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Women Engineering Faculty Well-Being: An Interpretative Phenomenological Analysis

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WOMEN ENGINEERING FACULTY WELL-BEING: AN INTERPRETATIVE
PHENOMENOLOGICAL ANALYSIS

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ABSTRACT

This study examined the lived experiences of women as they navigate faculty pathways in engineering. This qualitative research study centered on the well-being journeys of seven women who have achieved tenure as engineering faculty to uncover how these women psychologically experienced and incorporated well-being across their personal and professional lives in support of their success, happiness, and satisfaction.

Leveraging qualitative research techniques aligned with the interpretative phenomenological analysis (IPA) methodology, this study elicited and systematically analyzed accounts of well-being across participants' professional and personal life spaces. The well-being journeys of seven participants, JoAnn, Rose, Marie, Allison, Dylan, Mary, and Gabriella, who have navigated the faculty pathway to tenure and beyond in several universities and engineering sub-disciplines are described here. Their rich stories weave together successes and challenges commonly faced by many in engineering including managing demands of professional and personal roles, establishing trusting relationships, resilience against marginalizing cultures and climates, and supporting one's own success within engineering departments and universities widely.

This work reveals four psychological patterns, or themes, from the accounts of women engineering educators in order to illuminate challenges faced by women faculty within engineering disciplines as well as to offer examples of what actionable well-being strategies could look like for faculty and for those who support them. Through the analysis and interpretation of their accounts, readers gain insight into challenges faced, strategies engaged, and benefits of maintaining well-being as a woman faculty member.

Their experiences illustrate the subtle and overt ways faculty identities and success may be marginalized by immediate colleagues and how a faculty member may ensure her own success and well-being through seeking positive relationships in external spaces. By presenting participants' accounts, the findings demonstrate approaches faculty could potentially adopt to circumvent toxic professional environments and enhance their own well-being. This study provides strategies that can be adopted by others in their own pursuit of professional success (however success may be defined by the individual).

DEDICATION

This work is dedicated to all of the women who have shown me what it means to be professionally and personally courageous including my mentors, immediate and extended family, and the many women participants who have shared the stories of their journeys in this study. Without the fierce bravery of these women this work would not be possible.

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BACKGROUND

Introduction

The professional expectations for modern faculty members are high. In many science, engineering, technology, and math (STEM) disciplines, faculty are expected to teach with enthusiasm, conduct innovative research, publish prolifically, mentor and advise students, contribute to university initiatives, be of service to their department, and take on leadership roles (Lee et al., 2017). One noticeable absence in this list of priorities is maintaining personal happiness, satisfaction, and general well-being.

Countless individuals, organizations, researchers, and engineering educators continue to dedicate their careers towards creating spaces where all members of the engineering ecosystem are valued and supported. Faculty are an essential component of this ecosystem. Personal and professional happiness, satisfaction, and psychological wellness, collectively referred to as *well-being*, has been studied extensively in other fields, yet has not been prioritized in engineering faculty life.

This study aimed to uncover how women faculty in engineering disciplines incorporate well-being across their personal and professional lives in support of their professional success, satisfaction, and happiness. The participants in my study are incredible women with extensive and complex careers within engineering higher education. They have succeeded in traversing the faculty pathway to tenure and beyond. Participants' challenges and triumphs navigating higher education and engineering

ecosystems, and attempts to incorporate numerous, and at times competing, personal and professional roles throughout their careers simultaneously make their stories unique while echoing challenges to well-being faced by many within higher education and engineering faculty roles. Their accounts were collected through in-depth interviews to illuminate the ways in which they think about and incorporate dimensions of well-being in their professional and personal spaces. Through their stories, we gain insight into some of the challenges these women have faced as well as strategies they engaged throughout their careers to enhance their own happiness and resist marginalization and isolation.

Motivation of This study

My personal motivation underpinning this study was to promote the success and well-being of women in higher education. Prior to this study, I contributed to two National Science Foundation-funded projects tasked with developing national research agendas. The first project (EEC-1551605) focused on broadening participation in engineering. The second project (EEC-1638888) centered on holistic professional development of STEM faculty. While working on these national studies I noted well-being was vocalized as a concern among faculty. However, faculty well-being was not perceived as a priority in their institutions and many felt alone and unsupported in their efforts to enhance their well-being. My role in these previous studies granted me access to national conversations around faculty happiness and satisfaction and underpinned my personal motivation to explore well-being as an important and understudied component of the faculty experience in engineering.

My goal for this work was to bring well-being to the forefront of engineering higher education in support of faculty; to share participants' accounts of well-being triumphs and challenges with the larger engineering community and to support women currently traversing the faculty pathway. My aim in crafting this study was to lay the groundwork for exploring and understanding the individual and shared well-being experiences of women navigating careers as engineering faculty. My aim in reporting this study was twofold: (1) to introduce members of the engineering and faculty communities to the language and concepts well-being, constructs with deep historical roots in the fields of psychology and health, through the stories of fellow engineering faculty colleagues; and (2) to encourage readers to consider and incorporate this too-often overlooked dimension of the faculty experience into support structures, policies, and departmental cultures within engineering.

Review of Literature

Women Navigating Engineering Faculty Environments

The engineering and academic landscapes present many challenges, particularly for women who continue to be vastly underrepresented and marginalized within engineering. It is well documented that engineering has traditionally been, and in many ways, continues to be exclusionary. Many scholars have characterized the field of engineering as gendered, raced, and classed (Chesler & Chesler, 2002; Frehill, 2004; Riley, Slaton, & Pawley, 2015) where the so-called "chilly climate" pervasive throughout male-dominated STEM fields continues to implicitly and explicitly marginalize underrepresented communities within engineering higher education. One community that

continues to be marginalized and faces exclusionary conditions in engineering

departments are women faculty. While the representation of women in engineering

faculty roles has incrementally increased over the years (14.0% in 2012, 15.2% in 2014,

and 16.3% in 2016 (Yoder 2016)) the representation of women faculty at all levels

continues to remain well below 20%. This underrepresentation is further amplified for

women of color who possess intersecting gender and racial identities minoritized in

engineering higher education. In 2017, African American men and women made up less

than 3% of faculty positions within engineering (Yoder 2017). That same year White

women and women of color collectively made up less than 17% of faculty members in

tenured or tenure track positions in engineering. These statistics emphasize the need to

understand faculty through a lens of intersectionality in order to understand the nuanced

ways multiple social identities which may become marginalized within academic

professional contexts. That is, there is a need to attune to the interactivity between a

faculty members' social identities, such as gender and race, and the interactions of their

intersecting identities with larger departmental and university structures that may act to

threaten and marginalize faculty (Crenshaw, 1989; Pawley & Phillips, 2014; Slaton &

Pawley, 2015).

The challenges women overcome in achieving success within engineering are

numerous; scholars have documented the marginalizing environments of male-dominated

STEM fields, particularly within engineering where women experience subtle and overt

discrimination and sexism while navigating unwelcoming and potentially professionally

and psychologically toxic environments (Malicky, 2003; Seymour & Hewitt, 1997;

Tonso, 2007). The wealth of research conducted on the adverse effects of non-inclusive STEM environments on female students highlights ways in which women may also (but perhaps silently) experience cultures of exclusion within engineering as faculty members. Female students frequently experience misalignment with the competitive nature of most engineering programs as women tend to prioritize community, collaboration, and diversity more than their male counterparts, feel alienated by cultures that do not fit with their styles or values, and face difficulties in their interpersonal relationships with peers (Chesler & Chesler, 2002). Additionally, perceptions of social marginalization can erode sense of belonging over time and lead to high levels of stress, which present challenges to coping (Walton, Logel, Peach, Spencer, & Zanna, 2015). Walton and colleagues posit that the effects of this chilly climate on female students may be partially mediated by addressing the psychological dynamics arising from the non-inclusive culture.

Women faculty in male-dominated fields of science and engineering may also experience unique challenges in establishing relationships with mentors. Challenges include the presence of few senior women faculty to act as mentors, an inability of junior faculty to establish relationships with the existing senior women faculty, and potentially harmful outcomes of cross-gender mentoring to the women faculty member as dominant styles of mentoring in engineering based on traditional male socialization can work to reinforce stereotypical gender roles (Chesler & Chesler, 2002). Like faculty in other fields, women engineering faculty may also experience their professional demands being in competition with their personal roles. For example, some women engineering faculty may wish to adopt (or face expectations to conform to) tradition familial caretaker roles

as wives, mothers, or caregivers to other family members throughout their career and these roles may compete with their academic and professional demands (Chesler & Chesler, 2002).

Women faculty may desire to learn strategies for their own well-being, and those who wish to recruit and support them may desire to better inform inclusivity initiatives and support engineering faculty well-being on their campus. Some women faculty may be able to look to their colleagues who have found ways to successfully navigate their career milestones while maintaining personal and professional well-being. Unfortunately, many women faculty members experience a mentoring vacuum with a stark absence of women colleagues to model and from whom they can learn. Where then can a woman engineering faculty member turn to for guidance and strategies for maintaining satisfaction and happiness while successfully navigating the demands of faculty life?

Voices of Dissatisfaction and Unhappiness Within Faculty Roles

Articles in academic popular media have given faculty, both women and men, a platform to reveal ways in which they are unhappy and dissatisfied in their positions, roles, and academic cultures. Articles in media like *The Chronicle of Higher Education*, *Times Higher Education*, and *Inside Higher Ed* highlight the recent uptick in faculty publicly documenting their decisions and reasons for leaving academia, calling it "Quit Lit" (Dunn, 2013; Flaherty, 2015; Guest Pryal, 2013; Perel, 2018; Schuman, 2013). These articles, along with academic blogs and interviews with faculty, publicize the ways in which faculty are unhappy and dissatisfied in their positions, roles, and academic cultures. Faculty speak of the pressure of promotional and tenure expectations, feeling

isolated, lack of autonomy, challenges with colleagues, a perceived incompatibility between motherhood and academia, overload of work hours, pressure to be awarded research funding and publish, and a lack of guidance from experienced colleagues (ChronicleVitae, 2013; Dunn, 2013; Wilson, 2012).

Dissatisfaction is experienced by women and men at all faculty levels from new junior faculty, to tenured Associate Professors, to Full Professors, with Associate Professors reporting the lowest level of job satisfaction (Jaschik, 2012). The research director of one such study explains that "part of that may have to do with the difficulty of balancing the responsibilities of home and work at midlife" and gaps between faculty members' expectations and the realities of their jobs (Wilson, 2012). This provides evidence that achievement of tenure does not alleviate the psychological strain and challenges to well-being faculty feel from and within their professional roles. It also underscores the importance of understanding well-being experiences of faculty of all ranks within the higher education profession.

Well-being in Higher Education

Historically, institutional attention on wellness programming has been geared towards undergraduate student well-being which positions faculty as mere support structures for student well-being. However, in recent years greater attention has been devoted to the well-being of faculty members themselves and there have been growing calls for institutions to create cultures of well-being for *all* within in higher education (Amaya, Donegan, Conner, Edwards, & Gipson, 2019; Henning et al., 2018).

A psychological construct often examined in faculty well-being research is burnout, which has been extensively studied for decades with much work centered around the faculty profession (Goodman & Schorling, 2012; Kavanagh & Spiro, 2018; Luken & Sammons, 2016; Sabagh, Hall, & Saroyan, 2018; Shanafelt et al., 2009; Singh, Mishra, & Kim, 1998; Skaalvik & Skaalvik, 2007). For example, Sabagh et al. (2018, p. 132) explain that "burnout is a state of physical, emotional and mental exhaustion resulting from a prolonged response to long-term exposure to demanding situations," and that modern faculty experience high levels of this burnout. In their review of literature on faculty burnout, these scholars reveal that over the last few decades faculty performance and productivity expectations have steadily risen and have resulted in increased psychological challenges that threatened faculty well-being. They reported that increased workload demands and conflict between roles contributed to psychological distress and feelings of burnout, and that burnout was consistently and negatively correlated with job satisfaction as well as psychological and physical well-being (Sabagh et al., 2018).

Another psychological construct studied in relation to faculty well-being is the imposter syndrome. Clance and Imes first termed the "imposter phenomenon" in 1978 to describe the psychological patterns of negative self-assessment and perceptions of intellectual fraudulence among high-achieving individuals (Clance & Imes, 1978). Modern researchers have adopted the term "imposter syndrome" and describe numerous ways imposter syndrome experiences negatively influence well-being (Brems, Baldwin, Davis, & Namyniuk, 1994; Laux, 2018; Mohr, 2014; Young, 2011). For example, Laux (2018, p. 44) explains that "these individuals fail to internalize ability and success despite

earned personal, academic, and professional success . . . and praise and recognition from colleagues and supervisors." Marked by challenges to self-confidence and internalizing positive feedback, individuals experiencing the imposter syndrome describe negative psychological experiences such as: fear of evaluation and failure, guilt about personal success, underestimation of themselves while overestimating others, and researchers explain that the imposter syndrome is cyclical, self-perpetuating, and difficult to disrupt (Clance & Imes, 1978; Laux, 2018). In a study of imposter syndrome among women faculty in the U.S., Laux (2018) explains that while men and women are both susceptible to imposter feelings, other factors such as gender socialization, stereotyping, and societal messaging can act as a catalyst for these feelings and lead women to be more likely to experience imposter syndrome feelings. Laux's findings show women faculty's imposter feelings can emerge during graduate school and continue in academic careers, including during interactions with colleagues in conference settings, and can result in feeling insufficient in both professional and personal roles. Other researchers examined phases of faculty careers in relation to imposter syndrome and posit that early and mid-career faculty may be particularly susceptible to imposter feelings (Brems et al., 1994; Earle Reybold & Alamia, 2008).

Much of existing faculty well-being studies focus on faculty across disciplines and have centered on job satisfaction and intent to stay in the university (Ambrose, Huston, & Norman, 2005; Daly & Dee, 2006; Hagedorn, 2000; McCoy, Newell, & Gardner, 2013; Ryan, Healy, & Sullivan, 2012). These studies examine, for example, the role of institutional environmental conditions like climate and collegiality in faculty job

satisfaction. Specific components of climate have also been examined where, for example, toxic work environments in higher education institutions with so-called "workplace bullying" were shown to have a negative impact on the mental health of faculty and staff (Hollis, 2019). Another study (Larson et al., 2017) reported that relationships between environmental factors and faculty satisfaction were mediated by psychological needs such as autonomy and relatedness.

In their examination of environmental factors and faculty well-being at one mid-sized research institution, McCoy, Newell, and Gardner (2013) noted differences in well-being between women and men faculty. Their sample encompassed STEM and non-STEM disciplines and women participants reported significantly lower well-being and more negative perceptions of institutional environment than male participants. The authors reported findings "consistent with a long line of previous research . . . that women faculty members reported lower job satisfaction, higher intent to leave, lower emotional health, and marginally lower physical health than men" (p. 319). The authors found climate and work-life integration to be the strongest predictors of faculty well-being and reported that the more faculty perceived institutional support for work-life integration the more positive their well-being Their findings underscore the importance of exploring personal experience of institutional and departmental climate when studying the well-being of women faculty.

Many of these published faculty well-being studies leveraged quantitative methodologies and were conducted within a single university thus the authors acknowledge the limited generalizability of their findings to other university contexts.

Furthermore, these studies incorporate faculty across disciplines and are not contextualized to engineering academic environments. The trends across these studies, however, emphasize university climate, interpersonal interactions, and support for multi-dimensional faculty lives as important factors in faculty satisfaction and well-being. Other recent studies have included comparisons of satisfaction among faculty from different university types (Webber, 2019), satisfaction and well-being of non-tenure-track faculty (Seipel & Larson, 2016), and the role of department chairs in promoting faculty well-being (Bautista, 2018). Thus, in addition to the growing volume of faculty well-being studies being reported, the scope of studies has also widened in recent years.

While the body of higher education well-being research has grown, the studies were conducted with faculty from diverse disciplines. These studies offer insight into faculty well-being *in general*, but were unable to capture the nuanced, deeply contextualized experience of faculty navigating careers in *engineering* higher education. Thus, the existing body of well-being research presented a starting point for this study but was insufficient to deeply understand the personal lived experience of women within these engineering faculty pathways.

Institutional and Organizational Benefits of Fostering Well-Being in the Workplace Outside Academia

Well-being research has been conducted for over six decades in fields such as psychology, health, medicine, and career assessment (Diener, 1984; Diener, Suh, Lucas, & Smith, 1999; Harter, Schmidt, & Keyes, 2002; Jahoda, 1958; Page & Vella-Brodrick, 2009; Ryff, 1989; Ryff & Keyes, 1995; Wilson, 1967). Literature in fields outside of

engineering education research recognizes the importance and value of well-being in professional and personal spaces, as well as the implications well-being has on individual and organizational success. Page and Vella-Brodrick (2009) explain that promoting and preserving employee mental health and well-being leads to marked increases in organizational health, which is demonstrated in the link between employee well-being and performance and retention. The authors explain that well-being and retention are linked, stating that individuals with low levels of well-being are more likely to leave their organization as a result of job dissatisfaction, and that intention to leave is related to an absence of positive experiences and feelings (well-being) rather than a presence of negative experiences and feelings.

The relationship between well-being and job performance and productivity is more complex than previous assumptions that performance arises from job satisfaction. The authors explain that while job satisfaction is a useful predictor, the more comprehensive perspective of employee happiness and the psychological aspects of well-being strengthen the correlation with performance. Diener (2012) explains that increased well-being is not only a desirable outcome itself, but high levels of well-being have been shown to be a predictor of future health and the quality of person's social life, fosters organizational success (through job satisfaction and productivity), fosters organizational and community citizenship, and may lead to outcomes like greater creativity, risk-taking, and goal oriented behavior. Additionally, Diener and Seligman (2004, p. 1) argue that "policy decisions at the organizational, corporate, and governmental levels should be more heavily influenced by issues related to well-being."

Well-Being Theoretical Perspectives That Inform the Interpretive Lens

Well-being may be conceptualized in many distinct ways and has been studied extensively over the last six decades. A notable development in the field of mental health and well-being was the reconceptualization of mental health as being the ***presence of well-being*** rather than the absence of illness. This new definition, championed by researchers such as Diener (1984), Ryff (1989), and Keyes (1995), continues to echo through modern research and medical practice (Page & Vella-Brodrick, 2009).

Three well-being frameworks informed my perspective as an instrument of qualitative research as I collected and examined the experiences and meaning-making of the participants in this study: subjective well-being (SWB), psychological well-being (PWB), and workplace well-being (WWB). The SWB and PWB frameworks represent two streams of well-being approaches; SWB aligns with the *hedonic approach* where happiness arises from maximizing pleasure and minimizing displeasure, while PWB aligns with the *eudaimonic approach* where happiness arises from personal fulfillment and expressiveness, self-actualization, and self-determination. WWB is an extension of these frameworks which focuses in on the domain-specific context of the workplace. There is much overlap between the three frameworks, yet they remain distinct constructs offering unique and potentially powerful insights to inform the qualitative exploration and understanding of how women engineering faculty may conceptualize, make meaning of, and incorporate well-being into their professional and personal lives.

Subjective Well-Being

The subjective well-being (SWB) framework is well established and has guided work across many fields for decades (Diener, 1984; Diener et al., 1999; Wilson, 1967). SWB conceptualizes well-being in terms of cognitive assessment and affective response. It focuses on the subjective self-assessment one makes about the presence of pleasant emotions and experiences in life and the evaluation of one's quality of life globally across the many domains of their experience (i.e. globally across work, home, etc.) (Diener, 1984; Diener et al., 1999).

In SWB research, the terms "well-being" and "happiness" are often used interchangeably, and the way in which these terms are defined fall into three major categories (Diener, 1984). The first category defines happiness in terms of affective condition – treated as a state or a trait. This conceptualization most closely aligns to the colloquial usage of the terms; happiness or well-being means that one experiences mostly pleasant emotions or has a predisposition towards reacting to events in a more emotionally positive way. The next category defines happiness based on external social criteria where one is compared to some ideal state. Well-being thus reflects possession of normative qualities that have been socially defined as being desirable. The final category defines well-being, or happiness, in terms of subjective evaluation based on an individual's self-defined criteria and is most closely tied to a state of satisfaction—that is, the individual determines their own standards of what a happy life is and a positive evaluation of quality of life is often interpreted as satisfaction of one's desires and goals. The SWB framework requires that the individual evaluate life satisfaction holistically

rather than examine experiences only within a particular domain. Thus, researchers must look across salient domains of a faculty member's life—i.e. work and home, where the influence of personal life domain cannot be ignored as "domains that are closest and most immediate to people's personal lives are those that most influence SWB" (Diener, 1984, p. 545).

There are three major components to the SWB framework that reflect these different conceptions of happiness, encompassing affective responses and cognitive evaluations: (1) positive affect (pleasant feelings); (2) negative affect (unpleasant feelings); and (3) cognitive evaluation of life satisfaction as a whole. Possessing a balance of high levels of positive affect and low levels of negative affect along with positive evaluation of quality of life and feeling satisfied across life domains marks high subjective well-being.

Psychological Well-Being

According to Ryff (2014), a leading psychologist and psychological well-being scholar, early well-being research throughout the 1980s focused on studies of happiness, positive affect, and life satisfaction without deeper consideration to questioning what constitutes the essential features of well-being. Like SWB, psychological well-being (PWB) has been studied for decades (Harter et al., 2002; Jahoda, 1958; Ryff, 1989; Ryff & Keyes, 1995), and its researchers have tried to uncover essential psychological processes and dimensions of well-being. Ryff's (1995) model of psychological well-being includes six core components of well-being:

(1) **Self-acceptance**; positive evaluation, knowledge, and acceptance of one's self including awareness of personal limitations

(2) **Purpose in life**; belief that one's life has meaning, purpose, and direction

(3) **Environmental mastery**; capacity to effectively manage one's life situations and surrounding world

(4) **Positive relations with others**; possession, quality, and depth of connection one has in ties with others significant to them

(5) **Autonomy**; sense of self-determination and viewing one's self to be living in accord with one's own personal convictions

(6) **Personal growth**; sense of continued growth and development as a person and belief one is making use of their personal talents and potential

Ryff differentiates the *eudaimonic perspective* of PWB (well-being arises from self-realization) from the *hedonic perspective* of SWB (well-being arises from pleasurable affect). She explains that the philosophical root of PWB is grounded in Aristotle's conceptualization that well-being reflects "activities of the soul" and is a process of "striving to achieve the best that is within us. Eudaimonia thus captured the essence of the two great Greek imperatives: first, to know yourself, and second, to become what you are. The latter requires discerning one's unique talents . . . and then working to bring them to reality" (2014, p. 11).

Ryff and Singer (2008) outline some characterizations of the relational component of this construct noting varying conceptions of positive relationships informing the model from philosophers like Aristotle to pioneering psychological well-being scholar and clinical psychologist Jahoda's (1958) work. They explain that Jahoda's work emphasizes "the ability to love to be a central component of mental health" and go on to explain that

"from a cultural perspective, there is near universal endorsement of the relational realm as a key feature of how to live" (p. 21). This points to the central role relationships may play in faculty life where the capacity to feel close to others and the ability to establish deep friendships and connections to persons within an individual's network as essential to their psychological well-being.

Ryff and Singer explain that these positive relationships may be reflected in the form of romantic and family love or in deep friendships; characterized by close identification and relation to others, empathy and affection, warm interactions, and intimacy through close unions. They characterize an individual with higher relational PWB as someone who "has warm, satisfying, trusting relationships with others; is concerned about the welfare of other others; capable of strong empathy, affection, and intimacy; understands give and take of human relationships" (2008, p. 25). Discussion of relationships in a faculty member's networks in professional and personal spaces may then illuminate strategies she engages to cultivate positive, trusting relationships like these to overcome obstacles and enhance her well-being as an engineering faculty member.

Exploration into engineering faculty members' negotiations through personal and professional transitions within a career are essential. An individual's journey and evolution through ranks of faculty may be composed of contrasting times of presence and absence of these six components of PWB; each contributes to a faculty member's overall sense of well-being. As mental health is today now characterized by the *presence* of well-being, faculty members may enhance their well-being through professional and personal

environments, tasks, and relationships that allow them to experience the six psychological components of PWB. The core philosophical eudaimonic process of *becoming* thus emphasizes the importance of ongoing personal growth in a faculty member's sense of well-being. That is, well-being can be supported via feelings of movement and progress towards identifying unique or emerging talents and realizing them within the professional space. Interpersonal interactions are also of particular interest and importance. Personal and professional relationships within a faculty member's network stand as an important dynamic of PWB and thus may be a potential source of well-being enhancement.

Workplace Well-Being

The last incorporated framework of workplace well-being (WWB) focuses on *domain-specific* happiness, satisfaction, and well-being in the workplace. Despite the lack of consensus about the causal relationship between global and domain specific well-being (global life satisfaction stemming from domain-specific satisfaction or vice versa, and general affect versus domain-specific affect (Judge & Watanabe, 1993)), the SWB and PWB frameworks agree that different life domains offer opportunities for enhancing well-being, and there is evidence that indicates that life satisfaction and job satisfaction are significantly and reciprocally related (Page & Vella-Brodrick, 2009). As such, Page and Vella-Brodrick (2009) assert that researchers must address both global and workplace-specific contexts in an investigation to fully capture a professional's well-being. They argue that workplace well-being (WWB) then be composed of (1) work-related affect, and (2) job satisfaction. Their framework for understanding employee

well-being thus incorporates the global components of SWB and PWB, as well as the domain-specific components of the WWB framework into one model of well-being in the workplace.

The professional workplace of academic departments and institutions of higher education therefore stand as important contexts in which to study and understand a woman's global and domain-specific well-being experience as an engineering faculty member. On the surface, academia and institutions of higher education offer unique flexibility and autonomy to faculty who seek to create new information through their research, teaching, service, and leadership. There must, however, be a good fit between one's goals, daily actions, and the values of one's subculture to benefit well-being. Diener et al. (1999) state that there is a correlation between job satisfaction and life satisfaction (although the causal direction remains unknown) characterizing a satisfying job as offering good person-organization fit, intrinsic rewards, and social benefits. Well-being has also been shown to be strongly tied to social relationships. Finally, Diener (1984, p. 553) emphasizes the importance of global well-being across life domains. He explains that the research suggests that "subjective domain satisfactions derive from, rather than cause, overall subjective well-being," and so global life satisfaction may proceed satisfaction within the separate work or life domains. These findings highlight the importance of examining an individual's experience as a whole person, supporting individuals to maintain meaningful social relationships in one's private life (spending time with family and friends) as a way to improve one's overall well-being, and again, points to the coupled influenced of the work and home domains.

CHAPTER TWO

RESEARCH QUESTION AND METHODOLOGY

Research Question

The goal of this work was to challenge traditional conceptions of the faculty experience and to collect and share the stories of women who are navigating faculty success and well-being within the existing engineering ecosystem. Research in other fields has provided evidence for the beneficial consequences of enhancing well-being, however, little has been done to explore engineering faculty members' experiences of personal and professional well-being. Engineers and university leaders are now ideally positioned to learn from the findings of these fields and incorporate faculty well-being into their departmental cultures. That is, they are positioned to incorporate previously unconsidered dimensions of the faculty experience into support structures to enhance well-being and success.

There has been much work published on well-being for general adult populations, however the unique experience of well-being within the engineering faculty context remains understudied. Furthermore, the bulk of existing well-being work leverages quantitative methodologies to understand participant experience. Women's stark underrepresentation in engineering faculty roles thus necessitates a research approach that can provide insight to this numerically small, yet essential population within engineering faculty careers. In this study I sought to build a foundation of knowledge around the

subjective and nuanced experience of engineering faculty well-being for women. To that end, this exploratory study investigated the following research question:

How do women engineering faculty members psychologically experience well-being across their professional and personal life spaces?

Overview of Interpretative Phenomenological Analysis Methodology

In this exploratory qualitative study, I employed interpretative phenomenological analysis (IPA) as the approach to data collection and analysis. First used in the field of psychology, the strength of the IPA methodology lies in how it allows researchers to elicit, analyze and interpret the meanings participants associate with their experiences (Smith, Flowers, & Larkin, 2009). Adoption of IPA has grown in the field of engineering education research (da Silva Cintra & Bittencourt, 2015; Huff et al., 2014; Huff, Smith, Jesiek, Zoltowski, & Oakes, 2019; Kirn et al., 2019). IPA's traditions guided all aspects of my study including the participant selection, the collection and analysis of data, and the presentation of the findings. IPA is an inductive qualitative approach designed to allow the researcher to explore and understand how participants interpret and make sense of their experiences (Reid, Flowers, & Larkin, 2005; Shinebourne, 2011; Smith et al., 2009). IPA uniquely blends three theoretical traditions: it captures and incorporates what is distinct (idiographic) with commonalities that are shared (phenomenological), and employs a multi-level interpretation of the data where the researcher interprets the meanings participants assign to their lived experiences (hermeneutics) (Shinebourne, 2011; Smith et al., 2009).

IPA is a powerful tool for exploring the lived experience of individuals; that is, to elicit, collect, and articulate to the outer world a person's inner psychological experience of well-being events. Designed to aid researchers in careful questioning and understanding of

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the psychological, cognitive, and emotional way an individual (and group of individuals) make sense and meaning of their experiences, IPA serves as an ideal tool to accomplish this study's aim of collecting and sharing women's experiences of well-being across the domains of their lives. That is, to probe and interpret the complex feelings and thoughts participants experienced as they attempt to maintain happiness, satisfaction, and psychological well-being in their lives as engineering faculty.

Positionality and Quality Considerations

Researcher Positionality

My social, educational, and research background all contribute to my positionality as a data collector and analyst. While the role of the researcher as an interpretative instrument is important in all qualitative research traditions, it is central in an IPA study. To remain transparent and reflexive of my lens as an interpretative instrument, and as a measure of research quality, I detail my identities that have granted me social privilege and marginalization as well as my professional experience and personal values.

