, I call it being a "lady" physicist and doing the "lady" work.

Danielle's term was a creative way to explain this situation and where the name for the theme Lady's Work came from. Liz had a similar experience with her work in social justice and equity. She stepped down from the dean position because her work in social justice and equity, which she considered as part of her personal vision, was not going to fit into the goals of the college. She explained, "I believe it was partly because I was a woman that I wasn't a good fit in what they thought I should be doing."

Janice mentioned how at a meeting about retention and promotional procedures, she suggested considering a better balance with greater attention to scholarship and less emphasis on research. She was adding to the debate and offering a compromise, but her male colleague interpreted it as something more personal, saying she must not think she was getting tenure and was weaking the criteria for the promotion. She believed he would not have said that to a man.

These four participants have had experiences dealing with their personal visions not being well supported because they were women. Because of this, Britney and Elsie saw the importance of having a voice and finding that support for their career commitment.

Importance of Having a Voice

Five participants mentioned women being talked over at meetings or how men tended to dominate the conversations. Alicia said that at department meetings "the boys get wired up and talk about their opinions and the women are relatively quiet." Fabiola mentioned the same type of interactions at department meetings. Britney and Monique discussed how they speak up for themselves. Elsie noted that she speaks up not just for herself but for others, as well. Focusing on those who speak up, Britney, a department chair, considered herself outspoken and discussed how a former female department chair would not speak up because of the intimidating masculine culture of the department. She added, "I think when you have an opinion, you should say something, and it influenced my career. I don't get intimidated, but I learned over time that this makes me different."

Monique, and associate professor and associate chair, did not speak up at first, but she learned to over time. She was not sure whether it was because she was tenured, had a leadership position of associate chair, or because she was just "fed up with all the garbage." She experienced what she called "microaggressions or micro-oppressions", which she described as "just little things like, 'Oh, Monique, obviously you will take notes.' Well, why is that obvious?" Another example she shared was when a male colleague could not figure out a feature of Outlook and asked her to complete the task for everyone. She felt she could perhaps teach him to use it so he can do it himself, but to do it for everyone was more just because she was a woman. Monique ended up directing him to the secretary.

Elsie, a department chair, was devoted to serving as a voice for other women and

considered helping female faculty as part of her personal vision:

> I see other women, not always women, but mainly women, who don't get a chance to talk, and one thing I can do as a department chair is say, 'Hold on a second, so and so, she was trying to say something.'

She admitted she does not catch it every time, but she has several colleagues that tell her if they noticed something, and Elsie tries to notice it next time. She adds, "Trying to cultivate those relationships where they can come talk with you honestly and stepping in when you see things happening is very important." Having a voice has helped these STEM leaders stay committed and give others opportunities to have a voice, as well.

Motivation

When discussing how personal vision has influenced their career commitment, ten participants perceived personal vision as motivation. Also, when discussing some experiences with the lack of support for their personal vision, four participants were discouraged and career commitment was weakened. Thus, two subthemes emerged: personal vision as motivation and lack of support for personal vision.

Personal Vision as Motivation

Ten of the participants identified how their personal vision influenced their career commitment using words such as "motivation", "passion", and "meaningful". Britney chose projects that are both exciting and benefit students, saying, "That is the guiding light, so even when I feel discouraged, I can still feel excited about things that keep me motivated." Elsie, Fabiola, and Gabriella also described personal vision as motivation. Danielle, who's personal vision includes equity work, says that any workshops and

professional development opportunity that focuses on equity "is really inspirational, when you feel like you're about to walk out the door, it fills you back up again." Haley said that her personal vision makes her job meaningful, and Inez described personal vision as giving her a sense of purpose. Janice and Kelly both mentioned how personal vision is a passion and adds intrinsic value to their work. Monique also described her personal vision as a passion but added in that it is also a continuous drive. All these descriptors of personal vision align with research (Boyatzis et al., 2010; Boyatzis & Akrivou, 2006; Buse & Bilimoria, 2014). Ten participants total mentioned person vision as motivation, illustrating how important personal vision is for career commitment.

Lack of Support for Personal Vision

Four participants perceived that their personal vision was lacking support. Britney, the professor and department chair, had a vision of making the department more attractive to students by making the major more career-oriented and providing more opportunities to connect the field with the world outside of academia. However, she did not have the support she needed to move this vision forward and was now "disenchanted with the department and questioning being in academia." She continued with, "I thought for a long time I could make a difference, but now I am less sure." She found herself thinking about what to do next, once her daughter was done with high school, but she was not sure as to what that is. Similarly, Natalia explained how being hindered affected her in the past:

> I was a little dissatisfied in my job because I felt like I wasn't able to make much of an impact. It was rigid in terms of making changes to curriculum, adding

> something new, so I felt hindered. So, I looked around for new things, but all that dropped once I had kids.

If something better comes along, she noted that she would consider leaving her profession, but for now, it fit with her idea of work-life balance. So, it seems that work-life balance was a backup reason to stay committed after support for personal vision. Another perspective on the lack of support came from Liz, a former dean. She mentioned how her personal vision was not supported, so she stepped down, "I think the reason I didn't fit into the dean's office is because I was doing this work of inclusion, social justice, equity." At a different time of the interview, she mentions how her personal vision waivered because of feeling devalued:

> There's been moments where I had to really question who I was and was I really good enough. I just feel like I should've gone into ethnic studies or women's or gender studies or something. Sociology or education, but not engineering. There's been moments where I've cried and felt devalued. It's like the whole culture devalues women who have been in STEM, like we're not feminine enough or smart enough. Now, we don't even fight the right way? It's continuously hard, so although I love academics, I think I would have not chosen engineering.

What she meant by "fight" was from earlier about how she went to a conference and a panel of female STEM students said that they did not have the right role models because the women in STEM careers were more like men. Liz knew this is not entirely true, but with social justice and equity being a passion of hers, this hurt her deeply.

Fabiola also mentioned a similar experience that associated lack of support with being a woman. Her advisor in college was “incredibly abusive” would scream at her and another female student, but also added, “I wonder if she pressured me so much and the other student because we were women, possibly because we had to be better to keep up.” Fabiola was told she would not get the job she wanted, and she had thoughts of not continuing. However, she found a different advisor who gave the right support and was able to finish her degree and move onto a doctorate. Whatever their personal vision, it fuels their enjoyment, motivation, and commitment to their career. Yet, when support for their personal vision was missing from their work environment, participants began questioning their career commitment.