My personal characteristics that define and privilege my social and analytic position include being a White, heterosexual, able-bodied, middle-class, cisgender woman. I live in the United States. I grew up in the Midwest (Ohio) until I completed my undergraduate degree at a high research activity institution. I have lived in the Southeast (South Carolina) for nearly ten years while completing graduate degrees at a very high research activity institution. My education and research background inform my analytic position, which blends STEM and educational perspectives. I have disciplinary training in a STEM field (bachelors and master's degrees in physics). I have worked as a

qualitative education researcher for six years while completing a Ph.D. in engineering and science education. I have worked in a center for teaching and learning doing faculty development work for two years. My personal values informing my commitments as an education researcher center on advocacy to make higher education spaces more inclusive and to promote the success of women in STEM fields.

Finally, my insight into the participants' accounts is strengthened by personal experience and a network of women colleagues. I have previously observed and experienced first-hand the challenges to and benefits of incorporating personal and professional well-being while working within a STEM field. I have faced many of the experiences characterized by participants including marginalization as a woman navigating the traditionally male-dominated field, an absence and an abundance of women mentors throughout my time in higher education, and a shift in researcher identity from traditional to non-traditional STEM research topics and methodologies.

Quality Commitments

My commitment to conducting a high-quality IPA study is evidenced by my adoption of guidelines outlined by Smith et al. (2009) as I engaged in the immersive, disciplined, and systematic process of a traditional IPA data analysis. I also leveraged quality measures common in IPA and other qualitative research methodologies. Throughout the study, I engaged an **advisory panel** of experts, **debriefed** on emerging findings regularly, maintained **transparency** through an audit trail, conducted **mini audits** of the data analysis, ensured findings were **credible and grounded** in the

participants' accounts, and illustrated themes through extensive **verbatim quotes** and remained close to participants' language.

To maintain quality throughout the study, I engaged three out of four dissertation committee members (co-advisors Martin and High and IPA methodological expert Huff) as an advisory and review panel for all phases of the study. I consulted with one or more of the three advisory panel experts at least once a week to review and challenge my ongoing study development and analysis. Quality in IPA studies rely heavily on apprenticeship between novice and expert IPA researchers. Throughout the data collection and analysis "training and supervision is important in helping to ensure qualitative psychology is done rigorously" (Smith et al., 2009, p. 181). I purposefully tapped an established IPA methodological expert (Huff) to play this central and guiding role on my dissertation committee. I received one-on-one training and worked closely with him in designing and executing all phases of the study. This methodological expertise was an invaluable complement to the existing qualitative and engineering education research expertise of my co-advisors. I met with these three individually or as a group and sought feedback on my materials, engaged in frequent debriefing of emerging findings, and received critical review of individual case analysis reports and refinement of major themes across individuals presented here. The final member (Orr) was purposefully positioned for less intimacy with the raw data in order to offer feedback that is more global in nature. She served an important role as someone with training in the field who was generally familiar with the topic and methods and yet was not as familiar with the data.

I ensured quality and maintained transparency via an audit trail of the research design proposal, initial and ongoing analysis notes, bracketing memos, pilot interviews, iterations and final version of the interview protocol, annotated transcripts, individual case analysis reports, and tables of individual and shared themes. I maintained a digital log of these documents using Basecamp, an online project management platform. All of these materials were shared with and reviewed by the advisory panel.

I followed the recommendation of Smith et al. (2009) and engaged an expert supervisor to conduct mini audits of my analysis. This was done throughout each stage of the study, for example, committee member Huff examined the first interview transcript annotations and emergent themes in detail to verify my claims were indeed thorough and grounded in the data. Huff gave critical feedback to refine my analysis and this kind of review continued throughout the study. After the first case, advisory panel members where engaged periodically for mini audits and discussion of particular interview excerpts.

IPA is inherently an interpretive endeavor and the goal of such an effort is "to ensure that the account produced is a credible one, not that it is the only credible one" (Smith et al., 2009, p. 183). To ensure that my interpretation of data was credible, I generated individual analysis case reports for each participant that detailed the individual's psychological themes with extensive verbatim quotes. In the final phase of the analysis, tables of themes across participants were generated. The three-member advisory panel reviewed and gave critical feedback on individual reports and tables of shared themes to challenge and help refine my claims.

Finally, in my reporting and discussion of the findings I ensured emergent themes were adequately represented and were grounded in the participants' descriptions. I demonstrated validity of the knowledge claims made through extensive verbatim extracts in the findings. I exhibited sensitivity to existing well-being frameworks to orient the data collection and analysis and elaborated on the fit between the experiential world of the participants and the theoretical descriptions presented in the bodies of well-being and engineering literature in the discussion. Below, I elaborate on the role of theoretical frameworks in traditional IPA studies so that the reader may understand sensitivity to theory versus theory driving data collection and analysis.

Sensitivity to Theoretical Well-Being Frameworks

The psychological and subjective nature of the IPA methodology aligns appropriately with the lenses of the well-being frameworks outlined in previous sections. The outcome of a successful IPA study is the generation of a set of detailed psychological themes that capture the coherence as well as divergence among individuals' experiences of the same phenomenon (i.e. experiencing well-being). Like other qualitative approaches, one of IPA's strengths lies in its open semi-structured interview approach. I was poised to follow the individual into their lived experience on their own subjective terms, and the IPA methodology allowed for surprising findings about the individual's experience to emerge. Thus, IPA stood as a powerful methodology to understand the subjective and understudied experience of women's well-being in engineering.

I adhered to IPA methodological traditions in all phases of my study including IPA's use of theoretical frameworks. According to Smith et al. (2009), the aim of an IPA

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study is to explore and report in detail about the perceptions and understandings of the

participants; to provide a rich, contextualized analysis of personal accounts of lived

experiences. Research and interview questions are not usually theory-driven, instead, IPA

researchers use existing theories to help them potentially learn something about their

participants. Data collection generally is done with open-mindedness and preconceptions

(theoretical or otherwise) are suspended. Participants are granted the freedom to make

claims on their own terms. Theory then helps to give IPA researcher some idea of the

form the claims may take. For example, the table below illustrates one way I maintained

sensitivity to, but was not led or limited by, theory in preparing for interviews. Ryff's

work and psychological well-being framework (Ryff, 1989, 2014; Ryff & Keyes, 1995;

Ryff & Singer, 2008) informed my awareness of the forms well-being may potentially

take during my interviews with participants and are shown in Table 1:

Table 1: Theoretical and empirical descriptions of psychological well-being constructs are presented to
illustrate ways theoretical well-being frameworks informed but did not lead data collection or analysis.
Table was developed by author based on (Ryff, 1989, 2014; Ryff & Keyes, 1995; Ryff & Singer, 2008).

PSYCHOLOGICAL WELL-BEING THEORETICAL CONSTRUCTS	THEORY DEFINES CONSTRUCT AS:	PRESENCE OF THIS CONSTRUCT MAY MANIFEST IN INTERVIEWS AS:
SELF-ACCEPTANCE	An individual's acceptance of self and their past life. They hold positive attitudes towards themselves.	She possesses positive attitudes towards herself; she acknowledges and accepts multiple aspects of herself including good and bad personal qualities. She doesn't wish to be different from what she is.
PURPOSE IN LIFE	An individual has goals, intentions, and sense of direction that contribute to beliefs of having purpose in and meaning to life. They can be a variety of changing purposes or goals in life.	She has goals and sense of directedness. She has objectives for her life and acts with intentionality to meet them. She believes there is meaning to her present and past life.

ENVIRONMENTAL MASTERY	An individual's ability to choose or create environments suitable to their needs and values.	She feels sense of control over her external world. She feels able to manage her environment; she can change or improve contexts. She is aware of and takes advantage of opportunities in her environment.
POSITIVE RELATIONS WITH OTHERS	An individual possesses warm, trusting interpersonal relationships. They have close, intimate connections and feel more complete identification with others.	She has warm, satisfying relationships with others. She is open and trusting in interpersonal relationships. She is concerned about the welfare of others and is capable of strong empathy, affection, and intimacy. She understands give and take of human relationships
AUTONOMY	An individual's sense of self-determination, independence, and regulation of behavior from within. They possess an internal locus of evaluation and do not look to others for approval and feel a sense of freedom from norms	She is self-determining and independent. She is able to resist social pressure to think or act a certain way and regulates her behavior from within. She evaluates herself by her personal standards.
PERSONAL GROWTH	An individual is continually developing and becoming, rather than achieving a fixed state wherein all problems are solved. They continue to develop their potential, grow, and expand as a person. They express openness to experience and confront new challenges and tasks.	She has a feeling of ongoing development; she sees herself as growing, expanding, and realizing her potential. She sees improvement in herself and her behavior over time; she changes in ways that reflect more self-knowledge and effectiveness. She does not feel personal stagnation or lack of improvement over time. She is open to new experiences and does not feel bored or uninterested.

Whereas some other methodological approaches rely on rigid interview protocols guided by theoretical models, IPA researchers pose very open-ended questions and carefully listen to a participant's story. In the interviews, I attuned to significant moments to recognize known theoretical psychological constructs, and honed in on moments where a construct could potentially be explored through the participants' perception and context

while remaining open to unanticipated forms and accounts of well-being that may differ from the theoretical frameworks.

Methods

Sample

IPA Commitments Related to Participant Sample

In traditional IPA studies, participants are chosen such that homogeneity is preserved in the sample as much as possible (Smith et al., 2009). IPA researchers aim to recruit a fairly homogeneous sample for whom *the research question will be meaningful*. This is done because participants grant researchers access to a particular perspective of the phenomenon — that is, they represent a *perspective* rather than a *population* (Smith et al., 2009). Selection then is both a practical problem (in terms of population size explicitly experiencing the phenomenon and access to them) as well as an interpretive problem (in questioning in what other ways might participants vary from each other). IPA requires that the individual participant is someone who experiences the phenomenon, can consciously access their own meaning-making, and are able and willing to articulate their inner lived experience through in-depth qualitative interviews. IPA has an idiographic focus so sample sizes are limited to preserve the particular, distinct details of each participant's experience; recommended sample sizes range from one individual to a limit of 10 participants (Reid et al., 2005; Smith et al., 2009). Participants are selected purposively, typically recruited through techniques that involve identification of potential participants by individuals; through referrals from gatekeepers, personal and professional network contacts, and through snowball sampling.

I took these guidelines and strategies into consideration, along with IPA's idiographic commitment to preserving the detailed experience and context of the individual. The *perspective* I investigated was that of engineering faculty who identify as women, who have reached tenure, and who could *articulate meaningful experiences* of well-being in their professional and personal spaces. While I acknowledged that many factors could influence the participant's experience and alter their perspective of the phenomenon of well-being (e.g. varying culture and environment of engineering sub-disciplines, playing the role of caregiver to children or other family members, years since achieving tenure status, racial and ethnic identity), the idiographic nature of IPA allowed me to explore and analyze each individual participants' experience in-depth and allowed the salience of these factors to each woman's well-being experiences and interpretations to emerge and be identified. In the recruitment survey and throughout the interview participants were specifically asked to name salient social identities and roles they play as well as other factors which may support or hinder their professional and personal well-being. These factors were preserved as context through which the psychological themes are presented in the findings.

Participants were ultimately considered for interviews if they self-identified as a woman, were a faculty member within an engineering sub-discipline, had earned tenure, and were able to articulate experiences of well-being in personal and professional domains. This information was collected via a short online recruitment survey detailed in the next sub-section. By making the participant group as uniform as possible along the lines of obvious social and theoretical factors, I was able to thoroughly examine the

nuance and psychological variability among the participants and allow patterns of convergence and divergence to emerge in the analysis (Smith et al., 2009).

Recruitment Strategy and Survey

  I identified potential participants by advertising my study via recruitment materials distributed to individuals in engineering organizations such as the Women in Engineering ProActive Network, the Collaborative Network for Engineering and Computing Diversity, and the American Society for Engineering Education. I also leveraged my professional network contacts to advertise to faculty I met while hosting two national engineering events. Finally, I utilized snowball sampling to expand the recruitment network where I invited participants to recommend other women colleagues to contact for my study.

  I advertised my study by distributing the recruitment card shown in Image 1 and contacted potential participants recommended by their colleagues via email. The recruitment card and email both directed potential participants to an online recruitment survey.

Image 1: Recruitment card distributed to individuals affiliated with numerous engineering organizations.

THE WELL-BEING OF WOMEN FACULTY IN ENGINEERING

I am looking for participants for my dissertation study about how women faculty view and express personal well-being in their professional and personal lives.

I am a doctoral student in the department of Engineering and Science Education at Clemson University. My BS and MS in physics combined with my training as an education researcher has inspired this dissertation study.

I attribute much of my success to faculty role models who have encouraged and modeled ways of incorporating personal well-being into their professional lives. I believe faculty members are first and foremost human beings, and well-being can help empower one to navigate the numerous, competing demands of faculty life in engineering disciplines and to thrive personally and professionally.

If you, or someone you know, would be interested in speaking with me, please see the reverse side of this card for more details and contact me with any questions.

Shannon K. Stefl
SSTEFL@CLEMSON.EDU

CLEMSON
ENGINEERING AND SCIENCE EDUCATION

Research Project: Well-being Experiences of Women in Engineering Faculty Positions
I am looking for women who have earned tenure status within an engineering discipline who are willing to reflect on and share their personal experiences of trying to stay happy and feel satisfied in both their professional and personal lives. I hope to support others in engineering through sharing the stories of women who think about and make choices related to their well-being while having successfully navigated the faculty pathway.

What Am I Asking Of Participants?
I'm asking women to complete a brief online survey to share your thoughts about your well-being including a list of roles important to you, and descriptions (about a paragraph) of aspects of personal/professional well-being you try to incorporate into your life. It will take 15 minutes to complete the survey.

After completing the survey I may ask you to share more of your story with me in an audio recorded one-on-one chat where I will ask you about your experiences either over the phone or via video call. If selected to participate in an interview, I will ask you to reflect on the things you do at work and at home to stay happy in life in general.

What Do Participants Gain?
I know your time is valuable. Those selected to participate in an interview will receive a $25.00 Amazon.com card.

If you are willing to help me with my dissertation and contribute to our understanding of how women faculty experience professional and personal well-being, and/or you know someone who might be interested in participating, I'd love to talk with you— **please fill out this survey**: http://bit.ly/wie_wellbeing_survey

Faculty were recruited directly or recommended by colleagues to participate in my survey about their professional and personal well-being experiences. In the survey participants were asked to provide demographic and career information (gender, race / ethnicity, engineering sub-discipline, tenure status, and university name). As mentioned above, I also invited them to recommend a friend or colleague in engineering to be contacted to join the study. In the last part of the survey, participants were shown a

graphic generated by University of New Hampshire Health & Wellness that illustrated

potential ways people may conceptualize personal and professional well-being and that

faculty may find salient to their professional or personal lives (Image 2). Participants

were then prompted to briefly respond to three open-ended questions about their

experiences incorporating well-being into their life as a whole:

1) Please list the roles you play within your professional and personal life that are most important to you (e.g. faculty member, mentor to graduate students, parent, spouse, caregiver to elderly parent, religious community member, leader in professional organization, friend).

2) Please describe a time when you felt happy or satisfied in both your personal and professional life (what did your life look like during that time? For example, you may choose to talk about things like: what your family relationships were like, what you were doing to take care of yourself , who were you working closely with, etc.).

3) Pick one category from the wellness wheel that you feel is important to you. Thinking about this category, please describe how you try to maintain well-being as a whole person across your professional and personal roles.

Image 2: This graphic, created by and reproduced here with permission from University of New Hampshire Health & Wellness, was displayed to participants in the recruitment survey. It showed several possible conceptualizations of components of personal well-being. Categories include: emotional, environmental, financial, intellectual, occupational, physical, social, and spiritual life components. Used with permission.

Sample Description

A total of 44 women completed the survey. Many of the women who completed the survey were not candidates for the study for various reasons, including: they did not consent to being contacted for an in-depth interview, had not yet earned tenure, were in non-tenure track positions, or were not faculty within an engineering field. Of the survey

participants, 20 met the basic selection criteria (identified as a woman, faculty member in an engineering sub-discipline, and had achieved tenure). As is required by the IPA methodology, participants had to demonstrate that they would consciously access, reflect on, and articulate the significance and meaning of their own well-being experiences, and were willing to discuss their personal well-being in the study. The remaining participant group's open-ended responses were reviewed to determine which participants met these IPA requirements and were further narrowed to meet the idiographic commitment.

My study's final sample was composed of 7 women who had traversed the faculty pathway to tenure and beyond within engineering higher education: **JoAnn**, **Rose**, **Marie**, **Allison**, **Dylan**, **Mary**, and **Gabriella**. Participants self-identified their gender and racial identities in open-ended survey responses. Each participant responded with either "African American" or "White" and I used their self-generated racial identity terms in all reporting. Every participant self-identified their gender as "female" and when referring to their gender in the reporting I used the term "woman/women" and pronouns she/her/hers to describe participants. These participants had reached different stages of faculty careers; three were Full Professor rank and four were Associate Professor rank. Experience within these ranks also varied and is detailed in their profiles (in Chapter Three). Their professional backgrounds were in engineering sub-disciplines of chemical, mechanical, civil, environmental, and industrial engineering. While some participants spoke of positions within multiple universities during their careers, at the time of the interview participants held appointments within four-year research-intensive universities.

Participants selected their own pseudonyms and profiles of their identities and university contexts are presented in the findings chapter.

Data Collection

A cornerstone of IPA is the intention of the researcher to examine the participant's experience and meaning-making of the phenomenon on their own terms while recognizing opportunities to explore their psychological interpretation of experiences. As Smith et al. (2009) explains, interviews are more participant-led; I facilitated the discussion of relevant topics and followed the participant into their inner experiential world. As an IPA researcher, my goal was to elicit rich, detailed, first-person accounts of experiences, or events, related to the phenomenon of well-being—to allow participants to share stories of specific well-being experiences where I could probe what it felt like, what they were thinking, what was the significance, etc., within that moment. I gave participants the opportunity to speak freely and reflectively, to develop their ideas, express concerns, and tell their story at length (Smith et al., 2009). My commitment to understanding the individual's experience in detail through exploration of significant moments required flexibility in the interview such that the participants were able to identify and reflect on moments that held significance to them. IPA utilizes unstructured or semi-structured interview approaches with open-ended questions to accomplish this. Data collection required organization, flexibility, and sensitivity; my interview questions were necessarily open, exploratory, reflected processes rather than outcomes, and focused on meaning or causes/consequences of events where I then probed for understandings, experiences, and sense-making situated within specific contexts (Smith et al., 2009).

I conducted one in-depth, semi-structured interview with each participant to elicit accounts of well-being within and across the professional and personal life spaces. Each of the interviews were approximately ninety minutes. Interviews were conducted over an online conferencing platform, Zoom, and were audio recorded then later professionally transcribed verbatim to form the body of data generated with participants. Participants were given the opportunity to choose the time and location of their interview as they were all conducted digitally. The interviews took place over the summer months and all elected to speak from their home offices. Each was given a $25.00 incentive card for their participation. Institutional Review Board approval for this study was granted by Clemson University (2017-226).

I guided interviews using a semi-structured interview protocol. I began interviews with a very open-ended question for participants to tell me about themselves by asking "When you think about who you are as a person, what's important to being [name]?" In follow-up questions participants were guided to identify salient roles they assumed across their professional and personal life spaces with focus on the professional space as an engineering faculty member. I asked questions such as "Tell me about how your job fits into your life, into the bigger picture of who [name] is?" or questions like "When you think about yourself as a whole person, what are parts or aspects of yourself that you want to nurture?" Participants were also be given an opportunity to articulate the strategies they incorporate into and across their professional and personal spaces to maintain satisfaction and happiness in their life as a whole person. I posed questions like "How do you remain happy and satisfied globally in your life?" and "Walk me through a

recent time when you felt happy in your life." The interview deeply probed into ways in which their well-being had evolved over their career, but particular focus was given to their present experiences. I asked questions such as "What are the main differences between a good day and a bad day at work?" to let them characterize sources of well-being in their professional spaces. Participants were also asked to reflect on the influence of maintaining well-being in their professional space on their home life and vice versa. Participants' recruitment survey responses were only referenced if the participant themselves brought up the survey organically during the interview—the surveys did not guide the interview. Reference to specific survey responses occurred in a few instances.

I concluded each interview by offering the participants the freedom to discuss other well-being thoughts not planned in my interview protocol by asking "Is there anything you thought I might ask you but didn't?" and ended our conversation with "Is there any final comments you would like to make?" I purposely created flexible space at the end of each interview for participants to reveal concerns or experiences that my protocol could not predict or did not directly elicit. The complete semi-structured interview protocol is presented in the Appendix.

Data Analysis

Strong IPA studies seek to find the psychological complexity and nuance among participants by maintaining an idiographic focus for each participant. I engaged in the immersive, disciplined, and systematic process of traditional IPA data analysis outlined in (Smith et al., 2009). Transcripts were analyzed case by case through systematic qualitative analysis, moving from single cases to shared psychological themes. I analyzed

data in several phases to generate a robust and nuanced understanding of my participants'
experience of well-being as an engineering faculty member. The data analysis process
was guided by (Huff et al., 2014; Smith et al., 2009) and is described in Table 2. I
attended to each participant's claims and understandings as an individual case before
moving on to analyze the group as a whole. After I generated case analysis reports
detailing the themes for each of the 7 participants, I consulted with my advisory panel for
review and feedback of each case. I then proceeded to consider psychological patterns
across the participants to determine larger clustering of themes and patterns of meaning-
making. I engaged in multiple rounds of advisory panel feedback and revisional iterations
as I analyzed patterns of participant themes as a group.

Table 2: I analyzed and interpreted participants' individual and shared meanings by engaging in a
systematic, thorough analytic process. This process moved my analysis through a descriptive to an
interpretive analysis, and from the particular to the shared by examining a single participant and then the
convergence and divergence of experience across individuals for shared psychological themes. Table was
developed by author based on (Smith et al., 2009)

In Phase I, the transcript began as a representation of my participant's description of their inner world and understandings of their experiences			
Phase I **Focused reading &** **Bracketing**	Goal 1: Read and re-read transcript to become immersed the participant's data	Action: Listened to audio recording of interview and read transcript.	i.e. "*in the interview I think she downplayed the importance of not having mentors*"
	Goal 2: document initial thoughts to maximize the participant's voice on their terms	Action: documented initial thoughts, impressions in reflective journal.	Outcome: met IPA commitment to accepting participant on their own terms
In Phases II & III, the goal is annotation describing <u>what</u> things matter to the participant (relationships, events, values) and what those things are <u>like</u> for the participant. This initial level of analysis was the most detailed and time consuming. Annotations were done line-by-line on same transcript			

Phase II **Descriptive** **annotations**	Goal: describe the content of moments, events, processes, etc. significant to the participant	Action: described content by identifying and noting key words phrases, explanations, events, and experiences. Claims were taken at face value, comments were descriptive and exploratory.	i.e. *"story of positive interpersonal interaction with colleague"* Outcome: detail of significant relationships, moments, etc.
Phase III **Linguistic annotations**	Goal: focus on exploring the specific use of language	Action: documented use of pronouns, first versus third person, use of quotes, pauses, laughter, repeated phrases, tone, etc. Metaphors were particularly important as they connected descriptive and conceptual notes.	i.e. *"gopher" used as a metaphor for being labeled as an outsider* Outcome: description of how participants communicates their thoughts
In phase IV & V, the goal was to transition into a more interpretive analysis by developing more abstract and conceptual comments, then identify emergent themes for an individual.			
Phase IV **Conceptual** **annotations**	Goal: Engage with the transcript at a more conceptual and interrogative level, and to remain open to range of provisional meanings. Try to understand how and why events hold significance to the participant.	Action: Probed potential meaning in the form of questions. Considered alternative or evolution in participant meanings. Identified more abstract concepts to make sense of patterns of meaning in participant's understandings.	i.e. move from specific accounts of negative interactions with colleagues towards account of *"increased feelings of isolation"* common among all of them. Outcome: more abstract, conceptual interpretation of significant events
By the end of Phase IV, the transcript represented the audio recording of the interview as well as copious notes–the body of data had grown substantially			
Phase V **Developing Emergent** **Themes**	Goal: Capture the psychological essence of pieces of the transcript by identifying emerging themes	Action: determined the interrelationships, connections, and patterns between the exploratory annotations.	i.e. *"Professional relationships create sense of threat in workplace"* Outcome: A set of dense, nuanced, psychological themes for a single participant

| **Phase VI** **Searching for Connections Across Emergent Themes** | Goal: Draw together emergent themes and produce a structure that allows the researcher to illuminate the most interesting and important aspect of the participant's account | Action: mapped how themes fit together by clustering into groups of themes according to common features and meaning and relating themes. Created a visual thematic map of theme relationships. | i.e. The structure of the themes may be represented in the form of a thematic map

Outcome: The analysis for one participant is complete. |
|---|---|---|---|
| **Phase VII Creating a Case Analysis Report** | Action: Created a written report detailing psychological themes and sub-themes for the individual participant. Themes were illustrated with extensive quotes. | | |
| By the end of Phase VII, the individual's data has been analyzed and psychological themes have emerged and been documented. Examples of the annotation, theme mapping, and case analysis report are shown below in Images 3, 4 , and 5. | | | |
| **Phase VIII** **Moving to the Next Case** | Goal: Repeat analysis process while incorporating careful bracketing to treat each individual transcript on its own terms and doing justice to its own individuality | Action: Shared case analysis report with advisory panel and debriefed. Then documented thoughts and ideas to maximize next participant's voice. | Outcome: analysis has had been expanded to the next participant |
| **Phase VIX** **Looking for Patterns Across Cases** | Goal: Establish connections across cases. Identify where individual themes also represent higher order concepts, highlight unique nuances between cases with shared higher order themes | Action: Created a table of themes to track connections and the overlap of individual themes across participants. Determined the convergence and divergence of major themes across individuals and preserved nuance through generation of sub-themes | Outcome: set of dense psychological themes representing a robust and nuanced interpretive understanding of the participants' shared experience of well-being as engineering faculty |
| The findings were presented as a narrative that takes the reader through the detailed analytic interpretation theme by theme using data extracts. The analysis generated theoretical insights that hold relevance and significance for current women engineering faculty, engineering education research, and engineering education institutions. | | | |

Details have been removed from Images 3, 4, and 5 in order to preclude access to original data. They are screenshots of examples of coding stages. I made annotations for each transcript. I created a theme map similar to the one shown here for each participant (many details have been removed from this map). I then created a case analysis report for each participant.

Image 3: Example of descriptive, linguistic, and conceptual annotations for a participant are illustrated in the right column and emergent themes are illustrated in the left column.

| 326: Able to Align professional role with sense of Purpose through time dedication to meaningful mentoring | 326 327 328 329 330 331 332 333 334 | So I feel like now I have more bandwidth. I have more, um, energy, um, to, to reach out to people, to mentor people, to, to, to guide people, to take that time, um, when there's nothing in it, there's nothing in it for me beyond satisfaction that I've helped somebody. So back to this, you know, "I wanna help somebody. I wanna make things better." Um, so but there are those experiences in, in my work life as well, where I'm sharing, where I'm trying to learn, um, in the similar way, I guess. | Felt increased energy and mental capacity to engage in meaningful and satisfying professional role of mentoring Relief from pressure to perform enhanced energy to invest in others? Bandwidth = metaphor for physical and mental energy allowance to devote time Nothing in it for me beyond - Selfless? How meaningful or rewarding is the sense of satisfaction from enacting sense of Purpose? |

Image 4: Example of a thematic map for a participant to illustrate visual relationships among themes.
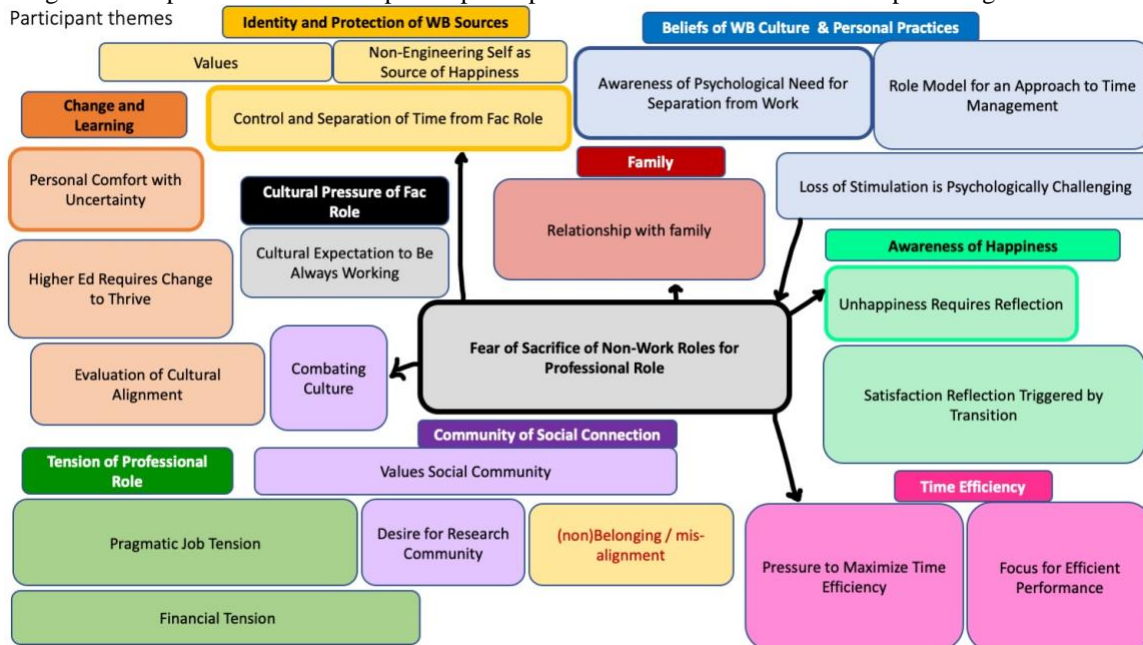
Image 5: Example page of a case analysis report for a participant showing psychological themes and sub-themes with illustrative quotes.

Participant Case Analysis:

Theme 1: *Trying to Making Things Better* - Desire to Affect Positive Change as Core Value Transcending Roles

Sub-theme a. Frustration Arises from Student Experiences in Department

709: "So you know, you get um, different things draw your attention and your motivation at different points. And so, um, it's sometimes um, those personal stories from the students where you could, you could see it and hear it in what they said, and imagine how it might be different. Um, that, that is – it's pretty motivating."