Always Working

When most participants talked about work-life balance, many participants discussed how always working can become stressful and affect life outside of work. On top of that, many participants had children and struggled with work-life balance. Some discussed how they managed to make work fit family life. Even those without children or with children who were older and independent struggled with work-life balance in their own way and find themselves always working. Some participants, with or without children, mentioned how they had to learn to when and how to say no to certain opportunities or let go of some responsibilities in order to manage the workload. Thus, these discussions resulted in four subthemes: working mothers, making work fit the family, no kids and working all the time, and learning to say no or let go.

Working Mothers

Four participants discussed how, with children, work seems to be nonstop. Alicia noted how difficult it is to balance family and work all the time, and if there were just a little less balance, she probably would not stay in her career. She has often thought about if it was worth it, but she loves helping students, so she continued. Natalia, an associate professor with two small children, said that having a work-life balance was part of her personal vision. She wanted a job where she has a good balance of work and life and can make a difference, and teaching has given her that. However, she lost the drive to keep moving towards full professorship and department chair, saying, "I just don't know how parents do it." She thought maybe when the children are older, she might regain that drive, but for now it was not there. If something came along that fit her work-life balance better, she may consider moving in a new direction. Liz, a full professor with three children, now grown and out of the house, but she remembered how it was just nonstop, noting, "There wasn't room for me, but I think that's just what motherhood is; you pour yourself out as best you can, as much as you can, until you can't anymore." She eventually became a full professor, but not until the children were older, so Liz was an example of what Natalia was picturing for her possible future. Liz still found herself working all the time, but it was different because she did not switch between family and work responsibilities as often anymore. Haley also mentioned because her children are older, she learned how to manage research and teaching and "it's very exciting, it seems that I just picked up where I left off." Participants with family responsibilities seemed to continually be working with no time for themselves. Those who persist and hold on until

the children are older reported that it becomes easier to balance work and life.

Although Britney believed she did not manage work-life balance well, it seemed she had a way to obtain a more ideal balance and be a department chair, noting that "I think what helps is that the kids are much bigger now and you don't need to constantly spend time with them, it's more about the quality of time and when we are doing things together." Elsie, also a department chair, mentioned the same thing about her teenage children being more independent and with the set schedule from the administrative position, she spent more time on the weekends with the family. Britney considered having children after gaining tenure as "the usual thing to do." It may be easier to gain tenure before starting a family, but it is also not impossible to achieve while taking care of a family. Janice, a professor, is a great example of this, where having a child delayed her promotion, but she eventually earned full professorship. She discussed an experience she had with a male colleague, who implied that a tenure promotion would add more responsibility and assumed that her family responsibilities would diminish her desire for promotional advancement. However, she believed "it gets better as time goes on because those titles matter. People acknowledge you in a different way."

Another two working mothers, Elsie and Haley, had similar experiences to each other. They both worked until they went into labor, grading or studying research while in the labor room, and that was when they realized it was too much and an unreasonable amount of work and had to set some boundaries. Without boundaries, women striving for an ideal work-life balance may lose their drive to stay committed to a university STEM leadership role. If women continue to stay committed until the children are older and

more independent, work-life balance can become more manageable and advancement may not be so far out of reach, after all.

Making Work Fit the Family

Some participants set boundaries that assisted in making work fit the family. Three participants mentioned how they appreciate the flexible hours, and five participants mentioned how summers help them catch up with the family, take a breath, and step away from the usual schedule. Summer allowed more time for family and offered opportunities to focus on projects, research, or professional developments that were neglected during the academic year. During the regular academic year, a lot of effort is put into creating a schedule that works because it is not the usual 9 to 5 job. Four participants mentioned that during the academic year, keeping a strict schedule or working at night was important for the family. Elsie referred to the time where she had small children and was trying to earn tenure as "a blur." As a department chair, the regular schedule improved her work-life balance, but soon she will be stepping down to let someone else to take the lead. When she goes back to teaching full-time, she plans to do what she did before, keeping a regular schedule, "A routine really works well for me." Scheduling created a controlled chaos and require a variety of strategies to manage work-life balance.

The participants remembered when the kids were younger, it was important to have a schedule, even if it meant working all the time. Alicia and her husband, who also taught at the college level, worked together to make their schedule work for the kids, and still, at times, she experienced burn out. She appreciated the flexibility of hours in

university teaching positions, but she was not sure if she would do it over again because of how difficult it was to keep a healthy work-life balance. Britney and Haley were home in the afternoons, worked late at night, and did not get much sleep. Despite the fact that they have to work at night, Haley noted that it is easier for her to "put boundaries with teaching and still be satisfied with doing a good job." Liz's schedule would be to rush home, take the kids to soccer practice, make dinner, help with homework, then work at night, but she also added, "I assume that's what most people do when they have children is that kind of crazy, you-don't-have-any-needs kind of life. It is either work or it's kids." Inez has always "drawn a pretty bright line in the sand between home life and work life", making work fit her family, and not family fit her work, "I continue to be protective of my time." Janice was also determined to make work fit her family life and not the other way around. She mentioned how she was protective of her time when her children were younger, and now that determination has been reignited because she has recently taken on caring for her mother. For these women, work-life balance can be a struggle as a university STEM leader, sometimes to the point of thinking if they would do it over again, as in Alicia's case. In order to make work fit the family, many kept a schedule that distinctly separated work and family responsibilities, and the flexible hours allowed such a schedule. However, several participants have been able to make work fit the family, and this contributes to their career commitment.

No Kids and Working All the Time

Participants with kids, as seen from the examples quoted above, have little or no time for themselves. That said, four of the participants who did not have kids also find

themselves fighting for their personal time or simply working all the time. Carlie noted that people assumed she was willing to work more because she had no children. It took her a few years to realize she needed to fight for her time and her weekends, so that she can devote her time to other aspects of her life on occasion. Fabiola experienced this once in a while, as well, and although she found it a "little annoying", did not mind so much. However, she noted that she tends to put work first before everything else and was still trying to find that balance, "It turns out there isn't much else I enjoy, so it's hard to tell what is a bad work-life balance or just a lack of interest in other things." Gabriella also found her job fun and interesting, so even though she fantasized about free evenings, she thought, "I enjoy my work, so what else would I do?" She explained that children just never fit into the equation:

> I married but never had children because throughout my career I never felt like I had time for that. I just didn't feel it. Maybe if I'd cut back on research after tenure and did [the] bare minimum I could've had a family, but I didn't, I wouldn't have felt good about myself I would have felt like I'm not giving as much to my work as I want to give.