77 : "talking to students and seeing what they were confronted with in terms of, like, gender issues with women in engineering, um, or the students who … had these service aspirations of what they wanted engineering to be, but they wouldn't really see that through their education. And so, you know, helping them negotiate, like, could they do that in engineering, whether they need to leave engineering. So some of these broader systemic issues around how engineering education is structured, um, started to become more evident over time."

775: "but then you know, [as a] faculty member, I think that was a big like, wow. Like, I have no idea how to teach, so that whole side was like "Oh! I did horribly." And, and it was frustrating to know that, um – something that I cared about so much and I loved. … And then that question like, well do I just give up, or be, say, get angry, I think that happens. So a little bit of, you know, anger at the system. Or feeling that the system is broken. Like well, how is it legitimate that, um, that the university thought it's okay for me to come in here and teach when I know nothing (laughs)?"

Sub-theme b. Faculty Role Creates Opportunities to have Positive Impact

1209 : "I cared about sustainability before, but then it was like wow, like the planet needs to be around for [children]. And so like every class I'm like sustainability in every class. Like it became, so like it translated into other spaces where it's like one of the reasons, you know, I care about educating students, and the engineers go into the world caring about the world and caring about people and the environment is related to that. It's like there's, there's impact beyond um, you know, the small to like the macro. And so it's, so all that's kind of tied together, I guess, for me."

I leveraged IPA methods to collect, analyze, and report the 7 participants' rich accounts of well-being across their life spaces. The following chapters present the four major themes and the associated sub-themes in great detail. The final chapters of this dissertation connect the findings from participants' data to well-being theoretical frameworks and offer implications for all members of the engineering higher education ecosystem.

CHAPTER THREE

INTRODUCTION TO FINDINGS

Introduction to Findings

Through systematic examination of rich individual narratives, this study provides insight into the shared lived experience of faculty well-being. During their interviews, participants revealed their individual journeys of well-being; they reflected on meaningful relationships, challenges and concerns, and sources of satisfaction across their personal and professional life spaces. Through exploration of their stories, we gain nuanced insight into what it was like for these women to seek satisfaction and happiness on a faculty pathway.

The participants represented a range of progress: some had only recently achieved tenure, others were mid-career faculty who had been tenured for many years, and the remaining participants were well-established Full Professors. Their narratives offer diverse perspectives into what it was like to make sense of departmental environments and norms, interpersonal interactions, and identities as a woman who is an engineering faculty member.

This findings section is structured in a way that aligns with the three major philosophical commitments of the IPA methodology: hermeneutic commitment, phenomenological commitment, and idiographic commitment (Smith et al., 2009).

Hermeneutic Commitment

These findings represent the outcome of a hermeneutic process (making sense of experiences) by offering a compelling interpretation of the participants' attempts to make sense of their experiences as faculty. These findings then engage the reader in a tertiary hermeneutic step as readers engage with original quote excerpts and analytic interpretation to make sense of these narratives. The findings walk the reader through this hermeneutic process by presenting thorough interpretations of participant quotes to demonstrate sense-making.

Phenomenological Commitment

The participants offered diverse perspectives and individual concerns. Their stories revealed that there is no single narrative of faculty well-being, however, systematic examination across their accounts revealed shared elements of lived experience as they navigated the faculty pathway. Four major themes emerged:

Theme 1: Participants revealed marginalization of their social identities within their departments and a shared commitment to remain visible as models of success for other women (detailed in Chapter Four).

Theme 2: Participants' evolving professional identities helped sustain satisfaction in their professional roles but gave rise to tension with departmental colleagues (detailed in Chapter Five).

Theme 3: Participants overcame isolation and lack of recognition within their departments by forming meaningful connections with external colleagues (detailed in Chapter Six).

Theme 4: Participants looked across their professional and personal spaces to find sources of well-being and engaged reframing strategies to overcome self-doubt (detailed in Chapter Seven).

The findings are structured in a way that walks the reader through these major themes that represent patterns of phenomenological experience.

Idiographic Commitment

IPA reporting is committed to retaining the particular, individual detail within the larger shared experience; through narratives of their inner worlds, we uncover the lived experience of faculty well-being. Consistent with traditional IPA reporting (Smith, 2011), all interpretations in my study are presented around, and grounded within, the accounts of participants. Also consistent with IPA traditions, the major themes of my study are parsed into sub-themes that offer a nuanced exploration of the shared experience, thus the findings blend the shared with the particular. My findings are structured in a way that pulls the individual lived experience to the forefront using extensive participant accounts to illustrate themes. Some sub-themes highlight quotes from multiple participants and other sub-themes follow a single participant's account in detail. These choices were deliberate. The quotes are meant to provide detailed insight into the shared experience and some participants spoke at greater length or in greater detail than others.

Finally, the findings also demonstrate a commitment to the participants' anonymity. The stories of the participants must be reported with great care. To protect the identities of these women some details of their accounts have been removed or revised. For example, romantic relationships with others were important to the participants. To maintain anonymity, I use the term "partner" for references to all romantic relationships (e.g. husband, wife, boyfriend, girlfriend, partner). Similarly, details about engineering sub-disciplines and fields of research have been removed or revised for anonymity. The

representation of women faculty in any engineering field is low and thus increases

identifiability; this is of particular concern for women whose colleagues know that they

had changed fields and so sub-disciplines have been de-identified. Some of the

participants pursued research in fields they described as being "non-traditional

engineering" sub-disciplines. I have used their description as terms to identify these types

of fields and the terms "traditional engineering" for the other disciplines (e.g. civil,

mechanical).

The following themes illustrate a shared—and yet nuanced—lived experience of

women who are engineering faculty members as they attempted to maintain happiness

and satisfaction across their professional and personal spaces. A brief overview of

participants' identities and university contexts are provided.

Profile of Participants (At Time of Interviews)

JoAnn was a senior faculty member and journeyed through the faculty pathway to Full Professor rank. At her university, her diverse professional roles included a leadership component. The leadership component of her professional role often required negotiation of competing stakeholder demands against limited resources and JoAnn navigated many interpersonal interactions with those she served and worked with. JoAnn identified as an African American woman. JoAnn's salient personal roles and identities centered around relationships to family members.

Rose was a senior faculty member and journeyed through the faculty pathway to Full Professor rank. Within her interview, she focused most on her teaching and research roles. Rose's research interests have evolved over her career and her research focus shifted from traditional engineering applications to pursuing knowledge in a non-traditional engineering discipline. The process of this shift was the centerpiece of Rose's interview as she explained challenges faced within her department and university as a result of this evolution as a researcher. Rose identified as a White woman. In her personal domain her family role was most salient.

Marie was recently promoted to the rank of Full Professor in her journey along the faculty pathway. When describing her faculty position within her university, in addition to her leadership role she spoke most about her roles in research, advising, and teaching. A shift in departmental resources forced a change in Marie's research trajectory; she found herself faced with needing to evolve from traditional engineering disciplinary work to a new non-traditional field in order to utilize resources she had access to. Marie identified as a White woman. She emphasized her faith identity as being most salient and transcending her life spaces and roles.

Allison was a mid-career faculty member who traversed the faculty pathway to the rank of Associate Professor. Discussion of her faculty roles and concerns revolved around her interactions with others. She spoke at length about her experiences teaching in undergraduate classrooms and interacting with colleagues within her department. Allison's research interests evolved over her time as a faculty member and she discussed emerging knowledge pursuits in non-traditional engineering research in addition to her traditional engineering disciplinary work. Allison identified as an African American woman. Within her personal domain, Allison emphasized relationships with family members.

Dylan was a mid-career faculty member who traversed the faculty pathway to the rank of Associate Professor. In addition to her faculty roles, she had started taking on leadership responsibilities within her university. Dylan compared several university contexts in which she had been employed during her faculty journey to illuminate the differences in culture and performance expectations. Dylan's research interests remained largely consistent over her career, however her non-traditional engineering work had been problematic in terms of recognition from colleagues. Dylan identified as a White woman. She prioritized her family and most valued protecting time to engage in meaningful interests in her personal life space.

Mary was relatively early in her career having recently earned tenure and the rank of Associate Professor. She conducted research in a traditional engineering discipline and spoke most about her teaching and research roles within her university. Her interview centered on her struggle to feel recognized and appreciated within her department and university. Mary identified as a White woman. She identified her relationship with family as her most important concern in her personal life space.

Gabriella was relatively early in her career having recently earned tenure and the rank of Associate Professor. She conducted research within a traditional engineering discipline and intended to traverse the faculty pathway to a leadership role someday. The faculty roles she spoke about included teaching, advising students, and research. Gabriella identified as a White woman. She emphasized the importance of her family across her personal and professional life spaces and her central concerns were around parental and faculty role time conflicts.

CHAPTER FOUR

FINDINGS THEME 1: FEELING MARGINALIZED

Theme 1: Feeling Marginalized in Social Identities and Committed to Modeling Success and Well-Being Within the Professional Space

The participants in my study have navigated complex departmental and university environments throughout their careers. The professional spaces in departments of engineering in higher education institutions shaped the context in which these women experienced sources of and threats to their sense of well-being. Their universities and departments were complex ecosystems of interacting personal and professional identities, social norms, and power structures. The environment of engineering in higher education has been historically male-dominated and is often characterized as being unwelcoming to women. This male-centric environment required the women in this study to make sense of their social identities, departmental norms, and behaviors in higher education. Theme 1 illustrates the ways participants felt marginalized within their universities, the consequences this marginalization had on their confidence and comfort within their professional spaces, and their commitment to remain visible to other women as models of well-being and success as engineering faculty.

> I found when I first started working at the university they actually were, it's probably not good to say, I mean they were not that welcoming, the students or the faculty members. So a lot of them were extremely difficult and they were *nasty* towards me and—I don't know? They were just *really nasty* people. (Allison, *emphasis* hers)

Participants described experiences of marginalization along one or more of their social and professional identities within their professional space. Participants described the complex ways their social and professional identities interacted with their professional environment. Within their professional context, the experience of social identities such as gender, race, and parenthood (and the intersections of these identities) were more salient for faculty when events within their professional space emphasized their particular social identities.

Sub-Theme 1.1: Feeling Disempowered as a Result of Gender, Racial, and Parental Identity Marginalization in the Professional Space

For this sub-theme, let us first focus on Mary who described events within her department that she internalized as overt and intentional marginalization of her gender identity:

> Just—I mean, imagine every, every possible thing that can happen, happens pretty much on a daily basis. People walk into my office and want to know where their parking pass is. I get called Mrs. [last name] . . . it was almost like they knew not to do it, but they're doing it as a joke. You take the—and they add up. For a long time it was the daily microaggression. (Mary)

Mary, the first woman to be tenured in her program, did not feel respected by students or by fellow faculty within her department. In daily interactions, she perceived students and colleagues as acting with intention to demean her "as a joke." She perceived others as stripping her of her professional identity as well as the respect and dignity associated with her status of engineering faculty when they, for example, assumed she was an administrative assistant and asked her for a parking pass. She felt degraded when individuals did not use her professional titles of "Doctor" or "Professor" that they used

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for her male colleagues, and instead designated her status as that of a wife ("Mrs."). For

Mary and other participants, these seemingly small but ever frequent moments within the

departmental environment "added up" to a growing sense of dismissal and

marginalization on the basis of gender.

Interactions with colleagues, superiors, and students within the professional space

of their institution contributed to the participants' feelings of disempowerment, isolation,

and even threat. Some participants revealed perceptions of overt sexism from colleagues

and students within their department, oftentimes without any ramifications. Mary

recounted an experience of feeling dismissed and isolated within her professional space.

She sought support from her superiors in confronting her perpetrators, but also in

processing events:

> You're dealing with that daily, and then you're being *told* by other people, your
> higher ups, that you are just perceiving that and that person would've done the
> same thing to me, and if you think you're being discriminated against, then you
> can "Just go deal with it." . . . "Oh, that person would've said that to anyone. You
> just add on that they did it because you're a woman." Right? . . . like I said, that
> we were told, "If you think you're being discriminated against, then you should
> just deal with it." I mean, this is—Once all that goes on, you're not all of a sudden
> going and advocating for yourself, right? You basically spend most of your time
> getting belittled, that takes away confidence, your confidence might not already
> be up there because you've been socialized that confidence is a bad thing in
> women. . . . you are belittled daily through the daily microaggression, and then
> when you bring this to your administrators, they tell you that you're just—this is
> all in your head and they gaslight you. (Mary)

Mary found her experiences invalidated and dismissed by her superiors. Her colleagues

challenged the validity of her discrimination experience, dismissing it as being "all in

your head," and she understood their messaging to mean that if she felt marginalized, that

the responsibility to address the issue was hers alone. Her use of the term "gaslight"

reveals her inner experience of this interaction as being adversarial and intended to make her question herself and her reality. The response and inaction of her colleagues eroded her trust and faith in them. The gradual strain of feeling "belittled" by those she worked for and worked alongside eroded her confidence and sense of empowerment to control her own professional environment.

Mary experienced her departmental environment as being rife with gender microaggressions towards herself and her female colleagues. These messages of non-belonging and inferiority challenged her sense of belonging and support within her department. These messages of non-belonging were amplified when her superiors dismissed her concerns and eroded her confidence and empowerment professionally. Mary's quote not only illustrates a heightened salience of her gender identity in her professional space, but it also illuminates her inner process of trying to make sense of her feelings of belittlement and disempowerment triggered by marginalization events. She connected her perceptions of the Western socialization of women with her own feelings of being disempowered to advocate for herself. This was a psychological response to the stresses in her professional environment.

Like Mary, another participant also talked of her experiences of marginalization in interactions with others. Whereas Mary identified as a White woman and did not articulate her racial/ethnic identity as something that contributed to her feelings of marginalization, Allison revealed the additional dynamic as a faculty member with intersecting marginalized gender and racial identities:

> I think I was really naive which is sad to say. I think—yeah I was extremely naïve. So one of the things I would always wonder is like "why are they being

mean to me? I don't quite understand." And I remember I was talking to somebody else that wasn't actually this particular person. I was like, "It's not fair." I mean because they were doing things that I felt weren't fair, so I guess up until I started working in academia I had this perception that the world was fair (laugh). . . . And I guess I had that ideal, that kinda idea in my mind like, "Oh okay everybody's gonna be fair. They're gonna be nice, accepting." That's not the world unfortunately. So working at my institution I had to come to that reality that was something that I never had to face. . . . I mean, yeah they were racist and sexist and all of those things and—I would take it personally. (Allison)

Allison experienced multi-dimensional marginalization as an African American woman in her department as a faculty member. Her quote illuminates what it is like for a faculty member to struggle to make sense of marginalization events like these within the faculty environment. Marginalizing comments and treatment forced Allison to make sense of her social world in a new way. Hostile interactions within her professional space violated the worldview she had constructed before she was a faculty member. She experienced a sense of loss as her idealism about higher education did not bear out in reality. How she expected to be treated by others changed a direct result of experiences within her professional environment. Her intersecting social identities of gender and race were attacked in marginalizing events, all of which contributed to her unfair professional and social treatment as she navigated her faculty pathway.

Allison went on to elaborate about her sense of exposure to persons with whom she did not want to interact:

Because up until [taking a faculty role in] academia . . . you're in your own bubble almost . . . kind of like an insulated bubble. It's almost you can associate with the people that you *want* to associate with and those with those personalities that you don't deem appropriate or one's that you would not gravitate towards you really don't have to deal with. So for me that was kinda eye opening 'cause I'm like, "Oh my gosh there are these difficult people that I have to deal with." (Allison, *emphasis* hers)

In general, participants discussed this lack of control over the people they "have to deal with" in their everyday professional space and as a result they all continually felt marginalization by others as a faculty member. Allison in particular struggled to reconcile her previous experiences of the world with those she experienced in her professional space. Central to her experience was a sense of disempowerment. She was unable to protect herself from negative social and psychological outcomes because she was unable to control the people with whom she interacted in this higher education space.

Allison contrasted prior experiences as a graduate student interacting with others against those experienced as a faculty member to illustrate the ways in which her faculty experience eroded her sense of interactional autonomy and also violated her expectations of treatment within a professional environment:

> I think one of our previous administrators would, say *negative* things about me. Like, "Oh, she's not accomplishing this" . . . But, then when—the males (indignant laugh) or the special ones, they would speak about them in a positive light. But, if you look at our records, like maybe grant funding . . . the person that they perceive in this positive light, they would go out and promote, didn't necessarily have the same amount of grant funding that I did. (Allison)

Allison perceived preferential treatment of male colleagues within her departmental and disciplinary contexts. Within her department, male colleagues received recognition for their accomplishments as "the special ones," whereas her superiors dismissed her accomplishments despite outperforming her colleagues in funding. Other participants articulated similar perceptions that in their engineering cultures, within their department and other engineering in higher education spaces, some identities were privileged over others.

In addition to marginalization and disempowerment along individual and intersecting gender and racial identities, several of the participants who had children experienced tension with their parental identity in their professional space. The tension left them feeling unequal to their colleagues.

> I had been on maternity leave when classes got doled out . . . so my teaching schedule got determined while I wasn't there to approve it, deny it, look at it, whatever. And so it came out and it was totally non-tenable. . . . this [class] is always what I do. And all of sudden this got changed because I wasn't here. Because I was like nursing a life. (Gabriella)

Gabriella felt that control over her schedule had been taken from her and the situation left her feeling marginalized by her other colleagues. She attributed their disregard for her input as an outcome of her emerging parental role. She approached her superior for help after realizing her schedule had been changed without her consent or input. She was not offered support; instead she was told it was her responsibility to find another colleague with whom to exchange course assignments. The only colleague willing to trade courses was another faculty member with children, but their course assignment still would not allow Gabriella to retrieve her children from their childcare centers on time. The colleague who offered to exchange courses revealed a pattern of the department dismissing the needs of parents. Gabriella said he had told her that "he had had that problem and had to go like way up the chain to get it fixed."

Gabriella learned that course assignments were a recurring issue among faculty who had children. She learned that she should not expect action, and that she would have to advocate for herself. Her solution was to address all of her colleagues in their faculty meeting.

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I said, "And fine like so it's a Mommy Tax. I will pay it. But this is not okay, and this is not appropriate, and I expect that there is going to be a much more transparent process for giving people classes because this is absolutely not okay." . . . And it turns out that there are certain things that you can say that make people listen. And I think "Mommy Tax" was a phrase that everyone was like, "Oh shit that's gonna end up on [local news station], and we're gonna look terrible. So, we'll make sure to like um, lift that off of her immediately." (Gabriella)

Gabriella's conflict was ultimately resolved, but only after she was forced to put herself in the precarious position of directly addressing colleagues in a meeting. She felt compelled to engage an emotionally-charged label for her experience, "Mommy Tax," to make explicit that she saw their treatment as an act of discrimination. Gabriella felt completely disempowered from demanding support from her fellow colleagues and believed that creating a threat of public shaming (imagining negative headlines for the university around sexual discrimination) was the only way she would be heard, and the "taxes" placed on her without her consent to be addressed.

Gabriella revealed later in the interview how her initial fear and anxiety lifted once the "tax" had been lifted:

So what was gonna happen realistically was that all that class prep, those extra hours, were gonna happen after my kids went to bad. I was just gonna stay up later to get it done. So now I have bought myself that sleep back because I don't have to spend that time doing that. I can either have quality time with my [partner], or I can go to bed. Um, so that's really nice. . . . for *my students*, they are going to get, I think a better teaching experience because I'm not going to have prepared late into the night . . . And so that's why I referred to it as a tax, it's because I felt like knowing myself, even I would say, "Oh I'm gonna work on this at night." What was really gonna happen was, I was gonna work on publications at night, and I was gonna work on the class during the day. Because I don't ever like to go in and give like a half-hearted class. . . . so I'm very happy that now we've come up with a schedule where none of these areas of my life have to suffer. (Gabriella, *emphasis* hers)

Gabriella's immediate affective reaction was that of panic and dread imagining all of the sacrifices this assignment would demand of her. She emphasized her relationships and responsibilities to others (partner, children, and students) as well as her own physical (sleep), psychological (happiness), and professional (publication and teaching) well-being. To her, control over her course assignments meant control over her time. Control over her time equated with management of roles inside and outside of her professional space, so she understood this disempowerment to have consequences for every role and space of her life.

Gabriella described the experience of marginalization falling at the intersection of her gender and parental identities. She described her department as having many faculty members who were or would become parents themselves, so she perceived her colleagues and superior as being generally supportive of a commitment to parental roles. Still, even she experienced marginalization in her department as a result of her emerging parental role. She was forced to make sense of her mistreatment and potential professional and personal consequences.

Another participant, Marie also articulated a broader view on the variability of interactions of social identities with the professional space:

> But especially women, the junior faculty who are women, it's not that I don't wanna share with my male colleagues . . . it's just that I know there are things that I've experienced that my female colleagues have experienced that the male colleagues haven't. Having children, being a wife. So it's not—I'm not saying they can't have similar experiences, but they're just not going to be the same. (Marie)

Marie and others illuminated parenthood as an additional social dynamic where the faculty experience may be unique for women. She perceived the experience of faculty life

through the intersection of female and parent to be different from the intersection male colleagues experience citing specific gendered roles of wife and mother. Marie believed gender nuanced and influenced the faculty experience, and thus, she felt a sense of camaraderie with her female colleagues through shared identity experience. She viewed her guidance as having greater value for someone of the same gender-parental-professional identity intersection.

Through the stories shared by Mary, Allison, Gabriella, and Marie, we begin to understand the inner anxiety and trepidation faculty may feel when they experience a loss of control and power over their professional roles and environments. Dismissal of subjective marginalization realities can erode trust and confidence, exposure to hostile professional environments can shift worldviews, and decisions made without faculty input has rippling effects and consequences for all aspects of a faculty member's well-being. As indicated by Marie, the shared experience of marginalization also facilitated a deep social bond between women who offered encouragement to one another. I elaborate on this pattern in the following sub-theme.

Sub-Theme 1.2: The Meaning of Visibility – Modeling Success as a (First) Woman

In addition to overt marginalization, some participants spoke about the more subtle interactions in their professional space because their gender is a historically underrepresented population in engineering. Like other participants, JoAnn saw her personal career as a platform through which she could advocate for many things including for the success of other women in engineering. She said:

> If I'm going to be in this job, then I need to be an advocate. . . . I think when you have certain jobs and certain platforms, you have to take advantage of 'em, right? And, I mean, it's kind of like your 15 minutes of fame. This is my 15 minutes of fame I'm going to make the most of it. (JoAnn)

She expressed a clear sense of obligation to leverage the power and visibility she possessed in her professional space to effect positive change. While she understood the leadership component of her role to be impermanent, her sense of duty to use her career as an advocacy platform cut across the different roles she filled throughout her career. In their interview, each of the participants expressed a commitment to advocacy in their careers.

For many participants, this advocacy took the form of professional visibility to foster the success of other women in engineering. Throughout her interview, Gabriella expressed a consistent dedication to advocating for others; she detailed instances of advocating for her students, fellow parent faculty, and for herself.

> I am not dealing with nearly the shit that women before me have dealt with . . . I mean women being sexually assaulted, they describe being raped. I mean they describe really horrible things. They describe giving birth and teaching *the next day*. I mean these things are absolutely horrific. I said "Mommy Tax" in a meeting. Let's not lose sight of what's—like keep some perspective. But, but this how changes happens. (Gabriella)

Gabriella talked about her experience in relation to the history of other women traversing the faculty pathway in engineering; the history of women before her underpinned her advocacy drive. She minimized her own experiences of threat and marginalization, believing they paled in comparison to her predecessors. Yet, she navigated a professional environment that continued to feel hostile and that she believed subverted women's success even today.

Well it was like my fantasy, right. Everyone was paying attention to me, I'm affecting real change . . . this is part of why I do what I do, right. Part of the reason why I'm faculty member in a, in a department that has been very hostile at different times is because I think it's so important that women see that they can do it. And part of the way that women see that they can do it is if other women do it. (Gabriella)

For Gabriella, remaining in a professional environment that felt "very hostile" to her not only represented personal resilience, it also represented resilience on behalf of women in engineering. She believed that more women needed to "see that they can" be successful in engineering faculty careers, and she believed that her personal success provided evidence for that message.

Believing her career to hold meaning for others, Gabriella felt compelled to remain visible. Several women echoed a sense of duty to improve female representation through visibility and demonstration of success as a woman in engineering higher education spaces even when doing so posed a threat to their psychological well-being. Like others, Gabriella believed her professional space was a sphere of influence in which her presence and actions demonstrated to other women that they too could be successful. Furthermore, her belief of influence was so strong that she chose to expose herself to a hostile professional environment to provide visible proof of success possibility to others. Participants understood this visibility to be meaningful to others and remained committed to this duty even when such visibility resulted in personal discomfort. They prioritize change in service of other women above their own immediate well-being.

Gabriella and Mary both addressed their commitment to fostering the success of women in engineering as being intertwined with a feeling of personal discomfort. Gabriella expressed comfort and even psychological reward, saying: "Well, it was like

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my fantasy, right. Everyone was paying attention to me." Her "fantasy" was actualized by

gaining the attention of others in her pursuit of affecting change. Her discomfort was

external. It stemmed from experiencing hostility from others. Mary on the other hand,

experienced internal discomfort from enacting her sense of duty to remain visible. Mary

said:

> I don't really know if it's a strategy thing. I don't even know if there is one. It's
> just really hard. The only way it will get better is if more people do it. For
> example, every time you say the word "share" it's gives me a small amount of
> anxiety because I just would rather not share about myself. But, I feel as though
> what I'm doing here ultimately will help more—what is the word? It will broaden
> the participation of women in some way, and that's very important to me. It's the
> only way it will change . . . I don't want for my [child] to be an adult and we're
> still living in this world where women and men are not equal. Or, women are
> lesser than men. . . . just make sure to always to do the thing and to fight the good
> fight, even if it means stepping out of your comfort zone 'cause it always
> assuredly will (Mary).

Unlike Gabriella, Mary described discomfort with the vulnerability and attention

garnered from her visibility. She perceived discomfort as necessary to effect change, and,

she even used her child as a motivating factor, saying that she did not want her child to

become an adult and still have to live in the same world of inequality.

Mary illuminated several other dimensions of the female faculty experience and

this sense of duty as a "first woman":

> Other women look up to me for that sort of thing. 'Cause that's just what I do. I
> just put it aside and get over it and because you kind of have to. But, that doesn't
> mean that I don't have anxiety over it, or that it comes natural. But how else are
> you ever going to change something if you—Someone has to go and do the
> things. Or someone has to be *first*, or maybe not first, but someone has to be
> consistent and persistent and just do it because otherwise, we'll never make
> progress, we'll never make change. . . . If someone else wants to go do it and be
> in the spotlight, they can certainly go ahead. . . . What I *like* about the spotlight is
> that people are seeing someone do the thing, but it doesn't for any reason need to

be me. In fact, I'd kind of prefer it not be. But unfortunately, there's so few
women that, it has to be all of us, right? Can't really take a break. Right? (Mary)

Mary was the first woman in her department to have earned tenure—not decades ago as

the reader may be picturing, but recently, within the past ten years. Throughout her

interview she described perceptions of overt sexism in her professional environment. She

emphasized the importance of being *first* in the process of challenging structures that

marginalize women. Mary perceived herself as being watched by female colleagues who

"look up to" her, and she was deliberate in correcting their inaccurate impressions of her,

like success comes easily to her. That is, she sought to normalize the struggle of success

as a female faculty member in engineering. She expressed awareness of the rarity of

women in faculty positions, seeing visibility and advocacy as a shared responsibility

demanding all women in engineering faculty positions to take action.

For participants like Mary, their underrepresented status as women—in

engineering broadly and within their departments more specifically—was amplified by

their standing as the "first woman." They were first to join their department, first to earn

tenure, or first assume a leadership role in their program. Mary's status as a first woman

amplified her sense of obligation to remain visible as an example of a woman earning

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women that, it has to be all of us, right? Can't really take a break. Right? (Mary)

Mary was the first woman in her department to have earned tenure—not decades ago as

the reader may be picturing, but recently, within the past ten years. Throughout her

interview she described perceptions of overt sexism in her professional environment. She

emphasized the importance of being *first* in the process of challenging structures that

marginalize women. Mary perceived herself as being watched by female colleagues who

"look up to" her, and she was deliberate in correcting their inaccurate impressions of her,

like success comes easily to her. That is, she sought to normalize the struggle of success

as a female faculty member in engineering. She expressed awareness of the rarity of

women in faculty positions, seeing visibility and advocacy as a shared responsibility

demanding all women in engineering faculty positions to take action.

Like others, Mary understood her role and visibility as a female engineer to be

located within a larger social structure. Her potential sphere of influence is global where

choices and actions in her immediate professional environment ripple outwards to larger

cultural shifts even outside of the field of engineering. Mary understood her visibility to

not only support the participation of women in engineering, but to also to challenge

broader patterns of marginalization and discrimination of women in higher education.

For participants like Mary, their underrepresented status as women—in

engineering broadly and within their departments more specifically—was amplified by

their standing as the "first woman." They were first to join their department, first to earn

tenure, or first assume a leadership role in their program. Mary's status as a first woman

amplified her sense of obligation to remain visible as an example of a woman earning

tenure. JoAnn, the first woman to assume a leadership role in her engineering program,

understood this status as a first woman to be valuable but also to be problematic. She

said:

> So first and foremost, there's young girls that we're trying to get to go into
> engineering and sciences and so some of them may have never seen an engineer,
> so not only do they get to see an engineer in me, they get to see a woman, a Black
> woman in engineering who might look like them or, maybe it's just a woman
> who's not a underrepresented minority. . . . there's faculty that've been here 20
> years and they've never seen a woman in leadership in the college . . . so it's like
> now you've got a strong leader . . . I think it's good and bad, right? . . . I was
> talking to some people about the struggles that I was having, their immediate
> thing is, "Well, it's because you're a woman" . . . I think—the guys have never
> had to work with a woman leader. (JoAnn)

JoAnn perceived herself as having a larger sphere of influence as a visible role model;

she articulated the importance of her visibility not only to her colleagues as a female

leader, but also to future generations of engineers. She specifically addressed visibility in

the intersections of her gender, racial, and professional identities as an African American

woman who is an engineering faculty member and who holds a leadership role in her

department. JoAnn believed her visibility contributed to making progress towards

increasing the representation of women in engineering and leadership roles.

However positively she framed her visibility, JoAnn's position as a "first woman"

was also a source of tension. In her professional space as a leader, JoAnn was forced to

make sense of her "struggles" with her colleague's aggressive behavior and hostile

interpersonal interactions. While others understood this kind of conflict through a

gendered lens, attributing hostility to be rooted as a resistance to working with a leader

who is a woman, JoAnn understood resistance to her as being resistance to good

leadership. She framed her behavior through non-gendered leadership practices and strategies, identifying them simply as good leadership.

Within their professional spaces, a heightened awareness of both historical and immediate rarity gave meaning to participants' own visibility as women who had reached their professional status within their departments. They saw themselves as representing a challenge to the exclusionary—and at times threatening—culture of engineering and understood their decisions and actions within their professional role to be larger than themselves.

These women understood themselves to be opposing cultural forces along their faculty pathways in two ways. First, they were opposing the cultural force of open hostility and of threatening actions to the safety and physical well-being of women in engineering faculty careers. The second cultural force is a social narrative about the success of women in engineering. That is, because professional success for women in engineering faculty careers is difficult to achieve and potentially unbelievable without evidence, they understood that they needed to increase visibility of those women who have succeeded. Participants' understandings of their potential influence on other women points to a belief that the low representation of women correlates with a lack of visible models and diminished confidence in one's own ability to be successful in such a career. Participants therefore understood their actions in their professional environment to be origin points of larger change. Their careers are platforms through which they can influence confidence and self-efficacy beliefs of others, thus indirectly encouraging other women to seek careers in engineering.

Participants embraced—sometimes begrudgingly—a pressure to remain visible as a woman navigating the faculty pathway. They understood visibility as one way to foster the success of other women. In contrast, the following theme illuminates external pressure that some felt to always remain visible to colleagues as a non-stop working faculty member.

Sub-Theme 1.3: Pressured for Working Visibly – Consumption Culture of Engineering Higher Education

Several of the participants revealed pressure to sacrifice identities and roles outside of the professional space, that is, to be consumed by their faculty role. They described cultural expectations within their departments to be working non-stop, to be seen working, and to focus all of their attention on work and professional progress. Participants felt pressured to allow their professional role to consume their lives entirely–their time, thoughts, and roles. Dylan articulated various sacrifices she believed faculty were expected to make. Her accounts explored a culture in which faculty are expected to give everything they have and even be consumed by their job in order to succeed. She said:

> I think this is something that people, I don't know, maybe aren't necessarily great at in academia. I think it's also something that turns, possibly turns graduate students away from thinking about academia . . . I think a lot of times people have this sort of vision of if I become a faculty member, I'm not going to have any life, it's going to be difficult to have kids . . . I can't—the things that are important to me—I'll have to like put aside, and I'll just have to focus on the work and on the job to get tenure and all these different sort of pressures that you put on yourself. (Dylan)

Dylan believed that she and her faculty colleagues "aren't necessarily great" at maintaining well-being within their professional roles and across their life spaces. She

attributed this struggle to maintain well-being to what she observed was a consumption culture within engineering higher education, a culture that demanded non-stop work as the social norm. Dylan and other participants assumed the perspective of their graduate students to reflect on the working behaviors and norms faculty were either challenging or recreating. Dylan reflected on the cultural expectations and norms around faculty work habits from her own perspective as a graduate student and early career faculty member. She also detailed accounts of conversations with several of her graduate students who chose to not pursue faculty careers. She articulated a perception that success in engineering faculty careers demands the sacrifice of all other meaningful roles and experiences.

Another participant, Rose, mirrored this strategy of adopting the graduate student onlooker position in order to reflect on the social narrative around engineering faculty work norms:

> I think it should be okay, like why should we all have to only have one thing that our whole life is about, which is being a professor. . . . I think that sometimes for our grad students, when they see that they'll even say like, "oh I wouldn't want that life, like I'm not willing to give up all my identity to just be a professor, like I want to have a life and a family, and other things that I do." (Rose)

Rose's language switched between and singular individual identity and a plural (shared) departmental identity. Her first sentence illustrated an interaction between herself as an individual, "I think," desiring control over her individual identity and influence over departmental values, "it should be okay," as being in conflict with a shared group identity and singular life, "we all" and "our whole life," that created pressure to conform to established norms "all have to." She emphasized a sacrifice of the many identities a

woman may desire fulfill to focus solely on the faculty identity. She challenged this

expectation of singular identity, "it should be okay," however she also expressed great

concern for the way she was perceived and evaluated by her colleagues within her

department.

> So then when I became a mom, then it seemed like people, they *noticed* that you're doing less, or you're, you're—like before that I probably never said no, like almost never. And now it's still almost never, but sometimes I do. (Rose, emphasis hers)

Rose felt external pressure to be visibly working, feeling her colleagues were watching

her and worrying that they "noticed" and judged her when she pursued any of the non-

faculty roles she possessed. She pointed out that her work behaviors violated the

consumption norm. Both Rose and Dylan emphasized the same social perception of life

and identity consumption as the well-being norm among engineering faculty.

Dylan most clearly articulated the multi-dimensional pressure in engineering and

spelled out her fear of sacrifice that seemed to be workplace expectations. Throughout

her interview, Dylan compared her experience of departmental cultures within two

different universities she worked in. Dylan experienced pressure to always be physically

present on her campus and observed a social expectation for visibility working at all

times. She said:

> And there was sort of an expectation that you're—that you're basically always there—like, physically in your office and available at all hours. So, I think that was a little bit what we were sort of fighting against. I feel like at [University 2] that isn't as much the case . . . I don't sense that people think anything of me not being in the office or being somewhere else. (Dylan)

She wanted to resist this consumption, describing herself as "fighting against" this pressure from the cultural norm in her previous university. Dylan intervened in conversations on behalf of her colleagues to stop social commentary and judgement she perceived as arising out of non-visibility. She explained that by interjecting to verify the colleague was working in another location "it wouldn't continue that sort of discourse. That, 'Oh, I wonder if he's just being lazy' or 'He's not really working hard' . . . 'cause they didn't see him in his office all the time."

Dylan's comparison of the differing workplace cultures between two universities illustrates an important point: consumption cultures are generated, replicated, and controlled inside an individual department and these cultures influence faculty members' experiences of their environments. This variance in workplace culture in different universities can work to attract and retain talented faculty (as the second university did), or it can be a crushing force that drives talented women to move on (as the first university did). Gabriella's experiences align more closely with Dylan's experiences in her second university's departmental culture.

Gabriella demonstrated establishing personal boundaries to work against the consumption culture of academic work:

> So, I just told everyone at work that my guaranteed hours were [4 hour window] . . . and that didn't mean that I wouldn't be working longer, but I wouldn't commit to being physically present outside those hours. And one of the great things about being a faculty member is you only have to tell like two other people that are your peers or superiors that. There's not that many people that walk around and care when you're around. (Gabriella)

She did not feel scrutinized by her colleagues. Instead, Gabriella felt empowered to control her visibility, feeling accountable about her physical presence only to her immediate superiors rather than to a cultural norm.

Unlike Gabriella, most participants echoed the social pressure Dylan described at her first university. Being visible to colleagues, working non-stop in their office, and being "available at all hours" was required if one did not want to be questioned on her commitment and effort. Dylan also revealed pressure to be mentally as well as physically consumed by her faculty role. She said:

> I was interviewing for my first job at [University 1], I met with [department head] at the exit part of my interview he told me—he said, "[Dylan], I want you to understand that if you end up in this job, that it's a 24 hour a day job, 7 days a week. Like, this is gonna take all of your attention." (Dylan)

Expectations of consumption were communicated to Dylan starting with her first day as a faculty member. For Dylan, aligning with the cultural norms and expectations of an engineering department meant working—and thinking about working—all hours of every day. She later discovered that her male colleagues were not being given the same messages and expectations. To be consumed was not communicated to her male colleagues as it was to her. She said:

> Something I found out later—which is sort of interesting . . . none of the other men that were hired were told that. So, I don't know if that was just a woman thing because I'm a woman coming in? That's he's worried that I wouldn't be focused or that I'd have kids and be distracted—I don't—I don't know what the thing was . . . I just assumed that was something he told everyone. It turns out he didn't. (Dylan)

Dylan interpreted this consumption messaging as her superior questioning her commitment to her professional responsibilities because of her gender.

Like other participants, Dylan was forced to make sense of social messaging about professional expectations, and also like other participants, she was forced to interpret the social messages and the differences in the treatment she received as a woman. From her first interaction with the expectations of her role, articulated by her superior in the interview, Dylan was treated differently from her male colleagues. In Dylan's phrasing "—I don't—I don't know" we see that even many years later, she continued to experience difficulty in interpreting this messaging.

Dylan demonstrated a strong resistance to aligning with the established workplace culture of consumption:

> I remember when I'd started in the faculty position, I was a little bit scared that it would just consume my life and that everything that I did would be around being a faculty member. And I remember thinking at the time like, "Maybe I should have a kid." If I had a baby—I know that people that I saw that seemed to have some semblance of work-life balance, they were the ones that "I have to leave at 4:30 'cause I have to go pick up the kids" or that—that sort of thing. So, I considered that, but that's probably not a good reason to have a kid (laughs) to choose as a work-life balance. (Dylan)

Dylan's consideration of having children in order to protect her non-faculty self underscores her sense of desperation to resist this culture of faculty jobs being all consuming and that she felt forced into sacrificing meaningful experiences in her personal space. She went on to elaborate on the ever-present concern she felt for health of her personal relationships she had outside of her faculty space:

> I was always sort of worried about [partner and my] relationship or just making sure that I carved out time . . . in some of those times where I'm just so worried about—and it's because of being in academia . . . you see these people that are just working all the time. And like I know I don't wanna do that. I don't wanna be that person. (Dylan)

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Dylan expressed fear and anxiety around losing relationships that were meaningful to her as a result of sacrificing time in non-faculty roles. Particularly, her ongoing mental preoccupation with this relationship loss, illustrated in "I was always sort of worried," demonstrates this anxiety of loss of non-faculty selves that was reflected across all of the other participants. She interpreted her colleagues' work practices and role prioritization as actively preventing her investment into her non-faculty roles. Resisting adopting the practices and to becoming "that person" who prioritized work and sacrifices all other roles, she observed, "I don't wanna do that." She expressed caution around the number of hours she worked, seeing the process of becoming "that person" happening incrementally and so slowly that the change would be imperceptible without constant vigilance.

Dylan's perception of her counterparts who were parents as having a desirable separation between personal and their professional roles revealed that she believed her counterparts navigated this "work-life balance" without facing the same repercussions of violating the work norms. Others like Rose and Gabriella (who had children) articulated difficulty navigating the boundary between spaces and consumption expectations. Gabriella revealed an inner fear of loss of love from her children: "Your kids are never going to love you really, because you don't spend enough time with them." Gabriella's fear was similar to other child-rearing participants. They worried that their absence as parents would damage the relationship and closeness with their children. Rose elaborated on this internal pressure to maximize time in the parental role: "it's fleeting and short, so your academic career can easily be 40, 50 years or whatever, but you have a limited

amount of time with kids because they grow up so fast." Her fear was compounded by a sense of urgency because of a limited childhood timeframe.

In this sub-theme, participants spoke about how the perceived expectations to sacrifice time in non-faculty roles was the well-being norm. In the following sub-theme, we see that participants used their visibility to challenge this norm.

Sub-Theme 1.4: Using Visibility to Model Faculty Success and Well-Being Approaches for Other Women

While navigating interactions in their environments and while reflecting on their attempts to progress through the faculty pathway, participants articulated an awareness and concern about the example they were setting for their students as models of well-being and success as an engineering faculty member. Rose explained that she saw herself as recreating a model of well-being that she herself found undesirable and believed that this turned graduate students away from pursuing faculty careers. She said:

> Unfortunately my model . . . when I was getting my PhD was like, that guy was a workaholic too. . . . I think if [graduate students] look at only these kinds of models, like the model I had, and then unfortunately the model that I'm sort of becoming, it would it turn them off, would they say I don't want to go and be a faculty member because I'm not willing to make those sacrifices, and it appears that that's the only way that you could be successful. . . . I feel like we've got to be able to have multiple models of success and what success can look like. And so I don't know what, that's not necessarily gonna be me. (Rose)

Rose assessed herself to be a poor model of well-being in faculty life because she was reproducing the "workaholic" model of faculty success for her students. She illustrated a common perception among participants: they were reproducing success and well-being models from which they were trained, despite desires to disrupt traditional faculty norms. It is not surprising that a professional early in her career would lean on models she

learned from her advisor, especially when that approach is reinforced by the surrounding engineering departmental culture.

In their interviews, some participants expressed needing healthy well-being role models themselves, explaining that they often only had models of men navigating role demands or those who were recreating "workaholic" models. They also expressed that they felt alone in their desire to prioritize roles differently from the perceived faculty norm. Lacking an existing model of alternative approaches to navigate well-being and faculty success as a woman, participants instead understood themselves to be the one providing models—or at least encouraging others to provide one. Rose said:

> I think you want people to have a realistic sense of what it's gonna take, but also that there's not one model. . . . I *want* the professorate to have these people who have more balanced perspectives coming in and for themselves and their personal enjoyment, but also what we can bring as the academy and as engineers having these folks as role models for future students. And so I feel like we've got to be able to have multiple models of success and what success can look like. . . . or for those of us who might be struggling to get some feedback, like oh here's some ideas of other things that we can do. . . . there are multiple paths to being successful, and they look different for everyone. (Rose)

Similar to her earlier quote, Rose again moved back and forth between an individual identity, "I," a shared professional identity, "we" and "the professoriate," and a subgroup identity, "us who might be struggling." She desired alternative models of success and well-being navigation for herself as a member of the "struggling" subgroup. She also wanted to diversify her environment and shift her professional culture by introducing new members she saw as challenging sacrifice as the well-being norm. To Rose, revealing her struggles and attempts to navigating the faculty pathway without sacrificing personal

roles was a starting point from which to encourage more faculty to question the models of success.

In addition to acknowledging their visibility as models of professional success, participants expressed a desire to normalize the experiences and challenges they faced navigating well-being as engineering faculty. The women in this study believed that revealing their own lived experiences and approaches to cultivating well-being across their professional and personal spaces could have a positive impact on the lives of other female engineering faculty. As put by Gabriella, for example:

> I think it's always helpful to hear that we share experiences, like I find it very helpful to hear that other women go through the same thing. Just knowing that the imposter syndrome for instance, was real, was like a revelation for me. So I am sure that in your work, I'm going to find even more things that are real, that many of us feel, and I'm like looking forward to seeing that. (Gabriella)

Gabriella and other participants believe women could find comfort in or feel affirmed by these stories and they could learn that well-being experiences may be shared. Gabriella experienced a "revelation" in discovering that her experience of self-doubt (imposter syndrome) is a psychological phenomenon that many other faculty experience. In an environment that can be dismissive of the marginalization and individual experiences of women faculty, realizing that her personal battle with criticism and self-doubt was not only "real" but also was shared by other women helped Gabriella to normalize the challenges she faced. Knowing this empowered her to cope with insecurity in her professional roles. She shared her well-being story and approach to managing competing faculty-parent roles to normalize these well-being struggles.

Like Gabriella, Dylan also sought to normalize the desires and challenges of faculty life for other women. She revealed her own psychological turmoil in struggling to navigate demands and in perceiving her colleagues as acting in ways that did not demonstrate a same prioritization of non-faculty self. Suspecting this desire for alternative ways to be successful resonates with others and Dylan sought to share the story of her journey and offer relief from feeling alone:

> Maybe it would be helpful, I don't know, to share my story and other people's stories that are sort of approaching things a little bit differently. I know it's a little bit helpful for me to be like, "Okay, I'm not the only one that cares about having this balance, and I know that people do care about it." I feel like especially, maybe not especially but . . . you have people that are underrepresented in academia—like, sometimes you put even more pressure on yourself for sort of fitting into this ideal faculty member sort of image. So having some other successful models that are out there, they can work for different- different types of people, maybe could be an inspiration, or maybe encourage more people to go into academia. (Dylan)

Dylan illuminated the dual internal and external pressure experienced by herself—and other underrepresented engineers—to conform to the social norms of a department and be seen as the "ideal faculty member." Throughout her career, Dylan saw herself as being at odds with her departmental culture for being the "only one" desiring—and eventually finding—ways to prioritize time in roles outside of her role as faculty. She understood herself to be navigating the demands of a faculty career in a non-normative way while engaging time management and well-being strategies that differed significant from her colleagues. Seeing herself as having achieved professional success without sacrificing personal roles and meaningful experiences that supported her well-being, she offered her own story as an alternative model.

Dylan championed non-normative approaches to navigating personal-profession space conflicts. Mary on the other hand, differed in her beliefs about what kind of approach was important to model for other women.

> I am the first woman to ever be tenured in [department] . . . I had the opportunity to turn my tenure clock back for [having children]. I didn't do it. I decided that I would be being a better role model to say that women can—not that if you turn your clock back it says anything against you, everyone has a *very personalized* situation. But basically, giving evidence to that women can do these two things. You can have a family and you can have a job. It's all gonna be just fine. (Mary, *emphasis* hers)

Faculty have the option to adjust their tenure review timelines, "turn your clock back," for medical and other personal reasons. Mary, however, believed it was important to demonstrate navigation of role demands in a way that reflected the traditional norms and expectations of her department. Mary believed that deviations from the traditional timeline—that of her male predecessors—would be interpreted by male colleagues as women being inferior to their male faculty counterparts. She believed that it would be confirmation of the narrative that women cannot be faculty members and parents simultaneously. She viewed alternative approaches to role navigation as undermining her efforts to prove that women can succeed in these traditionally marginalizing spaces. For her, demonstrating success and role navigation in a traditional approach was important. Her choice to not adjust her timeline in her professional role and achieving tenure and promotion when she was having children was important.

The above excerpts are not to suggest that the participants saw their visibility as valuable because they evaluated themselves as being the epitome of well-being and success in faculty life. For example, as put by Rose:

Feeling like crap and probably like a bad, (laughs), bad example of people being mindful and intentional about building in wellness related activities. . . . It's not like preventative maintenance so to speak, like "oh I'm going to do these things, and then I'll be a happy well-rounded person." It's more like I'm doing my thing, and then like, "oh I'm not feeling so good." It's like a reactionary approach, which is again, not, not the way that people should intelligently approach these things. But life catches you up at some points, and so I think . . . having things to think about for others is a good thing. (Rose)

Like Rose, some of the participants admonished themselves for failing to demonstrate what they believed were "intelligent" practices related to well-being. Some participants struggled with a sense of failure because their behavior did not reflect their ideal well-being vision. They criticized themselves for being "reactionary" instead of carefully planning and being "mindful and intentional" as they were in other efforts. Rose, like others, evaluated herself as falling short of what she perceived to be the ideal well-being model, an ideal that was characterized by many as being consistently intentional and proactive in engaging in well-being strategies. Some even expressed surprise in being chosen for this study seeing themselves as still struggling with their own well-being.

Despite assessing themselves to be "bad" models of well-being in faculty life, Rose and others saw themselves as contributing to the collection of approaches from which women could turn for inspiration in their own lives. Their visibility—even if imperfect in their own eyes—still held value for participants in validating and affirming the challenges of faculty life, in demonstrating alternative or traditional approaches to success, or simply echoing a value of differing approaches. Along with modeling success for women in engineering faculty roles as illustrated in the earlier sub-theme, participants specifically wanted to demonstrate an array of approaches for successfully navigating well-being along the faculty pathway. Participants were motivated to share personal

stories of well-being to challenge the dominant narrative of faculty success and they

offered multiple approaches for faculty life. They also offered suggestions to those who

may be struggling to navigate the faculty pathway.

CHAPTER FIVE

FINDINGS THEME 2: PROFESSIONAL IDENTITY EVOLUTION

Theme 2: Professional Identity Transitions Sustain and Challenge Well-Being

Participants navigated complex interactions between their social identities and departmental cultures. They also navigated interactions between evolving personal identities, professional roles, and departmental norms as they progressed through their careers. Participants' personal character traits, values, and passions by which they defined themselves transcended roles and were inseparable from who they were in their professional spaces. For example, each participant was committed to using their career to positively impact others. For many of the participants, their passions evolved over their careers. This evolving sense of self fed their sense of happiness and satisfaction in their professional spaces, but it also created conflict within their department.

Faculty roles (i.e. teaching, research, and leadership) could offer opportunities to engage strengths and reflect personal values. In essence, faculty roles should enable a more complete self within the professional space. Participants felt their actions in these roles were controlled by others. Participants desired to reflect a holistic and evolving sense of self in their professional roles, however they felt restricted from doing so due to pressure to conform to departmental norms for professional advancement. Their professional identity was a life-long quest, and for some, it was fully integrated into their sense of self. Many of the participants were distraught over the potential loss of this faculty identity during the tenure and promotion review process.

Sub-Theme 2.1: It's Just Who I Am – Expressing a Holistic Sense of Self in the Professional Space

The participants' holistic sense of self expressed in their personal space could not be set aside when they entered into their professional spaces. They described personal values and passions that defined who they were and that they wanted to express these values and passions across their life spaces in meaningful ways. Participants felt most satisfied when passions and values expressed in their personal spaces could be realized within their faculty roles as this enabled a more complete self to act within the professional space. Many saw opportunities to leverage personal skills and reflect personal values in their professional roles.

Allison explained how she saw her personal identity as being inseparable from her professional spaces. I asked Allison "Do you see any spill over in the other direction? Where you've taken something from your life at home to your work life." Her narrative immediately preceding this question centered around events within her professional space and the psychological "spill over" of these events into her personal space, her response on the reverse relationship focused immediately on her sense of self:

> I take me . . . I mean, I'm always with me, I mean—I take my personality, my—
> That's who I am, I guess—to work. So, it's kind of—I guess you'll see people
> that kind of have, like maybe a work persona and maybe a personal persona per
> se. I'm just—I'm just me. (Allison)

We can see from her linguistic breaks and false starts that Allison was searching for the words to articulate what it was she saw crossing boundaries. She revealed a viewpoint that was shared among many of the participants: personality characteristics, values, and passions by which they define themselves transcended roles and were inseparable from

who they were in their professional spaces, "I'm just me." Their holistic sense of self expressed in their personal space could not be set aside when they enter into their professional spaces. Allison could not assume an unnatural or incomplete "work persona" as she observed some of her colleagues doing; her actions and decisions within her profession spaces reflect her personality, "who I am."

The participants believed their professional roles as faculty reflected and leveraged personality characteristics they identified as being central to who they are. Gabriella elaborated on this experience of core personality characteristics transcending roles and being reflected in the faculty space in a meaningful and rewarding way:

> So, I am a faculty member because, as much as I enjoy research, and it's considerable, I love, and my passion is teaching. I think that that's been really positive because it actually uses some of my like mom vibes. Like nurturing, caring, wanting to teach, wanting to impart knowledge, wanting your kids or your students to do well, be successful, those sort of traits, I feel, transcend either work life or home life, but they're really the same passion. (Gabriella)

Gabriella understood that her professional roles not only reflected her personality and passions but were in fact strengthened by them. In her interview, she talked across several of her professional roles but felt the strongest sense of joy and psychological reward from her role as an instructor. This was because she was able to use her "mom vibes" that were consistent with her family life. Being able to incorporate the personality characteristics or traits and skills developed in her personal life spaces into her professional life spaces enabled Gabriella to feel a complete sense of self across her life spaces. Furthermore, she saw transcending characteristics such as nurturing as being valuable and leveraged them within her professional roles. Gabriella expressed consistency in her approach to and goals for her children and for her students throughout her interview by describing similar

affective responses to nurturing, shaping, and guiding young people across her life spaces.

Gabriella, like many of the participants who were parents, experienced her students in ways that were similar to how she experienced her children. Allison, for example, described her pride in her student's academic resilience as "it's just like seeing a kid and they're trying to do something and then finally they're able to do it . . . like a proud parent you're like 'see, you did it!'" Marie described her students as "they're my children. They're my adopted children. You know? They're my– they're my nieces and nephews, at least. So that's very satisfying, to watch them grow, you know?" For many of the participants who were parents, their professional roles were more rewarding when these parental traits were allowed to migrate across into the professional space.

Other personality characteristics in addition to parental traits were evident in the participants' interviews. For example, JoAnn emphasized that she believed her leadership role most strongly reflected a personal characteristic she believed was necessary to weave into a professional role:

> I would say I consider myself a brave leader . . . I don't think it's a choice. I mean, I think it's just who I am. I mean, I just don't think – if you're going to be a leader, you're going to have to make some difficult decisions. You're going to have to tell some people no sometime. You're going to have to upset the apple cart. (JoAnn)

JoAnn believed faculty leadership roles require certain traits, and she saw bravery and good leadership as synonymous. She perceived that her willingness to face conflict was a transcending character trait, and she evaluated herself as being well-suited for her professional role because she possessed this trait. For her, her willingness to face conflict

and make tough decisions in her professional role was "just who I am." She also saw herself as forward-thinking, explaining that her aptitude for envisioning solutions was "another way that I can leverage who I am" in her professional roles. This demonstrates how finding ways to utilize personal traits in the professional space improved a faculty member's sense of fit and aptitude within their professional role.

Mary likewise described opportunities the faculty profession offered in terms of reflecting personal traits and passions. She said she felt committed to equality advocacy across her life spaces:

> Another thing that I'm passionate about is like equality, I guess, broadly defined. That's another thing that ties back into academia. You have a lot of opportunities there to *speak up* for equality and you're around like-minded people who are also wanting to do that. (Mary, *emphasis* hers)

Mary was committed to equality advocacy across her life spaces. Being able to "speak up" and give voice to this passion in her professional role not only reflected an enactment of the meaningful value of advocacy, it also underpinned a sense of connection to others in her professional space. She perceived the faculty environment as a space where she could be surrounded by "like-minded" people which enabled her to reflect her personal values in the professional space.

The participants revealed that they possessed a shared core value that transcended their life spaces. Every one of the participants expressed a commitment to "make things better" in some way through their faculty career; however, participants possessed different drives to impact change. Some faculty members focused locally on individuals in their immediate surroundings while others set their sights on a more global impact, but

they all shared that their professional roles felt most meaningful and were most reflective of their holistic sense of self when they impacted the world around them.

As mentioned in an earlier section, Gabriella possessed a commitment to making things better at her university. She challenged marginalizing policies that taxed faculty parents within her department. Additionally, Allison was committed to providing guidance to other women faculty locally in her own institution. This commitment was rooted in her personal experience of isolation and a lack of mentorship from her colleagues as she sought tenure. She explained "you don't want them to necessarily experience the same pitfalls you did . . . you can help them and give them mentorship, so that they can navigate the waters a little bit better." Allison wanted to prevent other faculty members from experiencing the same navigational difficulties she had experienced, and she felt she could make a positive impact through mentorship. Her metaphor of "navigate the waters" evoked a powerful mental illustration of her inner psychological experience. We can imagine her inner ocean full of anxiety, confusion, and isolation and how she had to explore the murky waters of faculty success alone. It comes as no surprise that she felt gratified in preventing colleagues from being alone like she was.

Both Rose and Dylan found meaning and psychological reward in their roles by pursuing solutions to educational challenges and saw themselves as contributing to "making things better" for their own students. They were driven to improve their own teaching and also to improve broader pedagogical structures in their departments. Rose explained that the common thread helping her research and teaching feel meaningful was

"the same drive to get, [to] make things better . . . it's like getting some answers that you think would make a difference." Rose believed her faculty roles were reflective of her holistic self when she was able to make things better for her students. Dylan saw herself as a risk-taker and found innovation in the classroom to be rewarding and a personal strength. She wished to have positive impact by revising the curricula. She explained "I think, like, to me it's interesting to see how can we make this better?" She also desired to be in a professional environment where she would "be in a position where you could actually try those things and where your colleagues value that."

JoAnn wanted to impact the representation of women in engineering nationally by leveraging her skills and the power of her role to improve the representation of women in her department. She wished to have positive impact on a national challenge by acting in a local sphere. She explained:

> It gives me a platform to do and advocate for things that are important. So, for example, we've been talking about women in engineering for forever and why aren't there more women in engineering and what are we going to do about that? . . . it's like, well, I can do something about that. (JoAnn)

JoAnn believed that her career afforded her the opportunity to act directly, that is, to "do something about" what she believed to be an ongoing issue in engineering. When speaking about feelings of success and pride across her professional roles, she detailed her efforts addressing equity for women students in her engineering department.

Many of the participants desired to create positive societal change through teaching and socializing their engineering students in their classrooms. Several participants described desires to pass along society-benefitting values like sustainability and appreciation for global applications of engineering to their students. Mary and

Marie's drive to make things better was expressed in a larger sphere. In explaining what led her to pursue a career in higher education, Mary touched on her personal value of having impact on a societal scale: "I am also driven by the bigger picture, helping others, doing good for society as a whole. I guess that's what is—that's what drove me probably into the teaching profession." Another participant, Marie expressed a similar commitment to using her career for global positive impact:

> I've always felt that I've been really really blessed, and that I have an obligation, but an obligation in a good way, to give back, to *do* something with what I've been given. . . . I *want* to, and I feel like I *should*, make things better in some way. I *feel driven* to make things better . . . and so that impact is about somehow making things better. (Marie, *emphasis* hers)

Marie's desire to "make things better" was rooted in her faith identity and her sense of obligation to help all individuals regardless of her personal connection to them. This underpinned her actions and was expressed across all of her roles. She saw all her professional roles and interactions as opportunities to have positive impact locally and globally; this made her professional roles meaningful and reflective of her holistic sense of self.