Another participant who enjoys her job immensely, Monique found herself working more but because she turned work into what she needed it to be, creative and intellectual. Monique's previous job as an engineer gave her an intellectual stimulus, while her extracurricular activities, such as theatre, gave her creative stimulus. Now that extra time for creativity melded into the teaching position, she had both creative and intellectual stimuli in one job.

These four participants still continually work. Carlie has a similar perspective of work-life balance as the participants with children, where she fought for personal time. Fabiola, Gabriella, and Monique enjoyed their job so much that they do not mind having so much work. To them work was their life and passion. It is not that Carlie did not enjoy her job, but that she had hobbies and interests outside of work, which she wanted be involved in. Whereas the other three women's hobbies and interests were related to work. Without children, they are still working all the time, but they seem to have a different attitude towards it then those with children. The work-life balance was achieved in a different way, and their career commitment was strong.

Learning to Say No or Let Go

Beyond keeping a schedule, having summers, and using the flexibility of the hours to improve work-life balance, eight participants also learned to say no or to let go of certain things. Danielle used advice from a previous mentor: say no to everything when first starting and focus on settling into the new position because people will keep asking new faculty to join committees and projects and that new faculty member ends up "getting pulled in a lot of different directions." Liz said, "People really expect you to be available all the time and say yes to everything." Along the same lines, Gabriella noted that it took years to figure out that she can actually say no and "finish what's on [her] plate before [she said] yes to anything else." Elsie had a difficult time with saying no to certain things, but eventually she learned to be more protective of her time. Fabiola and Haley both acknowledged how difficult it is to know when and how to say no without it hurting the chances of advancement, but that it is important to learn in order to manage

the workload. Janice understood that she did not have to be "100% committed to working 24/7 or otherwise get off the rails, like it's all or nothing in math. I just don't see that there's any evidence that it has to be that way." She took time off, took a leave of absence twice to have kids, and came back, and believes it did not hurt her career. Although it took longer to advance, she still came back and eventually moved up in rank, noting that "It's not impossible" to do.

Carlie and Elsie learned how to let go of certain tasks in order to not become overworked and to avoid burn out. For example, Carlie tried to keep research separate from the teaching and administration part of her job, but she had to let go of that and combined research in her field with research into best practices in teaching and pedagogy, it helped with lessening the workload. What also helped was hiring two more faculty and giving them some of her responsibilities so that she had more time on the bigger ideas in her program and simultaneously giving the new faculty opportunities to grow. She let go and trusted the new faculty. Elsie realized that in the past she put an unreasonable amount of work on herself and had to "cut some stuff." This ties into what Janice was mentioning about not need to be "100% committed to working 24/7". It is okay to let go of some things and still do enough to feel productive and do a good job. For these eight participants, learning to say no or let go has contributed to balancing their workload.

Support for Work-life Balance

Participants found ways to manage their work-life balance to the best they can and were still working on finding that ideal work-life balance. They often looked outside of work for the support they needed, and some mentioned how the systemic support was

not enough, especially for working mothers. Thus, there are two subthemes: support outside of work and lack of systemic support.

Support Outside of Work

Four participants mentioned support outside of work. Fabiola put much of the emotional load and stress from work on her husband. She understood those with kids have issues with trying to find time for family, but on her end, it is about trying to put her husband before work. She had a difficult time letting things go but knew it can help with her work-life balance. Before her relationship, she noted it was easier to make work everything, and now she found support with a therapist. She was not the only one. Elsie mentioned a therapist to help with stress management. She also has a husband who arranged his own work schedule, "I think that's one reason I can do this job, and I know not a lot of people have that luxury. He would bring the babies, and I would breastfeed on campus." Liz's husband would help with family responsibilities, but with both of them working full-time, it tired them both out. Liz, at one point, had a nanny to help, and having someone make dinner and clean the house when she got home helped her spend time with the kids in the evenings. Not everyone has this luxury. Natalia appreciated her supportive family nearby to help with childcare, as many working parents do. Outside of work, many participants found help with work-life balance through the support structure provided by their family, nannies, and therapists. Finding a support system helped these participants with the stress of work and family responsibilities and have been able to keep going in their career.

Lack of Systemic Support

Several of the participants felt that the systemic support was lacking and that 6 weeks off was not enough maternity leave. Interestingly, four of the participants mentioned the childcare system of other countries. Danielle noted:

> In other countries, you can lessen your work week and take care of your kids for a few years and it doesn't affect your work ethic. Here it feels like, 'It was your decision to have kids, you deal with it.' I think individually my department is nice about me having kids, but it is not structurally supported.

Kelly mentioned that Canada gives a year of paid leave to bond with the baby and figure out family dynamics. For her, it was horrible was to go back after only 3 months. Natalia heard that Germany gives a whole year and how a quarter did not feel like enough time to stay home and bond with the baby. Alicia also felt that 6 weeks was not enough and mentioned how Korea has childcare for a year that is affordable. She did not have a choice but to use childcare because she had no family nearby. For these participants, the system does not provide enough support, and the support they could find outside of work still made it difficult for working parents to find balance with work and life.

Competitive Culture

When 10 participants mentioned the competitive nature central to the culture of the STEM field, the competitive culture emerged as a primary theme. With the difficulty of balancing the workload, the competitive culture adds stress because of the feeling of trying prove yourself but not having the time to do as much research as others. Some

participants have combatted the competitive nature by building a professional community.

Proving Yourself

Four participants mentioned the feeling of trying to prove yourself. For instance, Danielle heard many students say how they stay up until 4 am, in a "bravado" manner:

> It seems really pertinent in physics, that you have this macho one-up, how-hard-you're-working. I had a student feel bad because she would get everything done by 5 pm, and it was just that she was just on it and professional and spent the whole day in the library.

Danielle would feel bad at times, as well, because she would be very strict about her time, get things done before she went home, and spend most of her weekend focusing on family time. She realized that she should not feel guilty about how she efficiently prioritized work and life and how she still does a great job. Additionally, she wanted "students to know that it doesn't have the be that way," meaning it does not have to be a macho culture of who works more. Fabiola also had a similar viewpoint:

> There's this notion that you have to be on top of everything, the best research, the smartest. My vision is that it doesn't have to be like that, there is room for everyone, for different levels of commitment, different types of people, different levels of everything.