The participants believed that professional roles could offer meaningful opportunities for a faculty member to engage personal skills and to reflect personal values. In essence, they believed that these kinds of opportunities enabled a more complete self to act within the professional space. Participants understood their faculty roles as opportunities to reflect passions and to leverage "who I am." Some of these traits, for example Gabriella's "mom vibes," were not skills traditionally recognized as essential to the engineering faculty profession; however, participants understood them as valuable

to their professional performance. They also viewed these tasks as more enjoyable and meaningful. In the next sub-theme we see that, while being a faculty member afforded participants meaningful opportunities to express themselves within the professional space, the social evaluation of fit during the review process for tenure and promotion threatened participants' sense of stability and security in their faculty identity.

Sub-Theme 2.2: Navigating Threat to the Integrated Identity Through Tenure and Promotion Processes

For many of the participants, their personal identities and professional identity were fully integrated into their holistic sense of self. Many described a life-long dedication to the pursuit of a career as an engineering faculty member. They felt that their sense of self was closely—or even fully—enmeshed with their faculty identity. Participants felt distraught and described significant psychological turmoil when loss of this faculty identity was threatened during the tenure and promotion review process. The evaluation between faculty ranks created natural reflection points for participants. For some, facing professional identity loss this was a traumatic experience, but others were able to restore their sense of security of self by identifying meaningful alternative professional identities or by prioritizing other personal identities.

Gabriella, while relatively early in her progress along the faculty pathway, expressed an unwavering commitment to advancing not only through the faculty ranks but upwards to a leadership role. Gabriella described her commitment to pursuing this faculty identity and the ways it was integrated with her larger sense of self:

> [I] have been singularly on the path of Full Professor, university administrator ever since [being an undergraduate]. Like, that's just where I'm going. It's what

drives me. It has influenced every career and life decision I have made from 21 years old till now. And I honestly don't even think I would know who I was if I wasn't a faculty member. (Gabriella)

Gabriella's drive to achieve this career vision felt so strong that she experienced her focus as "singular" and unquestioned. She accepted her career and trajectory as "just where I'm going." Furthermore, she gave a great deal of weight to this goal, saying that it "influenced every career and life decision." We begin to appreciate the gravity achieving the engineering faculty professional identity holds for Gabriella and other participants. Seeking this professional identity not only guided decision-making in her professional spaces, she allowed it to shape her personal life spaces and her larger sense of self, her "life." Gabriella's sense of self was so closely enmeshed with her identity as a faculty member that without this professional identity, her sense of self in "life" would feel fractured. Without being faculty, she would no longer know "who I was."

Other participants echoed this life-long dedication. For several participants, their journey to the professoriate began decades before I interviewed them. The time participants had invested into their careers emphasized their commitment to achieving this identity as faculty and contributed to why its achievement was so meaningful. Marie described an entanglement between her professional identity as a faculty member and her personal identity similar to Gabriella. Marie explained that "My role as a professional person is very important to me. I took a long time building it and getting there. So it's something that is key to who I am." These insights demonstrated the ways in which a faculty member's sense of self can be deeply enmeshed with the faculty identity.

This identity enmeshment and life-long dedication is what made the possibility of being forced to find another identity as a result of a tenure or promotion decision so frightening. The psychological turmoil experienced during the tenure or promotional review process was grounded in participants' fears of identity loss. Participants felt that being forced from their track of promotion or from their faculty position all together would be a devastating loss of a life-long goal and also of a deeply integrated identity. Gabriella described this period as inducing a crisis of identity:

> I was recently up for tenure and got the decision, which was thankfully that I got tenure. I was truly like having a bit of an identity crisis as I was waiting for it. Like, if I'm not a faculty member, like, who am I, what am I, I don't know. And I really didn't have a good answer to that question. (Gabriella)

For some participants, the threat of faculty identity loss during tenure review was traumatic. Gabriella experienced confusion and anxiety because she no longer felt secure in her professional identity. Gabriella was left reeling at the thought of losing her faculty identity that was so closely enmeshed with her holistic sense of self. She did not know how to define herself outside of this professional identity and questioned her sense of self, "who am I," and the nature of her existence, "what am I." It was as if Gabriella was unable to make sense of her own nature and value in the absence of her professional identity.

The uncertainty of promotional advancement for tenure, Full Professor, or leadership positions forced many of them to explore possible futures in which their desired faculty identity was denied. Some participants coped with this threat of identity loss by reflecting on meaningful identities outside of the faculty identity.

Thinking it through, like what would be, if you had to lose one thing, what would, what would hurt more? And I think you realize like if I wasn't a professor, oh well. Like I guess I could do something else, and I'd figure out something else that's rewarding, but your family is your family, like without that what is there? Like why would you be doing this? (Rose)

Rose made sense of the threat of losing her faculty identity by comparing it against the emotional anguish she imagined feeling from the loss of other identities. Through the first and second sentence, we can see Rose's mental progress of making sense of her identities. Her internal dialogue began with questioning herself as an outside interrogator, "if you had to," she then implied a shared identity as a parental "you" coming to a shared realization of the elevated significance of the parental role, then ended with a transition to the individual first person "I" experiencing acceptance of outcomes. Rose processed her elevated sense of grief for other roles as indicating a loss of faculty identity as a less frightening future. Reducing the centrality of the faculty identity to her overall happiness allowed Rose to identify non-faculty professional roles as possibly rewarding alternatives. Several participants took this approach of ordering depth of distress felt for the potential loss of individual roles as a mechanism to evaluate the significance of faculty identity loss.

Like Rose, Marie designated her familial identity as having central importance to her sense of self. She decentered her faculty identity and felt an increased sense of acceptance after doing so. Marie explained:

My role as a professional person is very important to me . . . but on the family side, that is even more important . . . this over here is even more important, ultimately. And, if nothing—If you never got promoted, this will be good, and this is where—you know, this is your primary importance is your family. And so, as long as that's good, then okay . . . whatever's going to happen is going to happen over here. (Marie)

Like Rose, Marie also evaluated the significance of her parental identity against the professional identity. She indicated separation between these identities in her mind when faced with evaluating their significance. Her faculty identity assumed position in one physical place and her family identity assumed another place, and what happened "over here" in the professional space did not threaten what happened "over here" in the personal space.

When facing and coping with the threat of faculty identity loss, some participants found solace in acknowledging meaningful and satisfying personal roles. They prioritized these roles as more important to them than their faculty identity. Several of the participants prioritized their parental identity and found a sense of acceptance of future outcomes with the knowledge that the family connections would remain regardless of their professional progress.

Other participants like Dylan explored alternative professional careers. For Dylan, being forced to face career uncertainty led to the mental exploration of alternative professional roles and selves. She said:

> But I guess that made me, like, face with the reality that I may not be getting tenure. You know, this isn't—it's not a given. . . . I was like, "Okay, well what am I gonna do if I don't—?" And that's when I started playing that sort of possible future self out sort of in my head or whatever. So I was like, "No I'm—I'll be good. I'll be fine." You know, it's not like I'm going to jail or been hurt really bad in an accident or—like, it's not—this isn't—I guess it'll be life changing for my trajectory, but it's also not the end of the world. (Dylan)

Dylan's method of grappling with the threat of faculty identity loss was to compare it to permanent loss of freedom, "going to jail," and harm to the physical self, "hurt really bad." In positioning the imagined psychological injury against a physical one, she

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minimized the threat of the faculty identity loss as only life changing and not life ending. In fact, Dylan eventually enjoyed the exploration of possible future selves: "Actually, I had big plans for my plan B or whatever if I didn't get tenure . . . I was kind of excited about that (laughs) . . . I don't think I tell many people that I was little bit disappointed that I got tenure." In considering loss, she experienced a sense of freedom to explore new careers in psychologically rewarding interests she had only previously been able to invest time in as hobbies.

JoAnn possessed an extensive faculty career. She had changed roles as well as universities. These transitions offered multiple reflection points throughout her career to evaluate the significance of her professional identity. At the time of the interview, JoAnn was evaluating her sense of satisfaction and commitment to remaining in her current role:

> I've got some decisions to make about my job and what I'm gonna do, but my identity is not tied to my job. And so, if I keep the job, I'm gonna be happy and if I walk away from the job, I'm still gonna be happy . . . a title is a title, it's not your identity. So just as easily as I ascended some level to become [current role], I could be gone tomorrow, and am I gonna still be happy with where I'm at? And for me, the answer I now know is yes. And I don't know what other people would say, but, I mean, I think that's an important perspective to have. (JoAnn)

Throughout her role transitions, JoAnn expressed an increasing sense of self-acceptance and focused on identifying meaningful sources of satisfaction outside a specific professional identity. While she found her current role meaningful, she did not see her happiness as being dependent on her professional title. JoAnn's perspective strongly contrasts Gabriella's perspective as JoAnn entirely decoupled her professional identity from her sense of self, "a title is a title, it's not your identity." She felt secure in her sense of self and expressed acceptance of professional change.

Reflection on sources of happiness and satisfaction outside of their professional

spaces helped some participants identify meaningful roles and identities outside their

faculty identity. The participants reflected different levels of coupling between their sense

of self and happiness with the professional identity. Those who were earliest in their

careers articulated greater significance of the faculty identity and experienced greater

anxiety over its potential loss. Mid-career participants expressed greater significance of

alternative identities and roles, and the most senior participants with the furthest progress

through the faculty pathway expressed the least attachment to the professional identity of

a particular role. While participants did successfully navigate the promotional review

process and thus, they kept their identities intact, they continued to feel incomplete and

frustrated in their professional roles from ongoing perceptions of being controlled and

limited in their departmental spaces.

Sub-Theme 2.3: Feeling Restricted and Frustrated by Departmental Power Structures

Participants desired to reflect a holistic and evolving sense of self in their

professional roles. However, many felt restricted from fully realizing desired identities

and a complete sense of self in the professional space due to pressure to align with

departmental norms even after achieving tenure. Rose asked: "It's like what's an

acceptable role at my institution and my department? And the structures in place for us?"

Participants' faculty roles were guided in part by the individual, their values and interests,

but their roles were also defined socially by colleagues in their department. This social

definition of what an acceptable faculty role and identity was and which professional

roles and identities a faculty member should prioritize was understood by participants to

be controlled by a small number of colleagues with greater power. To preserve their identity as a faculty member beyond tenure, participants were required to fit into certain structures and norms they perceived within their department.

The process of promotion required each of the participants to navigate the expectations and professional identities defined by their departments. Attempts to gain recognition by their colleagues and prove themselves to be legitimate members of their engineering faculty community forced participants to work within the role boundaries of what they perceived as "acceptable" within their department. Their faculty roles within their professional spaces also felt restricted. Feeling forced to reflect departmental norms for professional advancement frustrated participants. They felt a loss of autonomy and were expected to act in ways they believed were ineffective or counter to their moral and professional obligations.

Several participants experienced a sense of disempowerment, unable to pursue meaningful tasks or roles and to actualize desired identities in the professional space due to hierarchical structures within departments where a small number of senior, established faculty retained more power and possessed a "louder voice," thus controlling the norms of the department. JoAnn said:

> There are some people who are very happy with [her approach] but there are a smaller subset that are not, but they happen to be, they happen to have a lot more *visibility* and louder voice than others. And so you're, you're sort of letting a few push you and drive you to do something that intuitively you know is *wrong* and historically you know is wrong. (JoAnn, *emphasis* hers)

JoAnn had progressed through the faculty ranks to Full Professor, but she still found herself at odds with her department and felt out of control. JoAnn's tension between

herself and her departmental norms, like other participants, was rooted in her colleagues' resistance to change. JoAnn believed she was promoted into her position specifically to make strategic changes. She believed she was leveraging her expertise to introduce obligatory structural changes to help her department thrive.

Many of the participants, including JoAnn, felt that a small subset of individuals with disproportional power controlled their department, and thus controlled the choices in their professional roles. JoAnn did not feel empowered to push back against these individuals. JoAnn understood this power imbalance as limiting her professional autonomy and felt pressured to act in ways that she felt were historically ineffective and not in the best interest of her department. She felt that they prevented her from doing the job she was hired to do. She perceived these colleagues wielding control over her. She did not feel supported by her superior to act on her professional instincts even though she believed her instincts were her biggest strength in her role and reflected her holistic sense of self. Feeling forced to act in ways she perceived as fundamentally "wrong" contributed to JoAnn's declining sense of fit and satisfaction within her department and increased intention to leave her role.

When participants saw their core values continually at odds with their departmental culture, the women began to question their fit. In her former department, Dylan experienced tension rooted in her more powerful colleagues' resistance to change. She also felt pressure to disregard her own professional expertise and act in ineffective ways in order to align with the departmental norms. Dylan sought to use her expertise to improve curriculum within her former department:

> I saw this opportunity to really create something new in [discipline] and really do things differently. And they'd have a lot of the old guard . . . it was constantly a push back. "Well, no, that's not—like, we can't take [topic] out of the curriculum. Then it wouldn't really be [discipline] engineering." And, "You have to have all the same classes that I had whenever I got my [discipline] engineering degree." (Dylan)

Dylan experienced tension with her "old guard" colleagues who maintained a tight grip over the curriculum in her department. She valued taking risks to identify superior and innovative solutions, and she wanted to evolve course content to incorporate modern engineering applications. Dylan felt dismissed by the powerful few whom she believed only valued the reproduction of traditional approaches. She believed that engineering departments had an obligation to respond to the changing outside world in order to adequately prepare students to be modern engineers.

Dylan saw change as being necessary for a department to thrive. She believed that "being in an organization or an environment where like nothing changes is sort of a, I don't know, like not a living state. Like it's sorta static or death." When colleagues in her former department prevented her from changing and growing as an educator, Dylan felt unable to realize her holistic self in her department. She saw her values at odds with those in power. Dylan's core professional value was risk-taking, and like JoAnn, she also began to internalize this aversion to innovation as an indication of poor fit and satisfaction within her department.

Mary revealed an additional dimension of social hierarchy within her engineering department where peer colleagues marginalized other colleagues when they did not reflect departmental productivity norms:

> There's a cool kids' group and then there's all the rest of us and if you're not in the cool kids, you get the second choice on all assignments and your voice matters a lot less and it can just be very frustrating. It's like a fighting force against you. (Mary)

Mary felt like an outsider within her department. She experienced her departmental culture as "a fighting force against" her that could interrupt her professional progress and reduce the power of her "voice" within her department. Whereas the previous quotes emphasized disempowerment by senior colleagues with promotional consequences, Mary described a hierarchy among peers in addition to the seniority hierarchy. She believed some individuals received preferential treatment for aligning with the departmental value of high research productivity while she was disempowered. Mary was made to feel that she didn't fit socially and professionally.

However, Mary also explained that she wanted to engage in activities that reflected her values and interests, not the values and interests of her department. She clarified: "I don't wanna be micromanaged or nitpicked or I don't wanna have to live someone else's dream." She went on to explain the pressure she felt to conform to overperformance norms: "if my colleague's dream is to have a 30 million dollar a year research program, I don't wanna have to be forced to live at that level because that contrasts with what I wanna do." She feared she would be marginalized as a consequence of failing to be recognized and accepted into the "cool kids' group" by her peer colleagues who had different career aspirations. She observed a loss of control over all aspects of her professional roles as an outcome of not meeting the departmental norms.

Rose's interpretation of her departmental messaging reveals tension between departmental values and an individual faculty member's ethical beliefs and values:

I mean one would be personal frustrations, because as a traditionally trained engineer who is really [discipline] . . . I didn't have any training on how to teach at all, like zero. So, coming in and feeling like that was an important part of my role in a public higher education institution I sort of felt alone in being on that journey. . . . the message was "Well, don't suck at your teaching, that's enough," but I found that to be ethically untenable. (Rose)

Rose felt frustration and resentment towards her colleagues for departmental practices and values she believed were "ethically untenable" for faculty at institutions of higher education. She spoke about early feelings of inadequacy in her teaching role as a result of receiving no teaching preparation in her doctoral engineering training despite that being a central responsibility of faculty. This struggle as a teacher was a sentiment shared by several participants.

Additionally, after tenure, Rose expressed frustration with ongoing departmental pressure that marginalized teaching role throughout her career. She felt alone in her desire to improve. It is not uncommon for departments within research-intensive universities to emphasize the research component of faculty roles. This emphasis can marginalize teaching excellence and marginalize those faculty members who strongly value their professional identity as an instructor. Several participants spoke about the meaning and personal value of their teaching roles and dedication to providing students with a high-quality education. They felt their values and passions—reflections of their holistic sense of self—in their teaching roles were at odds with perceived low departmental value for teaching roles. Like Rose, Gabriella was also dedicated to teaching excellence: "I don't ever like to go in and give like a half-hearted class. I like to know my stuff. I like give my students the benefit of that, of like fully engaged teacher." Rose went on to explain that her efforts to improve her teaching, something she valued

greatly, were belittled by colleagues as a "waste" of time. She was told she was not doing what was expected of her and what she "should be" doing:

> You would feel that that was detracting, 'cause they would go, "Oh, you're wasting too much of your time on your teaching, you should be writing grants, bringing in research money for your [discipline] work." (Rose)

Many participants were frustrated by their departments' low value of teaching in their promotion structures.

Participants explained that in their departments they perceived a powerful few faculty members possessed the power to influence and shape departmental norms, and by extension, recognition and acceptance. Much like the privileging of certain social identities, participants also perceived privileging, and by default, marginalization, of particular professional identities within their departmental culture. Specifically, they perceived a privileging of traditional engineering researcher identities. As they attempted to realize a holistic sense of self across their life spaces and as they increased their sense of well-being in their professional roles, participants often found themselves at odds with the established norms of their departments. Expressing personal values and passions were interpreted by more powerful colleagues as acting counter to departmental expectations and power structures. Participants felt an increased sense of threat to their faculty identity. The next sub-theme reveals an increasing divide and tension between departmental norms and participant values when participants' identities and interests evolved to meet their psychological needs for personal growth and satisfaction.

Sub-Theme 2.4: Evolving Professional Identities Reflect Growth but Violate Departmental Expectations

Participants' identity evolution simultaneously supported their psychological well-being and threatened their professional and social well-being. Throughout their careers, many of the participants experienced shifts in interests that drew them to new and non-traditional engineering research agendas. New researcher identities emerged from these developing passions and participants felt a rewarding sense of stimulation and growth in addition to realizing a more complete sense of self in the professional space. However, they discovered that colleagues overtly marginalized and dismissed their new non-traditional research identities as being inferior to traditional disciplinary identities. Their new identities posed challenges to their professional progress, which increased threats to the security of their faculty identity, and these changes had social consequences when they were met with open hostility. For several participants, their evolution of interests was neither well-understood nor accepted by their colleagues who experienced discomfort with and confusion about the departure from a shared disciplinary interest. This left many participants feeling rejected and delegitimized within their departments.

Throughout their careers, more than half of the participants engaged in non-traditional engineering research. For some, this work took the form of projects they did in addition to their traditional engineering work, and for others, it became the next step of their research career evolution and they continued only in the non-traditional work. These emerging research directions, while fulfilling and meaningful, deepened their sense of conflict with departmental norms and increased their perception of threat for their professional progress. Engagement in non-traditional research while working within a

traditional engineering disciplinary department was a major source of tension for participants as they described feeling delegitimized in their non-traditional engineering research. For example, Marie expressed frustration being marginalized by her colleagues for her non-traditional researcher identity:

> This subdiscipline, this – this *new* – this new approach. Right? This new non-traditional, I guess I would say– There's other stereotypes around that. Right? So, it's only been, I'd say, the last 10 years that [non-traditional sub-discipline] engineering and research and stuff has been given any credence at all . . . there have been people *doing it* for a long time, but it was always kind of seen as that's —it's fluffy. It's not as technical. It's not as rigorous. It's not as difficult. It's not as whatever. . . . If I'd been making [traditional engineering application], it would've felt a lot more [legitimate] to them. (Marie)

After a structural change during her career, Marie found herself in a new campus location that lacked the physical resources to continue the traditional engineering research she had previously conducted. She had to reinvent her researcher identity to utilize the resources available to her and she gravitated to a non-traditional engineering research agenda. As she explained, "in some ways, I wanted to do that, and in other ways, I *had* to do that. I had to reinvent myself. And I did *choose* something when I reinvented myself that I was truly interested in." Marie was faced with a resource challenge and overcame it by evolving to support her own professional progress. In doing so, her professional identity and holistic sense of self was evolving.

In reinventing her researcher identity, Marie experienced increased enjoyment and interest in her work but immediately felt marginalized by her colleagues for conducting inferior research and felt stereotyped as less "technical," "rigorous," and "difficult." All the descriptors her department used to characterize legitimate engineering research were reserved for only traditional applications. Marie was therefore perceived as less-than.

Marie's colleagues dismissed her researcher identity as "fluffy" and not legitimate for an engineering faculty member. She was further frustrated by the observation that her new research area had been widely dismissed despite its long history. Marie understood the rejection she felt from others to be rooted in their disapproval of her identity evolution and that she would have to defend her identity to others as still belonging to engineering: "I realized that what I had picked was fun for me, but it was a uphill battle to convince my engineering colleagues that it was a fit in engineering." This realization that the new researcher identity—while satisfying—resulted in judgement and conflict within the department was common among the participants whose research identities had evolved. The revised identity posed a challenge to professional recognition and promotion reviews.

Several of the other participants echoed feeling delegitimized for their research in non-traditional engineering disciplines and applications, and this was particularly problematic during reviews. I asked Allison if she had been supported in pursuing her non-traditional engineering work:

> Of course not. . . . When they looked at my tenure promotion dossier, I had funding but they would be like "oh, that's [non-traditional engineering] funding, that's not real money." I'm like oh it's green. I've not been supported in that area because it's not [traditional engineering] discipline. (Allison)

In addition to her traditional disciplinary work, Allison had begun collaborating with faculty outside of her engineering colleagues to explore research questions in which she had a growing interest. She explained that this new work was psychologically rewarding because it created a sense of growth and made her feel intellectually stimulated: "what was enjoyable is hearing the different perspectives . . . the meshing of the disciplines and

the backgrounds, because you're like, learning new things and you're growing, and you have different point of views." She went on to explain that her developing researcher identity was particularly meaningful to her because it reflected an interconnection between her personal and professional spaces that was absent from her traditional engineering work: "I feel strongly about [non-traditional engineering research] personally. I guess that interacts with my professional life and my personal life. . . . [T]hat's probably how they kind of interconnect." While this new identity and work was meaningful to Allison and lucrative, it was completely dismissed by her colleagues. Even the objective measure of professional success in a research university, being awarded grant funding, was dismissed as being "not real money" because it had originated from a source they did not recognize as valid.

Marie illustrated the pressure and anguish many participants felt while trying to seek recognition from colleagues who marginalized them for pursuing non-traditional work. She said:

> I went back to playing the game. What do they want? . . . What would I have to do to look like a duck? You know, they want you to look like a duck and smell like a duck and sound like a duck. At the moment, I don't smell, sound or look like a duck. I look like a gopher. How do I make myself go from being a gopher to a duck? . . . When I say doing things I *had* to do but didn't want to do—It was this process of making myself look like a duck. (Marie, *emphasis* hers)

Marie felt ostracized by her former colleagues and treated as non-member; she had become an "other" after her identity reinvention. She perceived her colleagues as no longer recognizing her as a member of the same professional species, a non-traditional "gopher" among traditional "ducks," who no longer possessed any of the qualities defining an engineering faculty member. Marie later explained that "It was a challenging

time, sort of, in terms of my identity, as to what I was and who I was and what was important and what was I doing right and wrong." Being rejected by her colleagues for her emerging research identity led Marie to question her sense of self as well as her priorities and values she could reflect in her professional space.

This professional and social rejection led Marie to question herself and how she "*had"* to change to "make myself look" like something familiar in order to be accepted again. Marie explained that through overperforming in her research role "I was sort of metaphorically shouting at them that "I'm not a gopher! I'm not a gopher. I'm not a gopher." She was attempting to separate herself from the inferior qualities her colleagues had attributed to her based on negative stereotypes of non-traditional engineering research.

> There's this conflict going on in some ways that I have to look like a duck to get what I want, but there's another part of me that says, "But I will never be a duck, and I'm happy with that. I don't want to be," I just want to look like one (laughs) long enough for *you* to say, "Oh yeah. Yeah. Yeah. Yeah. She's a duck. It's okay." And then, afterwards, I ain't being a duck anymore, unless I want to be. I'm going to be a jaguar. You know? I'm done being a gopher, too. (Marie)

Marie resented losing her sense of autonomy when she felt compelled to perform in insincere ways, assuming an identity as a "duck," for recognition necessary for professional advancement. Inner psychological turmoil arose from her perception that she would have to sacrifice, or at least conceal, a meaningful emerging research identity in order to progress. Through her quote we see an inner contradiction that she simultaneously desired recognition by her colleagues (professionally and socially) to be seen like one of them, and yet expressed satisfaction from being seen as unlike them because they no longer reflected her values and desired sense of self. She accepted

concealment to gain recognition as a strategy for professional advancement and to protect her faculty identity, then intended to immediately shed the "duck" façade (and "gopher" attribution) in favor of her "jaguar" true identity.

It was not uncommon for participants to conceal their emerging interests, evolving sense of self, and research identities for fear of being negatively judged by their colleagues. Like Marie, they had to make sense of the tension between a rewarding progression of self and necessary professional recognition. Rose elaborated on this pressure to conceal her emerging interests and identities. She believed that her department perceived the pursuit of the new research as a violation of hiring expectations:

> When you interact with people they develop a sense of who you are and what your role is. And so, when I was hired at [university], I mean, that's who I was. I was a [traditional engineering] researcher . . . everyone would, sort of, reinforce the [tradition discipline] engineering side because it's, again, who you were hired to be and that's why you're here. So all of that expectation was pretty clearly communicated at different points . . . they didn't bring you there to do that so it's just viewed as foreign and not really what you're supposed to be doing. (Rose)

Rose perceived that her colleagues possessed a static sense of who she was as a colleague, a definition formed early in her career. It seemed to her that the professional identities she initially developed and presented to her departmental colleagues became the ongoing expectations. Rose believed she been hired to fulfill a certain role, and she perceived expectations for who she was going to be for her career with narrowly defined boundaries for "why you're here." Messaging she received from her colleagues and superiors reinforced this expectation for consistency and left Rose with a perception of inflexibility and immobility within her professional roles. Thus, deviation for personal

fulfillment violated expectations. Rose internalized this perception of violating what she was "supposed to be doing" and expressed a sense of guilt and even fear for being discovered in her new identity. Her personal growth better reflected her passions and values, and her growth fed her sense of satisfaction and happiness in her professional roles but further violated departmental norms and amplified her perception of threat to her faculty identity.

Like Marie and Allison, Rose originally conducted traditional engineering research and slowly progressed towards pursuing non-traditional engineering interests during her career. Like many faculty members, Rose experienced shifts in professional interest and passions throughout her career. For her, "different things draw your attention and your motivation at different points" and her new work in the non-traditional sub-discipline was rewarding because "problems that I see in [research context] I can devote some of my research time to actually exploring those and trying to make things better, versus just seeing them and being frustrated by them," as she had felt earlier in her career. She felt empowered through her new researcher identity to address issues that caused long-term frustration and this new identity better reflected her personal values (making things better) and allowed her to attune to issues she felt were important. Rose experienced additional psychological benefits from this evolution. She said:

> Since my research has shifted from my disciplinary focus of [traditional engineering] over to [non-traditional engineering] I think that allowed me to bring those roles closer. Because before, even in my singular role as a faculty member, I think I felt really torn between the teaching side and the research side and the service sides. So over time, I think I have been glad to bring those together. Actually, all of them are one thing now and they reinforce each other, so that certainly feels better, where that's more of a unified role identity that I have now. (Rose)

Through the adoption of a new research identity Rose was able to pursue meaningful research and ultimately felt an increased sense of unity among her diverse faculty roles. In essence, she was able to express a more full and unified sense of self in her professional spaces. Other participants also described a sense of increased unification among one or more roles. For Rose, unification of her roles created a sense of relief from previous feelings of disconnection and competition among her professional identities of instructor, serviceperson, and researcher. Instead she experienced one interconnected and whole professional identity.

Unfortunately, like Marie and Allison, Rose's colleagues dismissed her non-traditional work. Her review committee did not support her application for promotion: "the first vote was unanimously opposed. And the logic was . . . that [non-traditional research] wasn't legitimate at all." She had attempted to maintain work in both traditional and non-traditional areas despite her desire to transition completely into her new identity to maintain recognition as a legitimate colleague:

> I think my identity was split in half, because everyone said "Well, you still have to do your [traditional discipline] research," and I really—my passions, though, were moving, so I was trying to keep both those areas going, but, again, feeling kind of torn, like, how can I be—how can I maintain a body of knowledge that's strong and rigorous in both areas? So, that was really challenging. (Rose)

Rose described a fracturing of her professional identity as a way to cope with the tension between her psychological need for growth and pursuit of emerging interests and the static expectations of her colleagues. She was "split in half" as she struggled to negotiate progressing interests and psychological growth needs alongside her need to feel professionally and socially recognized and accepted by her colleagues. This "split"

experience starkly contrasted with her sense of identity unity that she felt when conducting her non-traditional work and likely amplified the internal conflict she felt. She felt pressured to abandon her emerging interests in order to align the stationary departmental expectations. These conflicts made Rose feel "torn" between continuing her path as the person she had been before and continuing as the person she desired to become.

The tension from these conflicts did not disappear after tenure and promotion. Rose said:

> Even though I can tell myself that it doesn't bother me, it still does. Because those are long-term connections that you've had . . . it's just certain people certainly, that I used to collaborate with they give off a vibe . . . like "What are you doing?" Like, "How could you possibly leave this research area?". . . it's hard not to be bothered. (Rose)

She and other participants shared a lingering sense of loss from feeling rejected by colleagues with whom they used to be close.

The review process for promotion requires faculty to reflect on what they have done over a number of years, the opportunities they have pursued, the research they have conducted, and the professional identities they have cultivated. Faculty must make sense of the events and evolutions of their career for other colleagues reviewing them, but they must first make sense of it for themselves. For many of the participants, this sense-making centered around an ever-evolving researcher identity that had carried them into new, non-traditional engineering sub-disciplines. Enacting a more complete sense of self in their professional space also increased each participant's sense of threat to their faculty identity. The promotional review process required them to reveal and defend changes in

their research interests and identity. These evolutions had helped participants move their career forward, maintain growth, and find satisfaction in their faculty role. These emerging identities were meaningful and rewarding to the individual, but they were perceived as not lining up with what their department wanted or expected from them. In meeting their own professional and psychological well-being needs, participants risked no longer meeting the expectations of their departments. Tension arose between two fundamentally different needs that could not be met simultaneously: the participant's need (and desire) to evolve and change and their department's original definition of their role and need for which they were hired.