Danielle still struggles with the competitiveness, as she tries to obtain tenure, "I hope once I get tenure, everything will be a little more stable and less about proving yourself." At the beginning of her tenure-track position, she felt pressure to earn grants.

She felt insecure about the worth of her contributions and felt grants were needed to validate a good job done. Britney also felt a great deal of pressure to complete grants and was thankful to have a friend and mentor to help her. Fabiola received tenure, which she noted helped with the pressure that comes along with research. Elsie also mentioned how becoming a full professor alleviated the pressure to complete research, but she still does some research in order to have opportunities like sabbaticals and grants. Kelly mentioned how many of her coworkers used grants to buy out their time from teaching, and there was much discussion in her department as to what a teacher scholar model was. Her department was discussing if it "could be 100% teacher or 100% scholar versus in the middle". There was talk of having applicants for tenure build up their own tenure case, whatever it may involve. Along the same lines as earlier when personal vision and doing what they enjoy can make work not feel like work, the progression towards tenure can be more enjoyable and feel like it is attainable.

Carli, a professor and program coordinator, takes it to the next level and likes to guide faculty in finding what it important to them and how it can benefit students and the university, "instead of making sure you have enough publications and this and that." She understood that it should not be about proving yourself with working overtime. Fabiola did not have this perception when she first started and discussed how at times she would feel like a failure because she was not doing enough. Looking back, she saw that she was doing more than enough and was feeling burnt out when she did not have to be. She wished she pulled back a little because it was a chaotic time for her trying to earn tenure and raise children, but the competitive culture of trying to prove yourself pushed her to

continue in the way she did. These participants illustrated how focusing on the quality of work and not the quantity of work can improve work-life balance and prevent burn out or feeling like a failure.

Research Out of Reach

The competitive nature of STEM departments had some participants feeling at a disadvantage with trying to prove themselves, feeling like they do not have the time to keep up with research and presenting at conferences. Research seems to add to the competitive nature; the more a person does, the more competitive they are, and the quicker they advance. Five participants mentioned that at one point in their life research seemed impossible to do with the little time they had. For Danielle, it was to the point where she had a hard time with her identity as a physicist. She thought about moving into equity work and education research, but with already being in the field of physics for so long it was difficult to step into a different direction or find the time to do so. When she did find the time for research and conferences, she loved it and it rejuvenated her.

Britney, Haley, and Kelly all had a research-oriented pathway, but priorities changed when they had children. Britney eventually became a department chair, and Haley and Kelly eventually earned tenure-track positions. Elsie, a department chair, kept up with research by using sabbaticals, adding, “Sabbatical isn’t automatic, you have to apply, and you have to have a good track record of doing research.” She admitted that she does not do research every semester but did enough to keep her intellectually stimulated and feel that she was making a good contribution. Some women may perceive research as being out of reach, and thus, advancing into higher leadership roles may seem out of

reach.

Building a Professional Community

When discussing what contributes to their career commitment, despite the challenges of the competitive nature of their field, four participants mentioned the importance of building a professional community. Liz, who was new to grant writing and publishing, had a friend and mentor to work with and built up her confidence. Professional development was another way she networked and collaborated. Britney has a similar viewpoint, "build networks and connect with other people, personal and professional, but it is still a pretty frustration situation. There are other like-minded people, but maybe not necessarily in your department." She described her work-life balance as, "It took some luck, but we were able to do this crazy patching things together." Her mentor also had kids and understood and helped her move forward on research in a more reasonable manner. She does not know what she would have done without his support.

Danielle found her supportive community among other female professors, with people she can "chat with and get a perspective about things." It was difficult for her to find a sense of belonging until she found other people with her working style, other mothers who try to get everything done before leaving and try to not work at home. She felt guilty that she could not compete with others sometimes, until she realized how hard she worked all day and that other women with families were trying to do the same thing.

Besides attending professional development workshops and trainings, Inez noted that she built a network by taking leadership opportunities when possible and being

involved in a professional society. She found herself to be “very visible at conferences because there aren’t a lot of women attending them, so everyone would recognize me.” She would be invited to serve on panels or lead committees, using underrepresentation of female STEM leaders as an opportunity instead of a disadvantage.

One of Elsie’s main foci as the department chair was to create a department where faculty are connected. She valued the professional connections that can serve as social connections, which can turn into personal connections, which help the culture of the department. Professional connections made a difference for Gabriella, who said that as a faculty member, she felt alone, but as associate dean, there was more collaborative work and working with others. She was making personal connections with meeting and chatting with people all day long. When she was department chair, she enjoyed the department chair meetings, where she connected with women from other departments and colleges, discussing common difficulties and sharing best practices. Inez believed that one reason certain women can make it through is because they found the right support or at least a role model or mentor. She added, “I feel a big commitment to wanting to widen that door and give them [female colleagues] more role models and more opportunities to succeed.” These participants pushed against the competitive culture with connections and collaborations. It removed some of the isolation and stress that a competitive culture may bring, making work more enjoyable and improving career commitment.

Results for the RQ

While the discussions of each theme in the sections above are clearly related to the research questions, the following sections include aspects of these findings that

particularly answer the questions posed in this dissertation. Of the six main themes that emerged from the findings, the three themes (a) doing what they enjoy; (b) lady's work; and (c) motivation, helped answer RQ1, how women in university STEM leadership roles perceive the influence of personal vision on their career commitment. The last three main themes (d) always working; (e) support for work-life balance; and (f) competitive culture, helped answer RQ2, how women in university STEM leadership roles perceive the influence of work-life balance on their career commitment.

RQ 1: Influence of Personal Vision on Career Commitment

Personal vision influenced career commitment in a positive way when it was supported. The participants viewed their personal vision as doing what they enjoy such as helping students, supporting faculty, and being involved in research, collaboration, and creative lesson planning and projects. They love their job and have a high commitment to their students and to opening the door for others to move into STEM. They liked collaborating with colleagues and planning creative projects and creative ways to approach a concept. However, they described their personal vision, it was usually associated with something they enjoyed and were passionate about. Personal vision was a strong motivator, adding meaning and a sense of purpose to the work they did. These women perceived their personal vision as positively influencing their commitment to their career.

When their personal visions were perceived as "lady's work", it was discouraging. It influenced career commitment in a negative way. For example, a few of the participants felt devalued and were disenchanted with their department. Several

women also saw that men usually spoke up more at meetings than women, making it difficult to speak up and have their opinion voiced. One of the participants took opportunities as chair to make sure that everyone had their say, including female colleagues. The participants who felt a lack of support for their personal vision questioned not just the value of their personal vision but also the value as a faculty member. They perceived a lack of support for personal vision as negatively influencing their career commitment.

RQ 2: Influence of Work-life Balance on Career Commitment

Although work-life balance was difficult to achieve, it seemed to not influence the career commitment for most participants. The struggle of work-life balance seemed to be viewed as a common part of being a woman in STEM academia. They understood that balancing work and life would be difficult, and it took discipline and strength to keep moving forward towards full professorship. However, for one participant, the struggle made her unsure if she would do it over again. One other participant, also a working mom, lost her motivation to move towards full professorship and would consider leaving the STEM academia if she could find something that would help her work-life balance. Keeping a routine helped several women fit work into their family life. A few of the women kept moving slowly towards tenure-track or tenure, so they know that although it is difficult, it is not impossible to do, especially as the children became older and more independent. Whether a mother or not, several participants had to learn to say no to certain things or let go of some things in order to balance out their workload and make it more manageable. Even with all the discussion of the difficulty of work-life balance,

having to find a combination of support outside of work and despite the perceived lack of systemic support, it seems only two questioned their commitment because of it. Thus, work-life balance is not perceived as strongly influencing career commitment for the women participating in this study.

The competitive culture of STEM careers adds pressure for women to prove themselves and complete more research and publish more papers. For the working mothers, the lack of time contributed to the lack of research. For many of the participants, it seemed that the competitive nature added stress. Some combatted this by building a professional community and finding others to work with and collaborate on projects and research. Overall, findings indicated that while the competitive nature of university STEM departments can influence their movement towards tenure-track or tenure, but it does not seem to influence the career commitment of the women in these departments.

Summary

In exploring the career commitment of women in STEM, the three themes that helped answer RQ1's focus on personal vision were (a) doing what they enjoy; (b) lady's work; and (c) motivation. The three themes that helped answer RQ2's focus on work-life balance were (d) always working; (e) support for work-life balance; and (f) competitive culture. Personal vision is perceived as a strong positive influence on career commitment, when personal vision is supported. When not supported, career commitment was questioned. Work-life balance is perceived as difficult to maintain but not as a strong influence on career commitment. In the next and final chapter, I discuss the

interpretations of the results and how it relates to the literature. Limitations of the study, future recommendations, and implications for social change are addressed.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this phenomenological qualitative study was to identify how female STEM university leaders perceive the influence of their personal vision and work-life balance on their career commitment. A phenomenological approach was appropriate for this study given the focus is on the perspectives and experiences of this community of STEM university leaders. The two concepts that form the framework of the study were personal vision and work-life balance.

RQ1: How do female STEM tenure/tenure-track faculty, department chairs, and deans perceive personal vision influencing their career commitment?

RQ2: How do female STEM tenure/tenure-track faculty, department chairs, and deans perceive work-life balance influencing their career commitment?

Personal vision is the image of a person's ideal self, a comprehensive sense of their real self as the core identity, including the level of hope, self-efficacy, and optimism to achieve a person vision (Mosteo et al., 2016). Work-life balance is the balance of an individual's personal, social, and organizational life (Poulose & Sudarsan, 2014). Fayaz Khan and Fazili (2016) described it as prioritizing career, ambition, leisure time, family time, and spiritual development. I examined the influences of personal vision and work-life balance on career commitment, particularly the intent to stay or leave a women's STEM career in university leadership.

I conducted a total of 14 semistructured interviews. After transcribing the interviews and coding the data, the code words and phrases were grouped into themes and subthemes guided by the research questions. Participants identified as female

university STEM tenure/tenure-track faculty, department chairs, or college deans for at least 3 years. Three years of experience was identified as a key criterion as informed by the findings of Buse and Bilimora (2014) and Kahn and Ginther (2015) that women usually leave within the first 3 to 4 years of their career. Understanding how women who have persisted in their career perceive their personal vision and work-life balance influencing their career commitment may help administrators improve retention of their female employees in STEM leadership roles. Female representation in STEM offers different perspectives and provides role models for women interested in STEM careers. Results from this study help university administrators create more opportunities for professional development and support for women wanting to move into or grow in STEM leadership roles.

Six main themes emerged from the analysis: (a) doing what they enjoy; (b) lady's work; (c) motivation; (d) always working; (e) support for work-life balance; and (f) competitive culture. Personal vision was often associated with what the participants enjoyed about their job, such as helping students, supporting faculty, and doing research, collaborating, and being creative. Sometimes participants' personal vision was taken as "lady's work", and the experiences women have in a male-dominant culture showed how important it was for women to speak up or be a voice for women. Personal vision was often perceived as their motivation, passion, or drive, and the lack of support for personal vision would influence their motivation. It seemed that these participants were always working. Working mothers have busy schedule, trying to make work fit into a family life. Women without children or with grown independent children are also always working,

and they find that work can easily become their life. What helped with managing the workload for many participants was learning to say no or let go of certain perceptions or responsibilities and finding the right support for their work-life balance, although they believed there was a lack of systemic support. Support mainly came from an outside source, such as family, friends, childcare, or a therapist. The competitive culture of STEM fields sometimes offset work-life balance because of the pressure to prove yourself and keep up with research, but many participants combatted this feeling of competitiveness and built a professional community where they felt a comradery and collaboration, which helped them stay committed.

Interpretations of the Findings

I begin my interpretation of the findings by addressing how the literature reviewed in Chapter 2 is confirmed and disconfirmed what my study contributes to the existing literature. Then, I discuss the findings in terms of the conceptual framework.

Discussion of Literature

I noticed that my participants described personal vision in a similar manner as the literature. Several of the participants mentioned the importance of personal vision because of its relationship to motivation and passion, adding value and making the job worthwhile. Literature mentioned how personal vision can increase motivation and called it the driving force of intentional change (Boyatzis & Akrivou, 2006). According to Goleman et al. (2013), without a vision, there is no passion, and for many of the participants this holds true. One participant said it added a sense of purpose, which Boyatzis et al. (2010) and Buse and Bilimoria (2014) defined as understanding one's

legacy or calling and prioritizing things that are important to one's vision or passion. The participants in my study illustrated how motivation, passion, and sense of purpose strengthened career commitment for women in university STEM leadership roles. Personal vision can be a powerful tool for retention (Houghton, 2019; Van Oosten et al., 2017), and I concluded through my study that it can be a powerful tool for career commitment. On the other hand, when personal vision is not supported, women can become less committed to their career and consider looking for another job.