In the next theme, the participants revealed an approach they collectively engaged to overcome the internal rejection in their departments and gain social and professional acceptance in external spaces to support their own professional and personal well-being.

CHAPTER SIX

FINDINGS THEME 3: CULTIVATING EXTERNAL COMMUNITY

Theme 3: Seeking Connection Through External Professional Community

These participants have navigated complex interactions between their identities

and their departmental and university environments as they persisted along the faculty

pathway. In the previous two themes, participants revealed aspects of their immediate

professional environments that made them feel like their social and professional identities

(i.e., their identities as teachers, researchers, or leaders) were dismissed, rejected, or

delegitimized and how this challenged their well-being.

This theme focuses on the social aspect of participants' experiences in their

professional spaces and how they cultivated meaningful, trusting relationships with

others to enhance their well-being in their professional roles. Participants contrasted

interpersonal interactions with colleagues inside and outside their departmental or

university contexts, and they revealed where they were able to cultivate meaningful

relationships and what these relationships meant for their well-being.

This third theme provides insight into participants' desires for close, personal

relationships within the professional space and describes how they cultivated

relationships as a well-being strategy. It explores the sense of isolation and rejection they

felt inside their departments, and the ways they extended their professional spaces past

their departments to engage external mentors and professional society communities. By

extending their networks, participants were able to better meet their psychological and

professional needs for connection and recognition as well as to promote their own well-being.

Sub-Theme 3.1: Feeling Professionally and Socially Isolated in Department Professional Space

In the first two themes, participants revealed hostility they felt from students, colleagues, and superiors related to their social and/or professional identities. What has not yet directly been addressed is the broader aggression and uneasiness they experienced through interpersonal interactions with their immediate colleagues in their department, and how they managed to cultivate positive, meaningful relationships in their professional spaces to enhance their well-being. Rose allowed us into her inner world to illustrate what it is like to work within a hostile social environment:

> Slight apprehension 'cause you wondered like w-what would happen. 'Cause we had some very assertive negative people in the department, so there's been other times when they'd send like five-page long emails at eleven o'clock at night, voicing their displeasure about different things, so you wondered like so, are one of those gonna be waiting for me, are they going to like—say something really negative in the hallway or what. (Rose)

Rose expressed apprehension and anxiety when it came to interpersonal interactions with some of her colleagues. Her fear of public backlash and overt digital and in-person aggression from colleagues prevented her from feeling confident and at ease in her professional spaces.

Rose revealed a culture of open aggression between colleagues within her department, an experience that numerous faculty members may experience sometime in their careers. She observed repeat behavior from multiple "assertive" colleagues. These colleagues typically possessed seniority and power within the department. They

vocalized their displeasure in extensive "five-page long emails" copied to many

recipients, rather than in private or otherwise collegial methods; they publicly berated

colleagues through mass email. She internalized this behavior as indicating an ongoing

threat of hostility and public shaming for any action or misstep not aligning with these

players' preferences. In the quote she referred back to the time many years earlier when

she was considering revealing her new research identity to colleagues. She fretted and

agonized over envisioned hostile email and in-person interactions, expecting to be

accosted by these persons in the hallway. Her stuttering of the phrase "w-what would

happen" demonstrated that her uneasiness and concern was profound. Indeed, her

agitation was palpable in the interview, despite the specific events causing her fear

having been directed at other colleagues and occurred many years ago. Her story

demonstrates the degree to which negative interpersonal interactions—or in Rose's case

recurrent behavior accepted in the workplace culture—can result in ongoing

psychological distress, or even trauma, in the faculty workplace.

JoAnn also experienced toxic interpersonal interactions in her program. In her

most recent role, JoAnn experienced aggression from others in her departmental space

regularly, and she started seeing her professional space as a threat to her well-being:

> I found myself *daily* under attack. And this is probably the first time I've been
> in a position where I've been—*attacked* this much. . . . I think I got caught off
> guard by some things that happened. I didn't foresee them, and so you get sort
> of knocked off center, and then you're like, okay I'm trying to get back, and
> then you get knocked again and you get knocked again, and so there were like
> multiple things that happened, and I never kinda got re-centered. (JoAnn)

She described multiple instances of colleagues confronting her in her office and said

these hostile interpersonal interactions left her feeling "attacked" and psychologically

unsafe in her workplace. In fact, negative colleague interactions like these ultimately led

JoAnn to consider leaving her role:

> When he left my office, I slammed my door . . . I mean, I actually wrote my resignation letter. I'm like I don't, I'm just not gonna let this job kill me . . . I was ready to walk away from the whole thing. (JoAnn)

In her previous faculty roles, JoAnn's interactions had not been so overtly hostile. She

was anticipating similar civility when she started in her new department. The "attacks"

surprised her, left her disoriented and struggling to make sense of the confrontations. She

described feeling unable to regain her metaphorical footing and recover her sense of

security in her role. The phrasing she used, "caught off guard," suggests an inner

experience akin to being in combat where she became conditioned to anticipate attacks

and needed to protect or "guard" herself.

It was not uncommon for participants to use the language of combat to describe

their experiences with their colleagues. Marie described an "uphill battle" with

colleagues, Allison described feeling "attacked," and Rose explained her ideas "got

blown up . . . got completely shot down" by her colleagues. Rose also said that there were

parts of her faculty efforts that "I need to keep under the radar." This language all points

to the internalization of interpersonal interactions in the departmental environment as

hostile and even threatening, as well as potentially causing lasting psychological distress.

Mary did not describe overt hostility between colleagues; however, she did reveal

a sense of callousness and disconnection from her superior that left her feeling lost. Mary

described an interaction with her superior in this manner:

> Just the complete lack of empathy, of personal connection. Of any sort of emotion . . . But just nothing. Nothing, no sort of humanity about it. Just a,

"We want this number. Your number needs to increase." . . . Even any sort of guidance on how . . . I mean, who really knows how to make all of this work? (Mary)

Mary experienced this conversation as a reprimand. She felt her superior failed to acknowledge or recognize her professional accomplishments and disregarded the obstacles she had overcome to reach the other metrics. She perceived this interaction as evaluative and emotionally cold, and it left her feeling as though she was underperforming. Furthermore, the conversation ended without any guidance for how to improve. Mary felt isolated and bewildered, wondering how others learned to meet the expectations put on faculty members. She believed guidance from superiors should contribute to successful navigation of expectations. Leaving such a conversation feeling professionally alone would be disheartening in and of itself for any faculty member, but Mary emphasized the callousness with which this messaging was delivered. She experienced her superior as being unempathetic, ignoring the sensitive nature of a such a conversation for a faculty member. She described similar impersonal interactions with various superiors in her university that left her feeling inadequate and unguided. These emotionless interactions contributed to her perception that her colleagues lacked the "humanity" and personal connection she desired from them.

The relationship between a faculty member and their superiors can be essential in their success along the faculty pathway. Guidance and personalized encouragement from a superior can be especially important for faculty just beginning their professional journey pursuing or having only recently earned tenure as Mary had. She described an

ongoing sense of isolation that other participants mirrored when faced with a

departmental environment lacking guidance and mentorship:

> You kind of go through life in a—It's very easy to go through being a
> professor in a vacuum and not really know if what you're doing is right or not,
> so it's good to have that validation from others. (Mary)

Mary, like others, expressed insecurity and self-doubt in her own performance when her

departmental colleagues did not offer feedback or guidance. She portrayed this lack of

departmental feedback as being in a "vacuum," and she perceived this to be common

among faculty. She said it was all too "easy" for faculty to slip into a place of uncertainty

in their own ability and performance. Mary started the quote by saying that this internal

questioning and sense of isolation is an experience "through life," suggesting that the

psychological distress originating in her professional space may have broader

psychological impact outside her faculty role.

> Allison revealed an additional consequence of this guidance vacuum for faculty:

> Since I have been at the institution, I don't think I've had any real mentorship
> per se, which means that I've kind of had to mentor myself . . . I think growth
> can be a *slower* process than it would've been if I would've had mentorship . .
> . in terms of my professional development, my growth comes from basically, I
> mean, I have to advise myself sometimes. (Allison)

Like Mary, Allison's immediate professional environment within her department featured

a dearth of mentorship and professional guidance. She felt completely alone in her

professional development; she felt she had no one to whom to express concerns and

questions, no one to give her feedback for any of her faculty roles. Allison perceived

some of her colleagues as receiving guidance and professional advantage from former

advisors, which expedited their professional growth, whereas she was forced to rely on

literature searches for guidance. Supporting her own professional growth demonstrated Allison's professional resilience, but it also emphasized the significance of colleague guidance in faculty development. As Allison saw it, her slowed professional growth was a direct consequence of a guidance vacuum. She explained:

> A lot of times it seems like you're working with yourself and if you want to collaborate with somebody, it's probably better, or it has been better, to collaborate with people from other institutions than be within our institution. (Allison)

Allison expressed a sense of professional isolation, lacking enjoyable research collaborations with departmental colleagues. As she explained "working with yourself" was the norm in her department. Whereas Dylan experienced some positive interactions with departmental colleagues but felt isolation from a lack of colleagues doing work in her field, Allison explained that in addition to lacking immediate colleagues doing like work, it was more effective for her to seek external collaborators as they possessed diverse perspectives and offered positive interpersonal interactions. She went on to explain that the only collaborators she had were with faculty in another college; within her department, she did not have positive interpersonal or collaborative interactions. The interactions were antagonistic and hostile.

Allison's experience starts to reveal a pattern among the participants of looking outward beyond their immediate colleagues for positive professional interactions. Rose felt marginalized and dismissed within her department but believed that she had many colleagues in other parts of the university who supported her and wanted to collaborate with her. She said:

> Whenever you can, sort of, return to those spaces of other supportive people, I think that's the main thing. So, *here* I think it's challenging because there are quite a few people at my institution, who care about it, but again, I think we're all in different departments. So, within our department silos, we're sort of isolated and I think things about our campus being large and just how it all works sort of reinforced this separation between different departments and different entities and different roles. And so, you sort of have to have energy to work against that . . . but I think over time we all get, sort of, burnt out on it. (Rose)

The problem Rose faced was geographic. Her pockets of connection and support were behind structural and perceived disciplinary barriers. The de facto separation between academic departments and colleges cut her off from supportive colleagues except for those who had the "energy to work against" these barriers. That is, the academic "silos" created connection barriers and caused Rose and other participants to feel isolated in their departments. She described the extra effort required to overcome the separation as contributing to her sense of feeling "burnt out," physically and psychologically drained of her energy. Even a small physical separation between a faculty member and their network of support can create barriers to their sense of connection and well-being on their campus. This divide grows when those spaces of support lie outside of the department, becoming even more out of reach when the supportive space lies outside of the university.

For Dylan, dwindling social connections and decreased excitement from colleagues resulted in an assessment that her department no longer offered her the interactive, collegial environment she needed to feel satisfied. She revealed that connection and support could diminish over time and leave faculty feeling increasingly more isolated:

I remember when I first started, people having, like, being really excited about . . . teaching, or their research, and you'd hear like conversations, and have really cool like conversations in the hallway and that sort of thing. That sorta stopped. And it was just like people would just go in and go to their offices. (Dylan)

For her, this social deterioration represented larger problems inside her department. Faculty meetings became increasingly more confrontational due to a new administration, and then a wave of apathy and frustration washed over her colleagues. Dylan attributed the declining social engagement to growing dissatisfaction among faculty members and indicated that the loss of connection contributed to her ultimate decision to accept a position at another university

Given the descriptions participants offered of hostile or unfulfilling interpersonal interactions with their internal colleagues, it is natural to wonder where they found professional acceptance, recognition, and support. That is, how did they cultivate positive, meaningful relationships to support their own success and psychological well-being in their professional spaces?

The following sub-themes reveal what positive social connection meant to participants and the ways in which participants cultivated meaningful connections with certain colleagues within their institution or began to widen and diversify the spaces that made up their professional domain.

Sub-Theme 3.2: Creating Well-Being Through Meaningful Personal Connections with Colleagues

Despite social connections that may have been infrequent or ones that existed only with external colleagues, participants expressed an array of positive emotional,

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psychological, and professional outcomes arising from close, meaningful interactions with fellow faculty members. In earlier sections, participants detailed the negative outcomes of isolation. In this sub-theme participants revealed what they experienced when their relational needs were met. They described positive psychological and professional outcomes such as feeling understood and supported, feeling recognized, and increased productivity arising from informal social interactions with colleagues—but such interactions were rare in their departments. Many participants expressed a psychological need for positive social connection and longed for more extensive social networks and closeness within their departments and universities. Dylan detailed her desire for positive social connections with colleagues:

> I'm not the type of person that can just go in and sort of do my own thing and then leave. They get lots of grants and lots of publications and do all the things that you're supposed to be doing. But for me, I need that collaboration . . . I want to be somewhere where I'm excited to run into people in the hallways and have sort of a side conversation. (Dylan)

Dylan observed that her colleagues' solitary behavior was successful in meeting the faculty performance expectations; that is to say, they were productive in terms of funding and publications. However, her needs for connection were not being met. She experienced productivity without a sense of connection as less enjoyable and less meaningful. For Dylan, the anticipation of an enjoyable chance encounter "in the hallways" and the promise of personal connection was salient to her experiencing her work environment in a positive way.

A presence of a strong social network influenced Dylan's sense of commitment to her new university. The environment of her new university was attractive to her in large

part because of its stark difference in enthusiasm and collegiality among department members compared to her previous department. She believed the new department would be more rewarding as it would meet her need for personal connection with colleagues in her professional spaces. Dylan was a clear example of a faculty member not just expanding but exchanging her professional environment for a new environment to seek positive relationships with colleagues and meet her psychological need for connection.

Dylan believed that professional environments where regular social connections were enjoyed and welcomed enhanced her sense of satisfaction and productivity. She explained why personal connection with colleagues was so meaningful:

> [Colleague at prior university] has a similar sort of sense of—of valuing—of not just being wrapped up in your identity as a faculty member by having other aspects of your life also. So, we would a lot of times just sort of cover for each other . . . and we'd talk about any sort of issues. . . . Sort of relaxing and just talking [with colleague] about whatever that's not even related to academic stuff necessarily. But a lot of times ideas would come out of that that would turn into research proposals and so trying to carve out some time is not just sitting in front of the computer or writing . . . So, I think that was helpful, and it's been helpful at [current university] also. But to have some, like, good close friends and colleagues that you can share stuff with. (Dylan)

As seen in the first theme, Dylan valued her time outside of her faculty role and felt it necessary to intervene in negative social narratives around colleagues working from home, to "cover for each other." She felt protected by this close colleague who would intervene on her behalf. She felt a sense of connection and trust from perceiving a shared sense of values with them. This sole relationship provided Dylan with a safe space in which to discuss personal concerns. She felt she had someone she could trust to "share stuff with." This positive social relationship created an enjoyable and relaxed space within her otherwise isolating professional environment. Furthermore, this regular social

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interaction was a welcome relief from constant work alone "in front of the computer" and resulted in unplanned productivity. Dylan and others saw professional collaboration and publication outcomes emerging from what often began as purely social conversations.

Rose echoed this advantage of social connection in faculty productivity. She explained that her engagement in non-traditional engineering research conferences led to long-term social and collaborative relationships with colleagues outside of her university. She attributed professional gains to these external relationships formed through the years and revealed that she had "collaborations that have grown out of these [non-traditional engineering] professional conferences where those of us that are working kind of isolated alone at our own institutions would get together and get grants, do research together." By expanding her professional space beyond her department, university, and even beyond her engineering discipline, Rose gave herself access to meaningful and fruitful professional relationships and overcame hurdles of professional isolation.

In addition to enhanced professional gains, participants also described positive emotional, psychological, and physical outcomes from personal connections with colleagues. Mary devoted significant time to developing relationships with graduate students, wishing to provide them with the sense of personal connection she found valuable to her own psychological well-being. Mary explained:

> The things we do are hard, right? I think that it's a lot more meaningful, and it doesn't get rid of the difficulty and the challenge but it helps people get over it when there's a personal aspect. . . . I mean your emotional capacity, your mind, are being pushed so hard that things that you could normally handle, that you were able to handle before you went to graduate school, you can no longer handle because you're constantly under so much stress. I think that for me, it seems like one way to maybe not alleviate, but ameliorate that, is to

have personal connections. To have a sense of collegiality. That people respect you as a person. (Mary)

Mary identified with her graduate students because she perceived a shared experience of elevated stress and negative well-being outcomes stemming from the performance pressure of careers (and student training) in engineering higher education. She experienced her professional role as intellectually demanding, "the things we do are hard," emotionally challenging, and psychologically taxing from unrelenting stress. She connected capacity for emotional and psychological well-being to professional stress, and she saw a tipping point in her and others' ability to process (i.e., to psychologically "handle" the strain of professional stress) when performance expectations escalated in graduate training and again in the faculty career.

In earlier quotes, Mary revealed that she saw her colleagues as being emotionally detached. She did not see them demonstrating the "humanity" she desired; thus, she was left with the unfilled need for personal connection. In describing the "personal aspects" she believed were important to foster with others, she revealed the caring treatment she desired: to feel holistically respected "as a person" she needed others who were investing into the "personal aspect" of their interactions with her. She alluded to a sense of relief from psychological strain when she was connected to others. She described this feeling of relief later in her interview when she felt recognized by her superior: "it was just *relieving*. It's just relieving, and it takes all of the weight off your shoulders. It takes all of the stress away." For Mary, close personal relationships with colleagues in the workplace could mitigate the negative impacts of stress and could enable better psychological outcomes. Her need for connection was not met, but she saw herself as

contributing to the well-being of others by providing the sense of closeness she herself desired.

Like Mary, JoAnn experienced an absence of positive connection with her peer colleagues, but intentionally fostered meaningful relationships with and positive connections to junior colleagues. JoAnn sought personal connection with departmental colleagues in non-university spaces throughout her career.

> [Junior colleague] and I, we go play [sport] and that's our time to like, just talk about stuff. Like out of the office, away from all the stress and strain in a relaxed environment . . . that's a place where it's a mental release for me to go sweat and it allows us to, in a very relaxed, sort of a neutral kind of way, have some mentoring time . . . [Same colleague] and I just went and had lunch the other day and just laughed, and talked about stuff, and cackled, and whatever (laughs) . . . I try to go out to lunch with [junior colleagues] getting to know them as people and not just always about the work. (JoAnn)

She believed that physically distancing herself from the campus, "away from all the stress and strain" enabled her and her colleagues to feel more relaxed and at ease. JoAnn emphasized the neutrality of the external space as she perceived non-campus space as being able to diminish the differential power dynamic felt between junior and senior colleagues. She understood this neutral space to better enable connections in an informal and "relaxed" manner.

JoAnn intentionally created safe and trusting spaces where she and others could reveal concerns, seek help, or offer guidance, personal and professional. JoAnn recounted multiple occasions as a junior faculty member when she met her mentors to play sports, gaining access to valuable professional insight that advanced her faculty career. JoAnn also sought informal personal connection in external spaces by inviting junior colleagues to lunch. As she explained, these positive social interactions away from the workplace

enhanced her emotional well-being by providing a sense of safety to have open and honest conversations that also featured much laughter and joy. Having been the recipient and beneficiary of such investment, JoAnn echoed Mary's value for acknowledging colleagues holistically "as people" and not just as professionals. She desired and encouraged a deepening of connection and understanding with people with whom she worked and mentored.

JoAnn also underscored the psychologically rewarding experience of physical engagement during these social outings. For JoAnn, engaging her body in a physically demanding way, combined with the physical separation from the stress-inducing campus space, helped reduce her sense of psychological strain and attune to her immediate feelings and surroundings. She was able to draw her attention inward to her present moment and let her thoughts subside in an enjoyable "mental release." JoAnn, and other participants like Mary and Dylan, spoke at length about the restorative experience engaging in physically demanding activities; each described a sense of achievement, a heightened sense of embodied psychological presence that reduced feelings of stress and worry, and enhanced perceptions of physical well-being.

JoAnn experienced her investment into relationships with other colleagues as mutually beneficial and meaningful. She and other participants also felt a sense of satisfaction from connecting and investing in colleagues' success. JoAnn saw herself as being professionally valuable to her university in part because of her ability to connect networks of colleagues together, saying:

> I'm very connected, so I can get to people, I can get things done . . . I can
> bring people together . . . I think that's the best of me work-wise. . . . I

definitely think it's something I've done throughout my career and, I mean, there's a certain amount of satisfaction when you can connect folks together. (JoAnn)

JoAnn believed her investment in professional relationships throughout her career enabled her to better perform, "get things done," in her leadership role. JoAnn attributed others' willingness to do what she asked of them to her prior efforts cultivating authentic, meaningful connections with these colleagues. She believed her social ability to "bring people together" was not only her greatest professional asset but was also a rewarding source of satisfaction in her professional role.

Marie and Rose both experienced similar satisfaction and positive psychological outcomes from their investment in relationships with junior colleagues. Marie elaborated on this sense of satisfaction arising from investing into the success of others. Marie saw her time and energy investment into relationships with mentees as selfless and also satisfying because she was aligning with a core value of making things better for others. She said: "to take that time when there's nothing in it for me beyond satisfaction that I've helped somebody [related] back to this 'I wanna help somebody. I wanna make things better.'" Similarly, investing in the success of others was rewarding for Rose who explained that "you feel better that you can be reaching out and supporting them and vice versa . . . that feels really good, and to know that people did that for me and to know that I can do it for others."

Rose and Allison both emphasized feeling understood as a final important benefit of close relationships with fellow faculty. Allison revealed:

My biggest saving grace would be probably my friends and my family. . . just good listeners. . . . But I mean I guess sometimes it's hard for people when

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they're outside of academia to actually *understand* what you're going through and what the process actually is. But luckily, I do have some in academia. (Allison, *emphasis* hers)

Allison and Rose both expressed a prominent need to feel understood by others, and they perceived the faculty experience to be unique, needing fellow faculty members to understand them. Rose said:

[Family members] know that they can be a listener, but there's not a lot of active things that they can do. So, I think the colleagues are—have a level of understanding, that they can give you tools, or just knowing their strength can help you feel stronger. . . . I think that definitely, definitely helps. (Rose)

Rose believed the challenges, processes, interactions, and demands of a faculty career shaped distinctively unique psychological needs and interpretations of experiences. While Allison and Rose revealed that their family relationships helped them feel heard, they were insufficient to meet their need to feel understood in their professional experience. Non-faculty "listeners" were valuable in that they created safe spaces to express frustration openly and helped participants feel acknowledged in their struggles, however these relationships were described as lacking the perspective necessary to support and validate them. Rose saw these relationships as pathways to access "tools" for problem-solving in her faculty roles and a source of emotional and psychological "strength" from which she could draw encouragement. For Rose and Allison, the essential, "understanding" relationships that helped significantly were all with faculty outside of their departments or universities. To feel understood, to feel safe in revealing personal experience, to build a sense of camaraderie, participants needed trusting bonds with other faculty who shared their experience and could thus contextualize their perspective. This,

again, underlines the significance of meaningful personal connection to fellow faculty members.

Participants described an array of psychological, emotional, and even physical benefits from close personal relationships with other faculty members. They saw their investment into meaningful relationships with colleagues as enjoyable as well as professionally valuable and psychologically rewarding. Many expressed a psychological need for positive social connection and longed for more extensive social networks and closeness within their departments and universities. Dylan ultimately sought a new department to expand her relationships. Mary and JoAnn intentionally fostered the sense of personal connection for junior colleagues and students that they themselves did not feel from their own colleagues. Rose and Allison emphasized camaraderie in relationships external to their departments as being most valuable and enjoyable. When participants' relational needs were not met within their department, they expanded the boundaries of their professional space to incorporate external spaces into their network of colleagues.

Meaningful social connection was valuable and beneficial to these participants; however, their departmental professional network often did not meet their need for connection. The following sub-theme reveals the ways in which participants cultivated external safe spaces to enhance their sense of trust and personal connection to other faculty members.

Sub-Theme 3.3: Feeling Increased Trust and Security in Relationships with External Mentors

Participants experienced psychological benefits from personal connection; however, they also often felt a sense of hostility from immediate colleagues in their unit or institution. Participants' academic environments were structured to meet their goals for autonomy, but the evaluative nature of their departmental environments compromised their sense of security in their relationships with immediate colleagues. This sub-theme details participants' search for relational security through meaningful one-on-one interactions with mentors outside of their academic unit.

Participants supported their well-being and enhanced their ability to feel socially connected by cultivating meaningful relationships with individuals outside of their department or university. They engaged in one-on-one interactions with trusted mentors to access professional guidance, reveal challenges, and get encouragement. In interviews, several participants reflected on experiences both as a mentor and as a mentee seeking safe spaces to be vulnerable. Mary reflected on her dual experience and spoke about a particular mentor from a different department who she turned to for career guidance:

> Someone who is not your graduate student is more likely to open up about emotional things than someone who is . . . It's easier when you have nothing, you have no control over whether that person graduates. And the same for me I would say . . . that mentor was not in my department. She has no say over my career which actually makes it a lot easier to open up about these types of things. (Mary)

Mary perceived power and authority differentials between individuals as a barrier to open and honest conversation. She felt that power differentials prevented faculty and students from feeling emotionally secure enough to reveal challenges and seek help. In a parallel

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to her own experience, Mary believed graduate students felt an increased sense of ease revealing personal, emotional inner experience to faculty members who did not possess direct influence over their career progression or graduation. The meaningful mentor to whom she referred was a senior faculty member in a different department. At the time of the interaction with this mentor, Mary had not yet earned tenure and so both her departmental pressure to perform and her sense of vulnerability were at their peak. She expressed concern over appearing inferior to her colleagues in any way, so she was apprehensive in revealing emotional or professional struggles to department colleagues. Mary wanted guidance about overcoming the social and recognition barriers she faced within her department and her external mentor felt safe to Mary because this person did not evaluate her and did not possess authority, influence, or "say" over her career. Mary therefore could receive insight without assuming any professional risk.

As Mary explained, faculty may feel an increased sense of security and trust in relationships with external mentors because they possess no authority over their career progression. These relationships stand as value-added ones as opposed to departmental relationships which may carry a sense of professional risk. For example, JoAnn revealed that spaces outside of her university were places of trust and informal mentoring. Like Mary, JoAnn's earlier quote reflected an awareness of the influence of authority on a faculty member's sense of security and ability to be vulnerable and honest with others. JoAnn purposefully fostered an increased sense of trust between herself and her mentees in lunches and playing sports by trying to reduce the overt pressure of their power differential through meeting in neutral, informal spaces.

In addition to these mutually beneficial safe spaces with junior colleagues, JoAnn cultivated safe external spaces where she could talk openly with her trusted mentors about her leadership role. She spoke at length about two individuals with whom she had close, trusting relationships. I asked JoAnn what it meant to her to have these safe spaces available to her:

> I think it means everything, 'cause I'm very much a process person. Like a lot of people retreat to internalize and process, and I do a mixture of that, but I also need to go and run it by somebody . . . and to have [mentor] in my corner she has a vested interest in [JoAnn]. Right? When I'm with [mentor] it's all about [JoAnn]. When I talk with [other mentor], it's all about [JoAnn]. Right? So, I've got a mixture of people I can talk to that can give me perspective on both myself and then perspective on the university and myself. So it definitely means a lot. . . . They want to see me be successful and they don't want to see me make a misstep. And even if I do make a misstep, how do you recover from that so it's not so detrimental. (JoAnn)

JoAnn felt most confident in her decision-making after she was able to talk through plans and gain feedback from mentors. Whereas she perceived departmental colleagues as having ulterior motives, placing their own interests above hers when offering feedback, JoAnn saw external mentors as committed only to helping her be successful. She believed she could trust their advice because they were "all about JoAnn." Not only could she trust the advice of these mentors, she felt protected by them. Her phrasing of this dynamic as having mentors "in my corner" referred back to her experience of aggression from colleagues (detailed in sub-theme 1.2). She saw these mentors as providing protection and timely guidance in how to prevail in the face of adversity. JoAnn saw external mentors as a source of multi-dimensional perspectives and felt an increased sense of security to take professional risks as she trusted these mentors to help her recover from any "missteps."

Like JoAnn, Marie turned to her mentor in times of frustration with her departmental colleagues. Marie's trusted external mentor offered her encouragement to take risks. Marie said:

> So, I'm here. I'm frustrated. I'm not getting where I want to go. And I'd been talking with [mentor] throughout the years. And, he is the kind of person who will always say to you, "What is the craziest thing you could possibly do, if you knew you couldn't fail? Right? And now, go do it" . . . he was always that kind of encouragement. (Marie)

Marie not only enjoyed her interaction with this mentor, she also felt that they had ongoing investment in her success. Like Mary, Marie experienced social isolation and rejection from her departmental colleagues and felt stagnant in her career advancement. This external mentor encouraged her to set aside fears of failure that were immobilizing and instead, to take professional risks.

These participants all valued the unauthoritative and encouraging dynamics they experienced with external mentors. They saw these relationships as offering professional and emotional benefit without the sense of professional threat they associated with vulnerability around departmental colleagues. Their mentors offered unique and multi-dimensional perspectives that helped participants better navigate the demands of academia and their complex departmental environments. Through these mentor connections, participants expanded their professional spaces past their departments or universities to develop meaningful connections and to support their own professional success.

In the final sub-theme, participants reveal two further expansions of their professional spaces in pursuit of connection and recognition: first they expanded their

networks past their university spaces to include traditional engineering society groups. Some further expanded their networks past the university and traditional engineering spaces and into the space of non-traditional engineering professional society conferences.