Work-life balance is important to career women, especially in the United States where gender roles are prominent (Chung & van der Lippe, 2018; Fayaz Khan & Fazili, 2016; Shobha Gunajo, 2017), and a few participants mentioned how they were primarily the ones taking care of the family and house responsibilities. Eventually, the participants found enough help to manage their work-life balance, although one mentioned a diminished motivation because of the work-life imbalance. Trying to balance work and life in a field where it seems that the norm is to work extra hours illustrated the Kachchaf et al. (2015) findings indicating that many women feel they must choose between work and life and often question their dedication to science.

I noticed from the interviews that it is not entirely impossible to work and have a family, which was how many younger women have perceived STEM careers (Cabay et al., 2018; Canetto et al., 2017). It takes persistence and a combination of different support types to stay committed and continue to move towards tenure-track or tenure positions. For example, participants tried to finish as much as they can at work before going home or combined research with pedagogy so that they do not have to spread themselves too

thin trying to focus on both separately. They felt they had more time for family or other projects and felt more productive. These strategies related to Fayaz Kahn and Fazili's (2016) findings that work-life balance is associated with productivity. Having a good work-life balance can increase productivity and decrease the chance of burn out.

The literature identified the underrepresentation of women in STEM careers (Avolio et al., 2020; Blackburn, 2017), and my study demonstrated this underrepresentation: "I was one of two women in a department of 100 people," "I was the first women to be promoted to full professor, and this was in 2012," "I found myself to be very visible at conferences because not many women attended them." Underrepresentation can influence job satisfaction and the climate of the workplace (Griffith & Dasgupta, 2018), which can be manifested in behaviors such as women being talked over by their male-counterparts, an important subtheme of "Lady's Work."

Avolio et al. (2020) conducted an intensive literature review of factors contributing to the underrepresentation of Women in STEM, one being vocational expectations and stereotypes. Among the participants of my study, there existed a notion that women should do more of the teaching and service and men do more of the research. Some participants mentioned how some of what they perceived as important was seen as "lady's work" by their male colleagues, and this aligns with the study from MacCabe et al. (2019) found that men and women in STEM have different goals and preferences in the type of work they do. Teaching, service, and research should be equally valued for, especially for the promotion criteria. This can make the hiring and promotional process more equitable.

The masculine culture and stereotyping of STEM careers are described often in research literature (Cabay et al., 2018; Carli et al., 2016; Olsen et al., 2016). The underrepresentation of woman in university STEM leadership roles contributes to a masculine culture and can lead to assumptions of "lady's work" versus men's work, to men talking over women at meetings, and to many other microaggressions that may influence the career commitment of women in STEM careers. Department chairs and college deans can also show support by being aware when men seem to be taking over the conversation, which can naturally happen in a male-dominant field and can be unintentional and make a conscious effort to have women add in their opinions. If university STEM leaders are more aware of the masculine culture, then steps can be made towards reducing the stereotypical threat.

The research literature identified strategies targeted at increasing representation and retention, such as providing more professional development opportunities and having a mentorship program. Several of this study's participants described enjoying workshops, conferences, and professional development opportunities, noting how they were able to network and come back to work feeling rejuvenated. A few of the participants either mentioned how important it was to have a mentorship program or to be a mentor to new faculty. These examples showed how opportunities to build a professional community and engage with a mentorship program may lead to a stronger career commitment among STEM women.

Discussion of the Conceptual Framework

Boyatzis's ICT states that the *ideal self* is who one wants to be, or in other words, a personal vision for life and work (Boyatzis & Akrivou, 2006; Boyatzis & McKee, 2006; Goleman et al., 2013). The ideal self is a component for therapeutic intervention and intrinsic motivation; it is the driving force of intentional change and the spark that creates a personal vision (Boyatzis & Akrivou, 2006). I described how a supported personal vision creates a strong motivation for women in university STEM faculty positions. Before personal vision can be tapped as a reliable source of motivation it must be acknowledged, understood, and clearly articulated. Department leaders can offer opportunities for faculty to build their personal vision and explore how to construct a vision that not only clearly supports their own career commitment but allows them to dovetail the vision to support and benefit their students, department, and institution along the way. Departmental policies and practices should also be positioned to support a range of complementary aspects of personal vision across faculty and ready to value aspirations regarding mentoring students and fellow faculty, collaborating on research, and flexing their creativity. Essentially, faculty need to be acknowledged as lifelong learners who need to continue to grow and learn while helping others learn.

Personal vision can be a strong tool to positively influence career commitment of women in STEM leadership roles at the universities. However, if left undeveloped, unsupported, or unfulfilled, personal vision can also be a strong negative influence. Assuming that development, nurturing, and retention of faculty are valued outcomes,

STEM leaders would be well advised to attend to, value, and actively support the personal visions of their faculty.

Strategies for supporting personal vision may take many forms. Addressing disempowering or unbalanced culture by avoiding tendencies to categorize, undervalue, or gender-differentiate certain responsibilities (e.g., “lady’s work”) can mitigate potential barriers. Valuing important academic work such as actively exploring creative approaches to teaching and mentoring students can create opportunities for expanded personal vision that aligns with advancement paths. At the same time, assumptions that teaching, mentoring, and service are either lesser or somehow automatically relegated to female faculty can impede career advancement. Effective STEM leaders should strive to offer opportunities to all staff equitably and become increasingly aware of potential hidden discrimination in the system. It may be important to specifically identify female faculty who have not had an opportunity to expand their professional development or leadership skills. Leaders should acknowledge personal vision as a reference point and where faculty value and excel at the service and teaching responsibilities, mentor them accordingly, offering opportunities to attend professional development and trainings related to best practices for teaching and mentoring. Strategic and targeted mentoring can simultaneously support the faculty and strengthen the department by enhancing parallel goals and helping to retain and grow faculty in their evolving vision of their own careers.

Poulose and Sudarsan (2014) defined work-life balance as the balance of social, personal, and organizational life, and consists of several factors (see Table 1). As Maxwell and Mcdougall (2004) described work-life balance as a complex and

challenging process of adjusting work and family/social life, which was illustrated in my study. All the participants had something to say about how complex and challenging it can be to find a balance. They had to use several tactics to handle the all-consuming schedule. Several studies focused on work-life balance as a major reason women leave their STEM careers (Cabay et al., 2018; Canetto et al., 2017; Fouad et al., 2017), and for one of the 14 women I interviewed, having two small children has made her question her career commitment. Work-life balance and occupational stress are connected to each other (Ani, 2017; Da Silva, 2019), and the women in my study illustrated how it was stressful to find and maintain a work-life balance and how it affected the time they had for research and projects.

Teaching in a university STEM department allows for somewhat flexible hours, which can help women schedule work around family. Some learned how to do this on their own, but women in STEM should have opportunities to discuss how to do this, perhaps through mentorship programs, professional development, or professional community. One participant mentioned how she felt such relief when she finally found a coworker to relate to. Finding others with similar work-life balance difficulties can give women a feeling that they are not alone in this struggle. Along the same lines, many women had to learn on their own how to how to say no to certain projects or let go of certain responsibilities to obtain a manageable workload. It is easy to be pulled in different directions and become overwhelmed. Women in in STEM university leadership roles can benefit from having someone or a group to discuss how to balance the workload instead of trying to figure things out on their own.

The competitive culture of university STEM departments influences work-life balance. The competitive STEM culture pushed some of the participants in this study to overwork themselves, influencing their work-life balance. Lessening the competitiveness and increasing collaboration opportunities can improve the culture of STEM workplace. Several participants mentioned how they enjoyed collaboration and networking and how building a supportive professional community has helped them work through the struggles of the competitive culture and work-life balance. It led a few participants to collaborative research projects, as well. Building a professional community is essential for the career commitment of women in university STEM faculty positions. People with similar challenges and experiences can provide emotional and informational support for work-life balance that career women look for (Brue, 2019). Collaborative opportunities can be a strong tool to combat the competitive culture, positively influence work-life balance, and retain women in STEM departments.

Lastly, taking time off was not a common discussion among the participants. Summers and sabbaticals are rejuvenating breaks, but during the school year, it seemed that time off was not an option, and it influences their work-life balance. Some participants felt that they should not or could not take time off because of the amount of work they had to do or would fall behind not be able to keep up with the competition. When they did have time off, participants mentioned how beneficial it was for them. If anything, time off can help faculty avoid burnout and stay productive. Starting a family can cause women to stop working towards advancement because they do not have extra time to put into research and grant writing. It is possible to still advance with time off and

with a family. However, reassurance from department administrators may remove the fear of taking time off or starting a family. One way to have reassurance is to have clear procedures and inclusive criteria for advancement and promotions, which a few participants said was not completely clear at times. Department chairs and deans can work towards changing the perception of putting work before family to advance and find ways to help women continue with a manageable amount of work that still builds up their portfolio.

Women would benefit from more support to develop and move towards their personal vision and ideal work-life balance. When and where supported, women are more likely to remain in their chosen career resulting in increased retention of female university STEM faculty and ultimately more women into leadership. Creating more opportunities for women to recognize and define their personal vision and work-life balance can strengthen their career commitment to their university STEM leadership roles.

Limitations of the Study

Limitations of this study included voluntary participation, time, and my own bias of the topic. The voluntary process brought in 18 responses from faculty and deans from 9 CSUs. However, I obtained data saturation at 14 participants, and the interviews for the last four respondents were cancelled. In total, seven CSUs were represented among the participants interviewed. Therefore, not all 23 CSUs were represented. Given more time, I could have interviewed the other four respondents and slightly expanded the representation of the CSU, or perhaps I may have chosen a different invitation or

selection process. However, the range of participants was sufficient to meet data saturation and generated data rich with useful information about the phenomenon of interest (Creswell, 2018; Morse, 2000; Patton, 2015).

Researcher bias while also a potential limitation of the study, was mitigated by bracketing my interactions and interpretations (Rubin, 2012). I avoided sharing my own experiences with personal vision, work-life balance, and career commitment. Recognizing that a certain tone, wording, or facial expression can be inadvertently interpreted in a manner that may influence a participant's response, I attended to maintaining consistency. To further reduce the influence of bias, I ensured the order of the questions remained constant and used follow-up questions only for the purpose of eliciting clarification or additional detail (Adams, 2015; Patton, 2015). Even with the limitations of voluntary participation, time, and bias, the study has elements of trustworthiness as explained previously in Chapter 4.

Recommendations

I explored the influence of personal vision and work life balance on career commitment of women in university STEM leadership roles. Recommendations would be to take a closer examination on how personal vision was developed and how it helped them through the struggles of work-life balance and if this is their foundation for career commitment. Future research can explore specific ways that women have been supported, adding more informative efforts that can help departments enhance and develop experiences withing STEM departments. For example, some specific support mentioned in this study were better systemic support for equitable classrooms, mentorship programs

for faculty, learning to speak up when needed, workshops to develop personal vision, better maternity leave and childcare options, and more options for collaborative research, workshops, trainings, and conferences. Future research can move an many different directions from the results of this study.

The findings warrant future research regarding the experiences of faculty at various stages in the tenure process. For example, it may prove interesting to focus in on tenured faculty to explore more deeply how and when personal vision and work-life balance played a part in their tenure-track journey. Thus, focusing on the work-life balance and personal vision among academic leaders in the role of department chair or college dean are likely to provide a more nuanced understanding of how personal vision and managing work-life balance evolves as individuals grow and develop across an academic STEM career.

Also worthy of deeper exploration may be to compare how women with children and women without children differ in their articulation of a personal vision or the specific elements that most influence their understanding of what work-life balance means and the value they place on it. The interviews revealed implied differences on the views of the constantly working, and more information in this area would add to the topic of work-life balance and career commitment. The replication of this study with the recommendations considered could contribute to the understanding of the career commitment of women in university STEM leadership roles.

Implications

I explored how women university STEM leadership roles perceived their personal vision and work-life balance influencing their career commitment. Understanding women's experiences and perceptions may help university administrators improve the retention rates of their female employees in STEM leadership roles. This study yields potential impact for positive social change, implications of the theories, and recommendations for practice.

Positive Social Change

The possibilities of positive social change are activated as institutions explore, develop, and implement multiple ways to support the female STEM faculty community, especially those pursuing leadership roles. Another pathway to positive social change is improving the leadership skills of department chairs or college deans who can implement support systems and provide opportunities to develop personal vision, improve work-life balance, and strengthening career commitment of their employees. An increase in female representation can bring different perspectives to the workplace. These women can also become role models, leading to the positive social change of bringing more women to STEM fields. Departments, colleges, and universities can understand what these women have experienced while working in a male-dominated field and improve the inclusiveness and equity in their work environment, contributing to the organizational social change.