Sub-Theme 3.4: Feeling Professionally Recognized and Connected in Professional Society Spaces

An emerging trend among participants was an expansion of the boundaries of their immediate professional network to meet their needs for positive social connections and recognition. While some were able to feel connected, accepted, and recognized in relationships with colleagues inside of their university, more often, participants felt interactions in professional society conference spaces were more rewarding and more effective in combating their feelings of self-doubt and rejection in their departments and universities. Professional society spaces stood as sources of affirmation and professional recognition amid dismissive departmental isolation for many participants. By expanding their professional spaces beyond their department, university, or even beyond the engineering discipline, participants gave themselves access to meaningful and fruitful professional relationships, overcoming hurdles of professional isolation.

In her interview, Mary revealed a strategy for how she could achieve recognition within her academic department, given to her by a trusted mentor:

> I was actually working with a mentor [in different department] and her suggestion was, "if you can take some of your recognition and appreciation from people in the field and funnel that back into [university] then maybe people at [university] will start to take note of who you are." (Mary)

Mary conducted traditional engineering research similar to her departmental colleagues, so the legitimacy of her research was not challenged by her immediate colleagues as it

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was for other participants. Mary's relational challenge centered around her need for

recognition of her productivity and performance in her department. The absence of

personal connection and recognition within her university left her feeling unappreciated

and ignored. She explained:

> I feel as if my research is well respected, and that's because of my external
> colleagues. But if you take internal people, it's just one more. Well, if you had
> *one more* publication, or *one more* grant. I think you could bring in millions of
> dollars per year in research funding, and the university would just tell you
> [that] you need more. (Mary, emphasis hers)

When Mary was a pre-tenure faculty member, she experienced heightened psychological

distress and anxiety over gaining sufficient professional recognition for tenure to be

granted. For Mary and others, the consequence of ever-escalating performance

expectations to always gain "*one more*" form of recognition was an overwhelming sense

of professional insufficiency and frustration for not feeling acknowledged in their efforts

and accomplishments.

Mary and other participants—whether they sought tenure or promotion to Full

Professor rank—felt a great deal of departmental pressure to compete with and to

outperform colleagues. We can understand why a culture of competition within the

department could compromise Mary's ability to meet her relational needs with immediate

colleagues and lead to her search for recognition in external spaces. Experiencing

constant pressure from departmental colleagues to increase their research performance

was widely expressed. Furthermore, this sense of constant evaluation and messaging of

elevated expectations from immediate colleagues had negative impact on the participant's

sense of satisfaction and happiness in their professional role. Mary correlated her sense of

happiness in her professional roles with feeling recognized and appreciated by her colleagues: "If I could be as well-known and appreciated at [university] as I am in my field, external to [university], my life with my job would be a lot happier." For Mary and others, professional recognition from colleagues not only enabled their professional advancement, it improved their sense of happiness. They wanted to feel like they were meeting departmental colleagues' expectations and were valued for their contributions.

The search for professional recognition and appreciation was a consistent theme throughout Mary's narrative. She contrasted her experience of feeling recognized and supported within her university and in her professional society conference spaces to emphasize the stark differences in her sense of connection. Mary recounted validating interactions with other engineering faculty at a recent conference:

> It's like, that you go out in the world, it's always like that people are always introducing you. They're always putting in a good word for you. They're always supporting you, doing the simplest things like tweeting about it when you publish a paper . . . and at [university], it's like crickets, right? . . . I do appreciate that. It's such a *small* gesture. To click "Like" and to retweet . . . That's a validation. . . . It's like a personal– like a connection. It's like a person-to-person thing. (Mary)

She explained that her interactions at the disciplinary conference included a dinner invitation that introduced her to an esteemed journal editor and gave her the opportunity to promote her research, a well-known and well-respected researcher lending her their visibility by publicly indicating their approval and reposting her message about a recent publication ("click "Like" and to retweet"), and the conference organizers shared the advertisement of her presentation on social media. All the "*small* gestures" during this event held disproportionally great meaning to her. Mary internalized these acts as public

demonstrations of support for her career and validation of her esteem as a colleague. Her

colleagues within her university did not make similar efforts, leaving Mary in the position

to interpret their silence as messaging of insufficient performance, hearing only

"crickets." She perceived colleagues in her professional society space as extending effort

to make her feel recognized and appreciated—two unmet psychological needs. Mary felt

professionally recognized and socially connected "person-to-person" in meaningful ways

with these external colleagues and she attained personal connections which she had

yearned for in her department but had not received.

Unlike Mary, most of the participants' interests had shifted during their career and

led them to develop new projects. For some participants, they developed new researcher

identities in non-traditional engineering disciplines. While Mary found acceptance of her

research identity in her department and acknowledgement of her performance in the

traditional disciplinary professional society space, other participants experienced these

spaces as uninviting and unsupportive just like their departmental environment. For these

participants, non-traditional disciplinary professional societies provided them with social

acceptance, affirmation, and validation absent from their traditional engineering spaces.

Unlike Mary, Allison conduct both traditional and non-traditional engineering

research. Allison's work was delegitimatized and dismissed in her department. She was

searching for validation of her non-traditional work and social acceptance that was absent

in her "nasty" interactions with colleagues in traditional engineering spaces (detailed in

sub-theme 1.1). Like other participants, Allison experienced these two professional

society environments differently. She compared her perceptions of each space:

It's a contrast . . . I don't know if it's necessarily the people or if it's the discipline . . . the [non-traditional discipline] type conference . . . are more celebration, it's a lot of celebrating the [individuals] that are in that area . . . whereas I go to one of my [traditional discipline] specific conferences, it's more of a—the feel is more, "I have *to prove to you* how I am *such* a great person and my research" . . . the [non-traditional engineering] conferences are more—How would you say? More uplifting and supportive . . . it's more of a group—I don't know, what would you call it? Group appreciation, or I don't know—like, *everyone's* accomplishments. (Allison, *emphasis* hers)

Allison revealed her internal sense-making of dramatically different perceptions and feelings within these two professional society communities. In her non-traditional space, Allison felt recognized and valued as a professional contributor, but in her traditional space she felt compelled to "prove" her worth as a person and as a faculty researcher.

On one hand, interactions in her traditional space challenged her sense of professional merit and created pressure to compete with others for elevated status as she observed only an elite few were recognized and celebrated. She wondered if the individuals who made up the communities were just very different, or if her navigation of the more traditional, more established disciplinary culture was so different due to her perception of norms within these spaces. On the other hand, Allison felt welcomed and appreciated by her non-traditional community. She perceived a cultural norm that promoted communal celebration of achievements equitably. She did not feel evaluated or compelled to compete. All her work seemed to be validated and celebrated. Whereas she felt like a lone individual working to prove her personal merit in the traditional space, in this non-traditional space, Allison felt a sense of community. Everyone seemed to be a member of one social "group." The social dynamics between colleagues in this space left Allison feeling accepted as a celebrated insider. By extending her professional space to

include diverse professional society communities, Allison created spaces in which she felt a sense of community and professional recognition. She also created a place in which to experience positive social connection with other faculty members.

Likewise, identity validation and feeling part of a professional community was a "*powerful*" experience for Rose. Rose's experience reflects that of participants whose research interests evolved. For many participants, their new research identities triggered tension and professional marginalization within their departments. Rose and others extended their professional spaces past their traditional disciplinary professional societies in search of meaningful connection, professional validation, and recognition. Rose discussed her experiences of positive connection and validation felt in external non-traditional engineering professional society conferences:

> I think there were a lot of us there who were mid-career folks and were, sort of, thinking about transition. And so being with that group, for one thing, was really *powerful* because I think at our own institutions we maybe all felt isolated and strange, people make you feel like you're definitely out of the norm. But to find all of these other people who are amazing and motivated and interested, it was like, "Ahh!" That was really affirming that maybe this is something that's worthwhile, that other people also see value in. (Rose, *emphasis* hers)

Being around others who were also in transitional points in their careers helped to normalize Rose's desire to evolve professionally, and her sense of community within this space helped her overcome feelings of isolation in her home institution. These interactions not only validated her emerging interests, it made her feel less "strange." Being around others who shared her enthusiasm and passion for her work was exciting and affirming for Rose. Whereas her departmental colleagues marginalized her work, this community affirmed her emerging interests and legitimized her research.

Like Rose, Dylan felt like an "oddball" within her former institution. She felt compelled to defend the legitimacy of her work to departmental colleagues and later felt affirmed and respected among her external colleagues. Rose and Dylan shared a sense of relief and validation found in external colleagues in non-traditional engineering research. Dylan explained that "[I]t's just nice to be somewhere where people . . . at least respect that type of research, and you're not constantly like, 'No, what I do is valid.'" They both looked forward to a time when their non-traditional work, and by extension they themselves, would no longer be considered outside the norm and would be accepted by their colleagues. According to Rose, departmental acceptance would be an outcome of increased representation in the field and so, she saw these external spaces as places in which to make progress towards a normalization of these interests. Rose said: "[A]s more and more people are doing it, then it becomes less abnormal. And it's going to become the norm, it's just gonna take time. So, it's nice to know that that change is in progress." Participants saw these non-traditional engineering professional society spaces as contributing to their sense of normalcy and community within their professional roles.

Finding spaces of acceptance and support outside of their department also amplified the sense of tension felt inside departmental spaces. For example, Rose had this to say about external community interactions after recently returning home from a non-traditional engineering professional society conference:

> You see people and you feel comfortable sharing your frustrations, and they
> share some too, so you don't feel like you're alone. . . . You're boosting them
> up and they're boosting you up and that's happening [quivering voice, started
> to cry] that happened a lot at this conference. . . . [Shannon: I can see that
> you're having a reaction talking and thinking about this. Do you mind sharing
> what's going on in your inner world right now?] (Long pause) I think it's just

(pause) that contrast of feeling low, feeling down and then feeling better. Like, it may not look like it, but I did feel better. Like, I still do, I still have that motivation and energy that I brought back with me, so—But returning in my mind are those lower points. It's hard. (Rose)

The striking contrast between her inner experience of "feeling low, feeling down" in her university and a relief from these feelings, "feeling better," at the conference illustrated the power and influence external professional spaces such as conferences possessed to make meaningful social connection. Like Allison, Rose felt a sense of communal support and encouragement from these external community interactions. These positive interactions left Rose feeling more motivated and energized when she returned home, but the interactions also made the disappointment of departmental rejection more intense. The presence of positive interactions and support in external spaces amplified Rose's awareness of its absence in her departmental space.

Rose expressed a strong, observable emotional response when recounting her contrasting experience of her departmental and external communities. She struggled to compose herself and control her emotional response when articulating her experience. She felt alone and marginalized in her department, but she also described a strong sense of community found in these non-traditional engineering professional spaces. Rose felt safe and more comfortable to reveal her challenges and frustrations with others in this external space. For her, being around others who were willing to reveal personal difficulties openly and honestly increased her sense of community with these colleagues. Hearing others echo her experiences was validating for Rose as she perceived these colleagues as having shared challenges navigating departmental isolation and rejection.

All of these external relationships—with individual mentors, traditional engineering communities, or non-traditional engineering communities— offered participants meaningful and validating social connection to colleagues. By expanding their social networks beyond their departmental and university boundaries, participants experienced rewarding psychological outcomes like joy and trust. They also found professional validation and recognition. External colleagues became essential sources of acceptance and connection where relationships in these spaces created safe and normalizing experiences that stood in contrast of and in relief to hostile and marginalizing interactions within their universities.

The previous three themes have largely emphasized the participants' experiences and meaning-making within the professional environment. The final theme expands the scope to examine experiences across their professional and personal life spaces to better understand what it is like for the participants to navigate well-being across their personal and professional roles.

CHAPTER SEVEN

FINDINGS THEME 4: HOLISTIC WELL-BEING

Theme 4: Experiences and Evaluation of Well-Being Blur the Boundaries Between Professional and Personal Life Spaces

There was no single shared account of well-being; each woman who participated in this study faced distinct challenges, cherished different experiences, and navigated happiness and satisfaction across professional and personal roles in unique ways. Much like their experience of personal identities, each journey of well-being was subjective and individualized. Each woman determined what was important in shaping their lives and those decisions varied to reflect their individual values. This theme does not presume to offer an exhaustive illustration of the landscape of participants' worlds; rather, it aims to present approaches and understandings that emerged from some of their accounts that were shared in some way.

This theme illustrates participants' nuanced lived experiences of navigating roles across life spaces in search of meaning, happiness, and satisfaction. Through the following sub-themes, we will gain insight into ways participants experienced well-being across roles as well as the strategies they engaged to support their own well-being. The participants evaluated their sense of well-being across their life spaces. They looked across their personal and professional roles in search of well-being and feelings of happiness and satisfaction. They thought about navigating competing roles in terms of choices rather than balance. Participants found well-being through and within their family relationships; time with their partners, children, and other family members brought them

joy and comfort. In their work spaces, participants felt intellectually stimulated and challenged. They found immense psychological reward from their academic pursuits and we better understand why new research pathways and ways of thinking were so enjoyable to participants. And finally, participants developed strategies to mentally reframe difficult interpersonal interactions and critical feedback to protect their well-being, enhance their self-acceptance, and embrace professional risk-taking.

Sub-Theme 4.1: Evaluating Well-Being Across Personal and Professional Roles

Throughout the previous three themes, participants articulated ways in which they felt distress in their individual personal or professional roles, and ways in which these spaces interacted or had consequences for other spaces such as consuming their time, preventing relationships with family, and feeling isolated from others. In this sub-theme, we learn more about the ways these professional and personal spaces could both offer relief and enhanced feelings of well-being. Several participants described taking a holistic approach for enhancing their sense of well-being. They described this holistic approach as one that took into account experiences, sources of satisfaction, and evaluation of role performance across personal and professional life spaces to support an overall sense of satisfaction and happiness.

Experiences in their personal and professional roles influenced the participants' sense of well-being. They saw each component of their lives as interacting and providing possible sources of satisfaction. Gabriella, for example reflected on her sense of well-being in each major role she held:

So, I look at like life as a series of thermometers. There's like the kid's thermometers, there's the marriage thermometer, there's the work thermometer and then there's the personal thermometer . . . and so if all of those things can be like shooting at 60 to 90%, like that's a great day. A day where like the work one goes up, that is awesome. The kid one going up is also awesome, but it's harder for that one to go way up without the work one going down. (Gabriella)

Gabriella imagined her salient roles as each having an indicator of success and satisfaction within that role that she would monitor. Her role "thermometers" in her professional and personal life would shift, rising and falling day-to-day, but when each rose above average, she evaluated herself as having a successful and enjoyable day. It was important to Gabriella to monitor her sense of well-being across the spaces of her life as she observed interactions between each of her roles. She noticed how her behavior in one role contributed to fatigue and stress in another. For example, she recounted losing her temper with her children and internalizing that as an indicator that she needed to devote time to self-care. She valued being able to remain cognizant of feelings and needs within each role.

When Gabriella evaluated each of her "thermometers" she took into account her assessment of her performance within that role and sense of happiness from the associated role. For example, her "kid's thermometer" reading indicated whether or not she believed she dedicated enough time, attention, care, and guidance to her children (i.e., a measure of performance in her parental role). It also indicated her own feelings of connection and joy in the interactions (her happiness and satisfaction from the role of parent). We can also see in the last line of her quote that Gabriella indicated she perceived a strong interaction between roles in that she found it

difficult to enhance one without some form of sacrifice in another. Gabriella

elaborated on her sense of compromise between roles:

> I deplore the notion of balance, that's in my view, a fiction at best and an
> unattainable ideal of which I feel women have enough unattainable ideals. I don't
> need another one. So, I don't like this idea of balance. I like the idea of choices
> and fitting things in according to your choices. So, *you* get the choice of
> prioritizing how things go, and then *you* experience the consequences good and
> bad of those choices. (Gabriella, *emphasis* hers)

Gabriella's perception of difficulty in improving the performance or satisfaction in

one role without the sacrifice of time in another was shared among the participants.

While many participants articulated a desire to feel successful and spend time in all

their meaningful roles, even often using the term "balance" when they described

how they thought about role navigation, conflict, and resolution, they ultimately

revealed intentional prioritization of roles through allocation of time. They did not

dedicate equal amounts of time to each role as the term "balance" would suggest.

Gabriella most clearly articulated this perspective of "choice" rather than "balance."

She rejected what she perceived as the common perspective of role navigation as

striving for balance and saw such aspirations as "unattainable" given the reality of

faculty lives.

Gabriella also suggested that the narrative of "balance" was particularly

hazardous for women. Instead, she emphasized how looking at navigating competing

demands through a lens of choice helped her feel empowered and in control of her

life. She positioned herself as the actor, saying "*you* get the choice." She indicated

increased feelings of autonomy over her time, rather than feeling mandated to

prioritize in certain ways, especially since she was the one who would face the

outcomes, pointing out that "*you* experience the consequences." Gabrielle went on to

explain that "I have found it very, very liberating in the past few years to recognize

when I have the control of a choice and I make it. And then I just stick with it." She

perceived herself as being in control of only some aspects of the time conflicts

among her roles, but the realization that she possessed this amount of power over

some decision-making helped relieve psychological distress from feeling forced into

action. It also helped release her from internally debating possible navigation

pathways. Furthermore, her perception of self-determination in role prioritization

ultimately increased Gabriella's sense of acceptance of the outcomes, "And actually

when I had finally made [a decision] I didn't feel so bad anymore about what I

wasn't doing. It was like nope I chose not to do that. And that's okay." Rather than

feeling guilt for not accomplishing tasks or not performing more highly, Gabriella

and others described increased self-acceptance resulting from a perspective of

empowered choice and consequence.

Other participants articulated this sense of increased self-acceptance of

performances and outcomes across roles. They also saw their lives as a series of

choices, choices that prioritized different roles to maximize the meaningful use of a

limited 24-hour day. Rose elaborated on how she made choices:

> It would just mean deciding I guess because it's not like you can suddenly make
> 25 hours in a day. So, if it's over 24 hours, things have to happen. So, it would
> just be a matter of feeling like what did you get out of that, verses what came
> about from other uses of that time? . . . Still some of me knows that, wow well if I
> did devote *all* of my time to that one thing, I would get more done, I would be
> more successful, but I wouldn't be happier obviously. So still—but there's still
> that in me . . . there's guilt that I could be doing more for [children] as a mom,

and there's guilt the other way too, that I could be doing more as a professor if I wasn't doing mom stuff. (Rose)

Rose saw unavoidable conflicts between her personal and professional roles and reflected on the happiness she anticipated from different role prioritization to decide how to invest her time. Like many participants, she looked back and analyzed outcomes of past decisions, asking herself "what did you get out of that?" to determine if her choice had resulted in an outcome that she found meaningful. Many of the participants described a similar approach. The anticipation of meaningful outcomes mediating time investment into different roles. Rose also decoupled professional success from fulfillment and happiness. She expressed awareness that prioritizing a single role—referencing her professional role in the quote above— would mean that she would be more successful in her performance of that role but would not necessarily be happier. To her, and to others, the sacrifice of any meaningful role to be completely dedicated to another role negatively impacted their overall sense of well-being.

While Rose made choices among her roles intentionally as Gabriella did, she and other participants still struggled to accept the resulting role performance. Rose revealed an underlying sense of guilt in any role she had not prioritized. Rose's feeling of guilt was amplified when she compared her performance in her roles before and after having children. Rose discussed her decision to delay having children, focusing nearly all of her time early in her career to her faculty roles. She expressed significant happiness and satisfaction in her parental role. She also articulated her parental role as being most important and meaningful to her;

however, she felt residual guilt from no longer dedicating as much time to performing her faculty roles as she had done previously. The acknowledgement of limited time and the identification of more meaningful outcomes did not erase her sense of guilt that she was underperforming. Several participants also felt plagued by a sense of guilt arising from their allotment of time in competing roles.

As participants evaluated their performance across personal and professional roles, they also describing being attuned to roles in which they felt successful in order to enhance their overall sense of well-being. Marie described searching for sources of positive self-evaluation across her roles when she felt like she was struggling in another role:

> I guess I would say, in general, if I'm not performing the way I want to, or if I'm not accomplishing what I want to, or if I'm not happy in one aspect of my life, I will tend to look at the other components. And, as long as I'm doing okay there, or even doing *well* there, that helps me with the parts where I'm not. . . . It's kind of a holistic approach to my life at any time, kind of keeping tabs on all the different pieces of it. And, if one's going screwy, as long as there aren't too many others going screwy (laughs) at the same time, we're okay. (Marie)

Like Gabriella, Marie assessed her life holistically, "keeping tabs" to monitor her sense of well-being across life spaces and roles. She evaluated her performance and her sense of satisfaction in each of her roles and saw them as all contributing to a positive self-image. When she felt frustrated or unhappy in one role, she looked to the others in search of positive feelings and self-assessment. Similar to the interactive nature of negative experiences between roles, participants drew positive psychological outcomes across roles. For Marie and the other participants, they maintained a sense of well-being stability

when only one role created negative feelings, drawing missing components from other roles.

When Marie felt frustrated with herself and her performance within a particular role, she looked to other roles to stabilize her feelings of achievement and self-worth. Marie went on to illustrate the ways she and others drew satisfaction and positive self-assessment across personal and professional roles to overcome feelings of frustration. When her different roles left Marie feeling fatigued, out of control, and unhappy, she looked across her life spaces to other roles for well-being sources from which she could "draw" energy, satisfaction, and even psychological comfort. She explained:

> So, it's like, okay, maybe the job thing is feeling really frustrating, but my kids are great. We're having a great time as a family. My [partner] is great. This is all going well. And, I would use that to draw energy from that to draw satisfaction and comfort from that, to say, "Well, ooh, you're frustrated over here, but you're doing great over here. So, you're not a total screw up." (Marie)

When Marie was made to feel like a "screw up" from lack of recognition and a lack of acceptance in her professional roles, she reassured herself of her abilities by assessing her positive performance in her parental and partner roles. When she questioned her success in her parental role when her children were teenagers, she felt encouraged by her performance teaching her classes, saying:

> So, teenagers are an interesting breed and there are times when it gets a little frustrating . . . when an interaction or a decision or something that's going on doesn't feel finished. . . . And you go to work, and you go, "Yeah, but I've got control of this!" (Laughs) "I've got control of my class." . . . So, not everything in my life is undecided. Not everything in my life is undetermined. I have these things. . . . You're doing a lot right." (Marie)

Marie's quotes illustrated the variability of well-being participants felt within individual roles and how one role alone may create feelings of instability, and yet how alternative

roles could help to restore a sense of overall satisfaction and happiness. At times, Marie's professional life was the source of psychological distress and her personal life provided relief. At other times, her interactions with her children left her racked with stress and indecision and her faculty roles provided a sense of control.

Gabriella explained the sense comfort she found in her classroom: "I like control. So, this is the micro part of the Earth that I can control. It's like my own little orbit." Like Marie, Gabriella intentionally looked across her roles and even across tasks within roles because, as she described, finding sources of comfort or success "tends to make me feel like, in *this* area of my life, if not others, I'm doing well." Gabriella felt most comfortable when her environment felt ordered and structured. Her faculty roles offered a satisfying sense of control when the rest of her life felt chaotic: "I feel like the best way to make all of my environments display the order and structure that I wish my *entire* life had, is to teach my students . . . to kind of conform to certain structures and orders." She experienced her faculty roles as smaller environments in which she could feel control and in which she experienced success. Even within her professional roles, she purposefully engaged in specific tasks that would help her feel relief from psychological distress. She explained that completing smaller "box-checking" tasks with tangible results—like responding to emails—helped her to overcome feeling hopeless or unproductive in her professional roles.

Participants looked across their roles to identify sources of positive well-being and self-assessment. Many of them believed it was important to reflect on meaningful uses of time and to monitor their sense of well-being across their roles. Dylan and JoAnn

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both experienced role and university transitions. Their perspectives emphasized a focus on identifying essential sources of happiness and satisfaction outside of a specific professional role or space.

Dylan emphasized vigilance and ongoing reflection about happiness in her roles, not just about performance. Dylan was not looking for another job when she visited the university that would become her new institution. She was in the area for a conference, and she ended up touring the campus and meeting with faculty by chance. After spending the afternoon on that campus, she realized how unhappy she was at her current university. She called her partner to express her new-found professional unhappiness epiphany only to be informed that they had known she was unhappy in her position for a long time:

> So I guess [partner] could see sorta, I don't know what the indicators were, but [partner] could tell that I'd become stressed and that I wasn't happy in that position . . . and the thing that scares me about all that is that I didn't realize how unhappy I was. Like the creep, sort of unhappiness creep that had happened, I just didn't know. . . . [I]t can sneak up on you. (Dylan)

As an outside observer, Dylan's partner could perceive the "unhappiness creep" even though Dylan did not notice herself how unhappy she had become. Realizing that she was not aware of her own growing dissatisfaction scared her. Dylan saw professional role dissatisfaction as potentially happening so slowly and incrementally that it could be imperceptible without vigilance and active reflection. Informed by this experience, Dylan asserted that faculty need to remain aware of their own happiness or unhappiness in their faculty roles because dissatisfaction "can sneak up on you." She expressed an ongoing commitment to attuning to her own happiness and believed that being intentional in their choices could help faculty remain in roles they found rewarding and satisfying.

For Dylan, new job opportunities and career transition points triggered reflection on well-being and happiness felt in current roles. Even just visiting another university was enough to pull her attention enough to become aware of her satisfaction and happiness. She had come to realize that interviewing for jobs can be a valuable well-being check point for faculty, saying, "I guess it forces you just to reflect on your goals and where you are and where you want to go, and how happy you are in your position."

JoAnn echoed Dylan's call for self-awareness and vigilance. JoAnn believed it was important to keep herself "grounded" by keeping sight of values that were most meaningful outside of her professional role so that they would not become compromised in her professional undertakings. Earlier in the interview, she described feeling compelled to protect herself from aggressive individuals in her professional environment, and here she revealed a larger perception of threat. JoAnn detailed:

> I think for people who may read this and be trying to figure out what to do . . . you have to take time to know what's important to you and what you value 'cause these jobs can suck the life out of you if you let them. . . . you gotta just have some perspective and some balance on what's important to you and what do you value and don't let those things get compromised. (JoAnn)

Like Dylan, JoAnn saw faculty careers as demanding a great deal from individuals. JoAnn believed these professional roles could become threats to her own well-being, "suck the life out of you," without ongoing vigilance. She believed that feeling forced to compromise personal core values and one's own definition of well-being in order to maintain a professional role indicated that the role was a poor fit for that person. She invested time into identifying what was most meaningful to her and what she wished to nurture inside and outside of her professional role. She encouraged other faculty

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members to do the same. She believed that clarity about her own personal values along with maintaining a wider perspective on her life circumstances helped her to monitor her happiness and satisfaction in professional roles.

These participants revealed an interconnected relationship between their professional and personal spaces as well as connections between their roles and sense of well-being. Each salient role contributed to an overall sense of well-being; participants looked across their personal and professional roles for sources of satisfaction and happiness. Individual professional and personal spaces could be sources of tension and distress, but they also could be sources of confidence and energy. In the following sub-themes, the participants reveal the sources of satisfaction they shared in these spaces and additional strategies they developed to enhance their sense of well-being within their professional space.

Sub-Theme 4.2: Centrality of Family in Providing and Encouraging Well-Being

Much like the formation of close personal relationships within their professional space, participants emphasized how essential it was that they felt a connection with others in their personal spaces. These connections contributed to their well-being. Within their personal roles, participants varied on their sources of satisfaction and happiness. However, all participants emphasized the meaning of and the reward of quality time with family members.

Participants who were parents emphasized the reward and happiness felt from time with their children. Mary articulated a perspective that was shared among the participants with children: "Everything else could go and that would be the one—having

this connection with my kids is the most important to me." Throughout the earlier themes, the participants talked about the importance of their children. They reflected on their character traits as parents and stressed that they placed their parental role as their highest priority. Mary explained the sense of satisfaction participants felt from a sense of connection with their children: "I think that the fact that they exist and that I have a good relationship with them, I don't think that I could be unhappy in that situation as long as that's there." When participants felt ongoing happiness and satisfaction in their parental roles, they overcame difficulty felt in other roles.

Like other participants with children, thinking about her children was a source of emotional strength and energy for Marie. Marie described the tangible affection she felt interacting with her children in this way:

> When my kids were very little . . . it felt so, so satisfying to have these little guys, and they were just so cool. And just, their absolute unconditional love, of these little [children] that I could count on. . . . [Coming home after work] I would open up the kitchen door, and our oldest would be like maybe three or four, and would be down at the other end, and would come running as hard as [they] could, and would hug me [and] would knock me backwards. And it was like that made up for everything. It didn't matter what had happened during the day. That made up for everything. (Marie)

Marie felt lasting positive effects from these interactions with her children, and she looked forward to them throughout her day. Marie was elated by the positive physical and emotional experience of interacting with her children. It is easy to imagine walking through Marie's house: her excitement in seeing this small child bounding towards her and the impact of a loving embrace. Marie felt loved without condition, which juxtaposed the rejection felt in her professional space. Other participants with older children talked

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about meaningful time spent talking about childhood and teenage milestones or learning about their children's journeys as emerging adults going to college.

Participants also talked about prioritizing their roles as parents and their concerns for providing care and supportive environments for their children. The participants devoted much time and attention to determining solutions to childcare concerns starting in infancy. Childcare was an ever-present, ever-changing challenge. Firstly, demands for care could arise without warning, as it did for Gabriella who had to rearrange her work and life schedule unexpectedly "When something happens to one of my kids, like an illness . . . those times torpedo my calendar." Secondly, even predictable daily childcare needs evolved; the type and location of childcare changed every year and even multiple times within one year. Mary explained a common challenge: "My [partner] and I have—basically every year you figure out—it's not even every year, it's like school year and then summer and then every age is different, where the kids are gonna go when you're at work." Mary, like other participants, expressed concern and mental preoccupation with childcare, specifically with identifying options that would create an enjoyable environment for their child.