Theory-based Implications

Boyatzis's ICT centers on the realization of the differences between a person's ideal self and real self, and setting an agenda that focuses on improving the individual's

strengths to achieve the ideal self (Boyatzis, 2006). The realization of the ideal self and becomes the motivation for intentional change towards personal vision (Boyatzis & Akrivou, 2006). Throughout the study, this theory helped increase the focus and findings regarding how women were motivated by their personal vision.

Work-life balance according to Poulose and Sudarsan (2014) is the balance of an individual's personal, social, and organizational life. This concept was evident in the way that women interviewed described their work-life balance. They spoke about their family responsibilities, their lack of a social life, and the constant work. They maintained enough balance via multiple strategies, and personal vision was part of what some of the women used to stay motivated through the struggles of work-life balance.

Recommendations for Practice

Recommendations for practice includes developing multiple ways to support and encourage female STEM faculty to pursue leadership roles. Administrators are recommended to listen to their female faculty members more often, ask about or help develop their personal vision, and find ways to support them as individuals. Showing that everyone's personal vision is valued can develop a culture of inclusion instead of a culture where there is a divide between "lady's work" and other more rigorous work. Recommendations for administrators is to help their female STEM faculty find a professional community or to implement a mentorship program, which can create a sense of belonging, lead to collaboration projects, and become a support system. This can also guide department chairs and deans, who may benefit from finding a professional

community at their level of administration. Women in STEM may also have an opportunity to learn how to self-advocate through these strategies.

University administrators can create practices and policies that provide more professional opportunities and create equity for women within the community of STEM leaders. Offering better maternity leave and childcare options or insurance policies that include therapy are other avenues that higher administration can look into. University administrators can learn how to support women in STEM careers, strengthening career commitment and increasing the retention of women in STEM careers with hopes that they move into leadership positions. The retention and rise of women in STEM careers expand their visibility and creates role models for younger women considering entering the STEM fields.

Conclusion

The purpose of this phenomenological qualitative study was to identify how female STEM university faculty, chairs, and deans perceive the influence of their personal vision and work-life balance on their career commitment. I used a phenomenological approach and framed the study around personal vision and work-life balance. This study gave insight to a deeper understanding of the support needed for women in STEM leadership roles.

Personal vision is associated with what makes work enjoyable and worthwhile. It is important that personal vision is supported by taking an approach that all contributions are valued and benefit of the department. With a better balance of how much research, teaching, and service contributes to performance, women may feel more valued and have

more hope to advance. Some women may feel overlooked, due to the male-dominated conversations, and some women saw the importance of having a voice and to become advocates for other women in STEM. Personal vision is a strong motivator and support for it can strengthen career commitment.

Work-life balance can influence personal vision and career commitment, which is why it is important to also support work-life balance. Women may need ways to combine research and pedagogy, learn when and how to so no or let go of certain projects and responsibilities, and find support outside of work. The competitive culture of STEM faculty positions adds to the pressure of work-life balance, but it can be combatted with opportunities for mentorships, networking, and collaboration. The pressure of the competitive culture may lessen and perceived work-life balance can improve, which can strengthen career commitment.

It is important to have female representation because women can bring different perspectives and become role models for women interested in STEM careers. Results of this study may help university administrators create more opportunities for professional development and support for women wanting to move into or stay in STEM leadership roles. This study contributes to positive social change by providing faculty, chairs, and deans with strategies to support culture change. Women can and have succeeded in STEM fields, and with a better understand of how to support women in STEM university faculty positions, departments and colleges can work towards creating a more inclusive and equitable work environment, and in doing so, strengthen career commitment and increase retention among women in this historically male-dominated discipline.

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Appendix A: Interview Guide

Hi, I'm Denise, thank you for participating in this interview. I work part-time as a math lecturer at a Cal State University and also work full-time as a coordinator at its Learning Resource Center. I am working on my Ph.D. in Education from Walden University, with an emphasis on leadership, policy, and change. The purpose of this qualitative study is to identify how female university STEM leaders perceive the influence of their personal vision and work-life balance on their career commitment. Included as a "STEM leader" are tenured and tenure-track faculty, department chairs, and college deans within STEM departments and colleges. If you don't want to answer a question, just let me know. The video recording will immediately be deleted. I will keep the recording and transcripts saved on a USB in a filing cabinet for 5 years, and then the files will be deleted. Please try to avoid names of people or name of the university you work at while we record. However, I will omit them from the transcripts if names or any other identifiers are mentioned. Do you have any questions before we start? I will now start the recording.

Introductory questions

1. What is your current position?
2. How long have you been in this position?
3. Please describe the path you have taken to get to this position.

Defining personal vision

4. What did you want to accomplish when you first stepped into this role?
5. What are your goals now?
6. How do these goals relate to your personal vision for your career?

7. Please describe what you consider to be your personal vision for your career?
8. Describe how having a personal vision has helped you become a STEM leader.

Defining Work-Life Balance

9. What has balancing your work and your family or social life been like while in your current position?
10. Describe any challenges you may have encountered in balancing work and family or social life.
11. What has helped you move towards a more ideal balance of work and life?
12. Describe a time, if any, where balancing work and family or social life made you second guess or rethink your career or career goals.
13. How has balancing work and family or social life helped you stay focused on your career goals?

Connecting personal vision and work-life balance

14. How has having a personal vision helped you through balancing work and life?
15. Describe any experiences you may have had where balancing work and life changed your personal vision to something you thought as more fitting or more attainable.

Defining career commitment

16. How would you describe your commitment to your career as a university STEM leader?

17. If you could do it over again would you choose the same career? Why or why not?
18. Explain what has kept you committed to your career up to now.
19. Would you recommend a leadership role such as yours to other women in STEM? Why or why not?

Connecting personal vision, work-life balance, and career commitment

20. How has having a personal vision helped you stay committed to your career as a university STEM leader?
21. How has work-life balance helped you stay committed to your career as a university STEM leader?

Closing

22. Is there anything else you would like to add about personal vision, work-life balance, or career commitment involving STEM leadership?

Stop recording

Thank you so much again. You are now part of my journey to a Ph.D. Once I complete the study, I will send you a summary of the results via email. Any questions before we go? Have a good day.