Participants found that the quality time spent with their children was not only satisfying to them in the moment, it also paid dividends when it came to determining childcare solutions. For example, Mary was concerned with identifying childcare solutions that would allow her to continue to work without worry that her children were unhappy in her absence. She said:

> In my opinion, being connected to my kids and understanding what they like and what they don't like, that helps get them into a place where they are

enjoying it while they're there. They are independently becoming who they
are through the places where they are going and then part of that is because
we are helping them into that. . . . That part makes the balance a lot easier.
(Mary, *emphasis* hers)

She emphasized confidence in creating pleasant and valuable developmental experiences
for her children through "helping them into" enjoyable, personalized childcare solutions.
Her fear that her children would think she was prioritizing work over their happiness
eventually subsided. She felt more successful in feeling "balance" between meeting her
professional demands and ensuring happiness for her children. Participants listened
carefully when a child excitedly told them about their day at summer camp with their
friends or asked to stay in their after-school program longer. They expressed the eventual
payoff of time spent learning what and whom their children liked. These moments were
significant to participants because it reassured them that meeting their professional
responsibilities did not result in making their children unhappy. Quality time and a sense
of connection with their children not only led to immediate psychological benefits,
participants explained it helped them to feel more empowered to find solutions to role
conflicts.

  For participants who did not have children, their meaningful and joyful
experiences centered around quality time with their partner and other family members.
Like the relationship with children described above, feeling connected to their partners
and family was psychologically rewarding for participants and helped ease psychological
distress emerging from their professional roles. These participants also spoke about
hobbies they engaged in with others that brought them joy. Dylan spent a lot of her

interview excitedly describing her hobbies she engaged in with her partner. She

highlighted the skills she spent time learning and honing:

> And that's probably why things like [learning new hobbies], while it's scary
> (laughs), is kind of fun . . . it's me and my [partner] . . . trying out different
> things. There is a risk of failure . . . for sure but it's quite rewarding. . . . [First
> time I tried new hobby] I loved it (laughs). I loved it so much that . . . I went
> out and bought [equipment] that day (laughs). (Dylan)

Dylan's joy was palpable and contagious as she described her hobbies. Like standing in

Marie's kitchen, we can almost feel Dylan's unbridled delight. It was difficult to resist

smiling along with her as she laughed at herself and recounted the reward felt in her

hobbies. Stories of these hobbies and time with her partner were interwoven all

throughout her interview. Her hobbies were connected to all parts of her life, making it

clear that they were central to who she was and, perhaps more importantly, how she felt

connected to her partner. She emphasized engaging in these hobbies as a way to spend

meaningful quality time with her partner. In fact, she revealed that she was initially

reluctant to try one of her now favorite activities. This hobby was her partner's passion

and her only motivation to try it was to spend time with them—she was surprised by how

much she enjoyed it. These experiences were so psychologically rewarding for Dylan that

she impulsively bought equipment to continue doing them with her partner after just one

try.

Protecting time for her personal life important to Dylan because her hobbies and

quality time with her partner brought her immense happiness. Several of these hobby

activities she shared with her partner, but Dylan also talked about interests she found so

satisfying that she was content to do them alone:

So I started taking these [hobby 3] classes and I felt so guilty 'cause I wouldn't get home until 7:30 or 8 at night . . . and I was like, "Oh, I really like these classes, but I feel bad that I'm not home with you and doing things together." And [partner] is like, "You seem so much happier. Please, this isn't the same as working 'til 8 pm. If you find something that has meaning for you, then yes, go do that and take care of yourself and we'll be fine." (Dylan)

Dedicating time for herself was intellectually stimulating and enjoyable for Dylan. As she later joked, investing (financially and in time) in her interest "beats buying anti-depressants or something," and we can see that Dylan felt time in these activities had lasting positive impacts on her mental and emotional health. However, Dylan felt a sense of guilt for dedicating time to herself and internalized it as sacrificing connection with her partner.

This sense of guilt was a shared dilemma for many participants. They described feeling selfish for using limited time that could be spent with partners or children to engage in time for themselves. Rose explained that her time to exercise "usually goes away because . . . well then I'm not on my computer doing work or hanging out with my family. Again, that feels kind of selfish and it sort of dissolves." Like Dylan, Rose recognized the long-term health and happiness benefits of dedicating time for exercise and other kinds of self-care. She observed negative physical health outcomes from not prioritizing herself: "when you get older where you're like, I'm starting to feel that I feel *even more* tired because I didn't take the time to exercise." However, the guilt remained. Throughout her interview, Rose recalled supportive messaging from her partner to prioritize her well-being and dedicate time to hobbies and to herself rather than work. Closeness with partners supported participants' well-being and encouraged them to take time to nourish themselves. However, like Dylan and Rose, the support they felt from

their partners helped to interrupt but not fully resolve feelings of guilt or selfishness. Regardless of their family structure, participants continued to be preoccupied with feelings of guilt for not being professionally productive or for not caring for family with the time that went to exercise or other self-care activities even though they recognized and could articulate the benefits of prioritizing their own well-being (and costs of ignoring it).

Many participants described their partners reassuring and encouraging them to set aside work and family responsibilities to put themselves first, as Dylan's partner did. Their partners identified positive outcomes (e.g., joy, physical health, and mental health) from dedicating time to self-care. This sentiment was echoed across interviews; participants were encouraged to spend time doing things that would support their physical, emotional, and mental well-being. JoAnn, for example, was encouraged to put herself first by her partner and family. She explained that she had dedicated her sabbatical time to caring for herself, to get "re-centered." JoAnn explained that the "whole period was about me . . . I put myself first, right? I mean very rarely do you— most times I think we just, we sacrifice for everybody else. And this was a time when I'm like, I'm putting myself first. . . . I'm proud of myself for doing that." JoAnn and other participants observed their own behavior patterns of putting others and work responsibilities before their well-being needs. She felt pride in her decision to dedicate time and prioritize her needs and noted that she was applauded by those she told for prioritizing her well-being.

JoAnn revealed the importance of supportive partners and family in a faculty

member's commitment to sustaining their own well-being:

> My family, my [partner], were all very supportive. And it's like, "okay well whatever you wanna do, we support you, but just make sure you're taking care of yourself." I mean that's constantly– the sort of encouragement is, make sure you're taking care of you. And so I am *completel*y supported. I don't—there's not a bone in my body outside of work that says I'm not supported. (JoAnn)

JoAnn received consistent messaging and support from her family to make choices that

prioritized self-care in her professional roles and her personal roles. She felt that people

around her valued her well-being. They prioritized her well-being over her professional

advancement. Throughout her career, JoAnn explained she was encouraged to seek

meaningful and enjoyable professional roles. She took comfort from this sense of

unconditional support and acceptance from her partner and family each time she changed

professional roles. JoAnn was also supported when she considered leaving her recent role

because of negative treatment from colleagues.

Allison's partner also expressed concern for her well-being because of her faculty

environment. She revealed that her partner even encouraged her to consider changing

careers, perceiving university workplaces as enabling inexcusable behavior: "My

[partner] so many times, 'you should go into the industry because they would not tolerate

people treating you the way you've been treated.'" Allison's partner interpreted negative

interactions within Allison's faculty roles as threatening her well-being and reassured

Allison that her talent would be valued outside of academia. Allison was clearly given the

message that she need not subject herself to a toxic professional environment.

These close relationships with partners and family were not only rewarding in terms of emotional closeness, they were sources of support for participants to protect time for themselves and to engage in self-care. For participants, those with and without children, their partners and family were consistently a source of happiness and well-being encouragement. This sub-theme illustrated the ways in which relationships with family supported participants' self-care and enhanced their happiness and well-being. In the following sub-theme, we more deeply examine the ways participants sought sources of satisfaction and happiness within their professional spaces.

Sub-Theme 4.3: Intellectual Stimulation Sustains Satisfaction in Faculty Roles

Each participant found many sources of satisfaction within her own professional and personal roles. While they did face challenges in their professional spaces, earlier themes revealed meaningful and satisfying components of participants' professional roles. For example, each of the participants saw their career as meaningful and as a mechanism to positively influence the world around her, or as they put it, "to make things better." Additionally, participants recounted rewarding experiences of supporting other colleagues and students, and of forming close personal relationships that helped her feel connected. Many also talked about seeing their passions and personal traits reflected in their classrooms and research interests. And finally, we learned that, despite the threat of professional consequences, some participants established new research career trajectories upon discovering emerging interests where profound enjoyment and satisfaction was found. Theme 2 described the ways in which participants' researcher identities reflected their sense of self as well as the tension they experienced from their identity

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transformations. In this sub-theme, we more deeply examine why these evolutions—and by extension, the ability to follow emerging intellectual interests—were so essential to a sustained sense of satisfaction in participants' professional roles.

Marie and Mary both explained a consistent sense of satisfaction they got from experiences across their professional roles as a faculty member. Marie shared:

> It would be some configuration, some combination of the things that make you—that are around intellectual stimulation. So that could be the students' little lights going off and I found a way to explain it to them. Or, my little lights going off because I discovered something. So it's like anything that's involved in like the brain stimulate—going, "Ooh! That was, ooh. That was interesting." . . . I mean, that's why I'm in academia. I'm addicted to that, "Ooh. Wow. I didn't know that. That's cool. That's the answer." I'm addicted to that feeling, I think. (Marie)

Marie described her sense of satisfaction and psychological reward from intellectual stimulation as being so strong and enjoyable that it was akin to an addiction, something she was driven to keep seeking and continuously felt rewarded in. This experience of intellectual satisfaction underpinned her motivation to seek a career in higher education—a perspective that was common among participants. Marie and several others used the same lightbulb metaphor to indicate the rewarding, observable moments in their classrooms when students give off visible cues of learning and understanding. That is, the participants performed their teaching role successfully and achieved their goal of that lesson; "I found a way to explain it to them." Participants described these moments of their "student's little lights going off" as triggering an ongoing sense of accomplishment and satisfaction in their professional space. Mary described a similar sense of satisfaction that came from her research:

Okay, so me as a person, I think I am driven by being challenged, and hard work, and achievement. . . . I also really like doing my research. It allows me to spend a lot of time thinking about things that are hard that no one knows about, and I really like that. (Mary)

Marie and Mary's quotes illustrated two components of the faculty experience that participants collectively claimed was psychologically motivating and rewarding: feeling intellectually *stimulated* and feeling intellectually *challenged*. Teaching and advising offered ongoing opportunities for this kind of feedback mechanism. As participants explained, some of their interactions with students were difficult at times, yet the psychological reward was powerful.

Earlier themes described the passion participants saw reflected in their research pathway. The topics of meaningful research varied, but the sense of excitement participants expressed from pursuing and uncovering new knowledge was shared across topics and it made their research roles particularly meaningful and satisfying. For Marie and others, the sense of satisfaction experienced in their research roles was similar to the positive psychological rewards felt from indicators of performance success in teaching. These experiences of intellectual stimulation all contributed to her sense of satisfaction in her faculty roles. For participants, the sense of reward from intellectual stimulation in their research role was two-fold: they felt excitement and motivation from the novelty of discovering something new or adopting a new perspective, and they felt a sense of accomplishment for meeting an intellectually challenging task.

For participants like Marie, a sense of psychological stimulation and reward arose from learning something new for themselves: "Ooh. Wow. I didn't know that." The excitement of personal intellectual growth throughout their research experiences was

gratifying and rewarding. For Dylan and others pursuing new research topics, adopting a new perspective was rewarding, "you get it like read through all these different things and learn different stuff and think about things differently. And to me that's fun." She and several others expressed enjoyment and excitement from broadening their academic and research perspectives by engaging in new ways of thinking from non-traditional fields. This provided many participants with a sense of intellectual growth which helped sustain their sense of satisfaction in their faculty roles. Additionally, as explained earlier, adopting a new perspective in their research role helped some participants discover cohesion between their faculty roles. And finally, for participants like Mary, their research role was rewarding because it blended the gratifying experience of novelty from discovering something new "that no one knows about" with a sense of achievement from meeting a difficult intellectual challenge.

The excitement and positive feedback participants experienced from tasks and interactions across their faculty roles stood as sources of satisfaction within their professional domain. The research role in particular was stimulating, exciting, and satisfying. At some point in their career, however, the majority of participants experienced a shift in research interests and found themselves desiring to explore new topics. For many in this study, the positive psychological reward of pursuing new and personally relevant research was so strong it led them to completely shift engineering sub-disciplines. A few participants even changed departments or universities in order to continue to pursue tasks that were intellectually stimulating and satisfying to them. This

underlines the importance of feeling intellectually stimulated and autonomous in their professional roles.

Sub-Theme 4.4: Reframing Interactions and Failure Events Empowers Self-Validation and Self-Acceptance

All the participants internalized negative experiences from their professional space. These experiences negatively affected their performance or impacted their happiness in other roles. Earlier, JoAnn talked about feeling like she was "knocked off center" by aggressive interpersonal interactions in her professional space. Her sense of imbalance and frustration continued even after leaving her workspace and it had negative impacts on her overall sense of well-being. Her professional experiences posed threats to her overall psychological and physical well-being. In earlier themes, Dylan also spoke at length about her distress and fear of her faculty role "consuming" her life and preventing her from engaging in meaningful personal roles. Gabriella described the "tax" her faculty role demanded and its impact on her personal life in an earlier theme. Like JoAnn, Gabriella talked about her loss of physical well-being in the form of lost sleep for professional productivity. Similar to Dylan, Gabriella feared her professional role demands would have emotional and psychological well-being costs because she felt forced to sacrifice quality time and connection with her family.

We learned that Allison also understood shifts in her worldview as being caused by negative interactions within her professional role (detailed in sub-theme 1.1). Her experiences altered the way she thought about preparing her children to navigate an "unfair" world. She said, "I guess probably because of what I'd have to go through in

academia spilled over into my personal life. So, when dealing with [my children] I know

that I'd have to let [my children] know [they are] accepted."

Allison also revealed the emotional weight and distress she internalized from her

professional spaces. She explained that she carried it home with her:

> Yeah that took a lot of growth because I think the first probably three years or
> so that was kinda hard so I *didn't* know how to navigate it. I just come home
> and be sad. (Pause) Yeah. So, it wasn't really a *happy* time so I don't know if
> there's anything that I was doing per-se to make me happy. Just have to go
> back out there and face the world. (Allison)

Allison felt a heaviness and a sense of sadness from internalizing negative interactions in

her workplace. This experience was shared by other participants, particularly after they

reviewed student course evaluations or were criticized by superiors. Like Allison, they

continued to emotionally and mentally process—and at times fixate on—upsetting

interactions and feedback that was experienced as a personal damnation. Allison

experienced emotional and psychological difficulty for the first three years of her career

while trying to externalize "attacks." As a result, she came home to her family upset. She

felt she possessed no control over how others treated her and saw no recourse but to force

herself to go back to the same professional environment the following morning and "face

the world." She and others described on-going, multi-year periods of psychological

distress that originated in their professional spaces and "spilled over" mentally and

emotionally into their personal lives.

Over their careers, many of the participants developed new strategies and

interpretations of events to mitigate the negative psychological impacts of their turbulent

or discouraging experiences in their professional roles. Early in her career, like many

other participants, Allison internalized aggression from colleagues and students as a personal attack. Allison revealed that she later adopted a strategy of decentering herself from the attack:

> I have one friend that will always tell me it, "It's not about you." (laughs). Which is the best statement that she can remind me of like if something's going on in my world or if something's not going right in particular or if I'm dealing with somebody that's a difficult person . . . I think that kinda helps with some stuff sometimes because I'll take it personally, I'm like, "Oh my God. They're *attacking* me because they don't like—" or whatever my perception might be and there is a little voice that goes, (whispers) "It's not about you." So that really helps me now. (Allison)

She had previously believed that her colleagues' hostile behaviors were a reaction to something about her in particular and indicated a failure on her part. Later, with the encouragement and reassurance from those she trusted, Allison reframed how she thought about these interactions. She no longer saw the aggression as being something about her—or wrong with her —but instead saw the attack as only saying something about her colleagues. By attributing other peoples' actions and treatment to a reflection of their character and not her own, Allison was able to externalize their aggression.

Specifically, in the case of marginalizing comments, Allison's perspective started shifting as she reframed the interactions as reflecting her colleagues' racism and sexism: "I would take it personally. But if there was another person in that situation that looked like me, they'd do the same thing to her—because that's just who *they were*." Allison started to challenge threats to her identity and sense of worth by focusing on internal sources of validation rather than external ones. This psychological reframing of hostile interactions in a way that decentered her from being the target helped Allison interrupt her own processing of events and intentionally challenge herself to reframe and

externalize them. She was trying to no longer allow others she viewed as toxic to have the power to invalidate her. While reframing and externalizing the attacks did not eradicate the negative psychological impacts entirely, trying to decenter herself from the hostility did help Allison reduce the time she spent processing the interactions. Externalizing the behavior also diminished the depth of distress she felt. For participants, this reframing of hostility helped them to keep their sense of self-worth and confidence intact when they were the recipient of comments that marginalized their social identities.

Some participants revealed negative interactions with students in their classrooms, and previously had attributed student hostility to frustration with their teaching ability, personality, or social identities. Allison revealed a helpful reframing of exchanges with students. After attending a teaching workshop, she discovered a new way to think about and reframe her interactions with difficult students:

> These difficult students, sometimes they call them "strikers". . . their personality more is they want to be acknowledged while they're in classroom and they want you to acknowledge their expertise and their knowledge or whatever they have to offer to the conversation. . . . So these strikers are seeking attention so I think before I went to the teaching workshop I thought that they were just attacking per se but it was more of they were attacking because they wanted to be acknowledged but they didn't necessarily know how to express that to me. And it was coming out that way. So, I think once I started reframing the way that I looked at these difficult people I think it became a little bit easier for me. (Allison)

Professional development in teaching workshops helped Allison reframe her interpretations of difficult interactions with students. She began to attribute hostile interactions in her classroom to students' personality traits. Allison started to understand that the students needed acknowledgement and were expressing aggression and frustration from their own psychological needs that had nothing to do with her. These

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reframing strategies helped empower Allison to externalize hostility and maintain a stronger sense of well-being in her interactions with students and with colleagues. She was, again, able to decenter herself from being the object of interpersonal attack.

In addition to reinterpreting interpersonal interactions, participants also demonstrated psychological reframing of their performance within their professional roles. Many participants perceived internal pressure and external social pressure to avoid making mistakes, particularly while teaching. For Rose and others, self-critical narratives were often amplified by feeling unprepared early in their careers because they had not received instructional training about teaching during their graduate work. Rose felt she had been thrust into her teaching role without any guidance on how to be effective as an instructor. She and others found themselves learning and failing in this professional role as they went. For Rose, a sense of failure in early teaching experiences had lasting consequences for her confidence, especially after internalizing critical student evaluations. Even after several years—or decades—of teaching, participants still struggled to accept less-than-ideal teaching performance. They felt depressed viewing these comments because they felt they indicated failure. Over time, Rose and others began reframing their interpretation of these comments as constructive feedback and as opportunities to improve.

Rose articulated her increased sense of self-acceptance from reframing herself from a growth mindset:

> I think, awareness of it's *okay* to be a work in progress . . . in the early years, I think you would get student feedback in those end of year evaluations. And always usually get real depressed and cry certainly. But now it's more like constructive. There's still comments that are hurtful and that you feel bad, but

to take it with a growth mindset and hear some feedback. So what can I do to get better is sort of part of that process . . . I think that's everything (laughs). So with everything, seeing that you can be better. . . . I think being willing to take on new things, part of it is realizing that it's okay to start down and work your way up. I think it's just a growth mindset. (Rose, *emphasis* hers)

Through reframing herself and her performance as "a work in progress" Rose shifted her outlook on how she evaluated her performance in her roles. She adopted a "growth mindset" that centered on the belief that everyone develops expertise and ability over time, rather than possessing skills as innate gifts. Adopting this new mindset empowered Rose to feel more confident that she could get better at teaching and that failure was an opportunity to improve. She also felt more empowered to take risks and try new things. She no longer feared the discomfort of failure but instead seeing successful role performance as an iterative process of growth. Rose developed a stronger sense of self-acceptance, "it's *okay* to be a work in progress," in all of her roles, but especially in her teaching role.

This reframing of professional performance and failure from a growth mindset helped many participants feel more confident in their roles. JoAnn described holding a life-long learning perspective of herself and others. She felt everyone was continually growing: "I aspire to be the best me I can be, whatever that is, and I think, as long as we're sort of on the planet, we're works in progress." Several participants observed how their colleagues avoided taking risks. They perceived their fellow faculty as shying away from trying new things in their classrooms and professional spaces for fear of failure or avoiding the discomfort of being a novice again after becoming accustomed to being seen

as an expert. They saw fear as preventing many faculty members from growing in their professional roles.

According to Dylan, an additional benefit of adopting a growth mindset was her willingness to become a learner again. She believed the discomfort of learning was a valuable opportunity to connect with her students: "learning something totally new that you've never done before, in some ways it helps you relate to the students in your classes . . . becoming a beginner at something again, I don't know, it sorta helps ground you a little bit." She saw professional risk-taking as valuable and risk-avoidance as missing opportunities.

Marie revealed a similar reframing of failure events in more constructive ways. Marie spoke in an earlier theme (sub-theme 3.3) about the influence of one particular mentor who encouraged her to take risks and not to fear failure. What started as a teasing joke, evolved into a constructive and empowering worldview. She explained:

> I think I was being kind of a smart ass to myself and to [mentor], and I just said, "Okay. All right. From now on, every failure for me, I'm going to celebrate," because that's what [mentor] would say. . . . So, I started saying, "I'm going to celebrate every failure I have, because it's one—sort of a Thomas Edison approach. It's one way I now know it won't work." So, I've learned something. It failed. . . . So, now it's not I'm headed this way and every time something fails, it's *in* my way. It's—Those things are actually *part of* the way. So, it's like "Oh, great! I've failed!" Because, I needed to. There's going to be at least one of these. There it is. Put a red star by it. There's the failure. And, my whole mental model of how I move forward changed based on just that shift from, it's not blocking you. It's part of your path. (Marie)

While Marie was being insincere and making light of her mentor's advice at first, she found that the act of literally celebrating a failure—cheering even in mockery—actually helped her feel better. She previously had what she described as "a pity party" after

failing or being rejected, but later she no longer had lasting feelings of sadness or poor

self-evaluations. She found that over time, her perspective of what failure was shifted;

previously, she saw failure as an endpoint or obstacle, "*in* my way," but now she saw it as

a valuable and necessary component of future success, "*part of* the way." She started

viewing failure events as opportunities to learn and get better. She described the same

approach to publication or grant rejections; she would allow herself a short amount of

time to feel sad and angry, and then she would challenge herself to celebrate the failure

and think about how she could get better. Like Rose and JoAnn, she started seeing herself

and her performances as works in progress, and like Dylan, reduced her fear of the

discomfort of failure and felt more empowered to seek challenges.

Several of the participants described similar self-doubt narratives and feelings of

inadequacy. They reported feeling like imposters within their roles. In addition to feelings

of inadequacy within a specific role like teaching, participants experienced competition

among roles and had to prioritize their time. This allocation often left them with a sense

of guilt and doubt in their performance across roles. Gabriella described feelings and an

inner voice of self-doubt that she personified as a self-critical "imposter" entity that she

would have inner dialogues with:

> So, I felt very accomplished and very proud of myself, but like, above all of
> those things, any times that a thermometer hits really high I feel like, I can tell
> my imposter to shove it, because I did it. I'm doing it. I'm doing the mom
> thing. I'm doing the work thing. I'm doing the marriage thing. I'm doing the
> whatever "x" thing it is, I'm doing it, I'm doing it well. And I try to keep
> those in a little bank so that then when I'm having a bad day and the imposter
> is like, "you are hopeless, you are helpless, you will never be a Full Professor
> let alone a university administrator," I can be like, "You go back in your little
> corner, because that's not true. Look at that great proposal I just did."
> (Gabriella)

Gabriella questioned her performance, sometimes felt like a failure, and began to doubt her ability to achieve the future she envisioned—professionally and personally. She experienced feelings of hopelessness and helplessness from this self-doubt. Evaluating herself as being successful in her roles empowered Gabriella to quiet her inner voice of criticism.

As a final strategy, participants collected evidence of success to combat inner feeling of self-doubt that may arise. For example, Gabriella began to collect evidence of her past and current performance success as a way to combat future feelings of inadequacy and doubt. She said:

> I'm just really an engineer, I like to have evidence. And so, I try to keep a list, a bank . . . I have a file where I go if I feel I'm a bad teacher, I go read stuff in the file about why I'm not, why I'm a good teacher. I have a little box of things that my kids have given me that tell me I'm a good mom, that I look at when I'm feeling a terrible mom. I reread my wedding vows when I'm having a rough marriage day . . . looking back from the bank, I've been on the whole pretty successful in my proposal writing, so I know that I know how to write good proposals. (Gabriella)

Gabriella documented evidence of her success within each of her most salient roles to later reaffirm her abilities. Like other participants, when she experienced self-doubt, Gabriella found it comforting and encouraging to have a digital and physical place to return to for evidence that countered her sense of diminishing self-worth or low confidence. She recounted a particularly devastating grant proposal rejection after which she resisted submitting new proposals for a significant amount of time. She explained that returning to her evidence file and seeing her successful track record ultimately helped her to overcome her risk-avoidance and feel reassured of her ability

to be successful in her researcher role. Her holistic monitoring of her role performance "thermometers" and strategy of collecting and documenting success helped empower her to overcome self-doubt.

Marie also described feelings of self-doubt in her projects and thought it was important to document her moments of success so that would remember it and feel encouraged in the future. She described one particularly successful writing session where she realized she had performed even better than she anticipated and internalized that moment as a way to counter future doubt: "There was a little bit of a, "Hmm. Here you go. Maybe I can do this!" And a sense of, "Okay, you've gotten somewhere. Don't, don't forget about this." It was important to her to not forget about her successful moments as she believed they would become valuable to her in the future.

Participants found increased sense of empowerment to take risks by reframing failure events and their professional performance in more constructive ways. These reframing strategies helped participants enhance their sense of self-acceptance as someone continuously becoming better.

Participants looked across their life spaces and personal and professional roles for sources of happiness and satisfaction to enhance their overall sense of well-being. When participants felt inadequate in one space, they looked to other spaces or to evidence of past success to strengthen their confidence. They found meaningful sources of connection to others in their personal and professional lives, sought intellectually stimulating experiences across their professional roles, and leveraged reframing strategies to help

themselves recover from challenging interpersonal interactions and to help empower

themselves to embrace risk and personal growth. All of the experiences and strategies

described here worked together to create a holistic sense of well-being in their lives. The

participants revealed their inner worlds with the hope that others may take comfort in

knowing that these experiences are shared. They hoped that their stories may help other

faculty enhance their own sense of well-being.

CHAPTER EIGHT

DISCUSSION, LIMITATIONS, AND FUTURE WORK

Summary and Discussion of Findings

The four themes illustrate key transformative findings of this study. Through the participants' accounts, we learned that **the immediate social environment may be hostile to women faculty members in unexpected ways**. In addition to marginalization of social identities—well-documented in the literature—faculty members may also experience marginalization of their professional identities. Faculty members may feel a sense of threat in mentoring relationships with departmental colleagues and look to relationships with external colleagues where increased security and trust is felt. The participants showed us that **shifts in professional interests and identities may be common and occur throughout a faculty member's career**. Faculty members may become drawn to new work to reflect emerging personal passions and to feel intellectually stimulated—for many this led to research in a new or non-traditional engineering field. Following these passions enhanced their well-being and sustained their passion in their professional roles. The participants also revealed that **the promotion process may be traumatic due to identity threats**. A faculty member's professional identity may feel threatened during promotion review and the loss of a deeply enmeshed identity is feared at all transition points—not solely during tenure reviews. Participants believed more than just their productivity was evaluated and some even concealed emerging interests until the promotion was achieved. Finally, we learned that

relationships and multi-dimensional lives are of central importance in a faculty member's well-being. All life spaces could contribute to or threaten a faculty member's well-being. Participants felt satisfied when a more complete self could act within the professional space and when time investment into personal relationships could be maximized. We learned that participants looked across their life spaces in search of well-being and drew confidence, energy, and support from their personal life spaces to remain resilient in their professional roles.

Theme 1: Participants revealed marginalization of their social identities within their departments and a shared commitment to remain visible as models of success for other women.

Theme 2: Participants' evolving professional identities helped sustain satisfaction in their professional roles but gave rise to tension with departmental colleagues.

Theme 3: Participants overcame isolation and lack of recognition within their departments by forming meaningful connections with external colleagues.

Theme 4: Participants looked across their professional and personal spaces to find sources of well-being and engaged reframing strategies to overcome self-doubt.

As described across the themes that were presented in Chapter Four to Seven, participants revealed how they navigated power dynamics and departmental norms that worked to disempower them within their departments. Participants perceived certain professional identities as privileged in addition to experiencing the marginalization of their social identities such as gender, race, and parenthood (Theme 1). Participants were exhausted by never-ending demands to prove the legitimacy of their professional identities such as teaching, leadership, and non-traditional engineering research as well as to gain recognition as assets to their departments. Each participant felt that their sense of

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self strongly enmeshed with their identity as engineering faculty; however, colleagues dismissed their individual passions. Participants' sense of security in their faculty identity became threatened and sometimes was abandoned through the tenure and promotion process (Theme 2).

Participants initially internalized hostile interpersonal interactions in their departments as condemnation of personal attributes and of professional inadequacies. They experienced acts of aggression and marginalization as personal attacks, and they believed at first that these attacks indicated personal flaws or non-belonging (Theme 2). Departmental norms that marginalized certain faculty members and colleague interactions eroded the participants' confidence and comfort within their professional environments. Marginalization left participants feeling professionally underrecognized and undervalued. Their sense of closeness and trust in their colleagues and superiors was diminished. These all contributed to participants' growing sense of isolation within their institutions, which necessitated their development of well-being strategies.

Despite these hostile and marginalizing environments, participants found ways to cultivate meaningful relationships, develop personally fulfilling research identities, and adopt protective strategies to sustain and enhance their own well-being. Participants formed trusting relationships with external mentors to gain access to professional guidance in everyday interactions and in professional advancement (Theme 3). Close, trusting relationships like these created safe spaces for participants to reveal personal struggles and to gain emotional support. These relationships also normalized the difficulty of progression along the faculty pathway.

Through the intervention of others that they trusted, participants began to challenge their interpretation of marginalizing events and feel professionally valued. Participants found reassurance and recognition through external colleagues (Theme 3). They also discovered professional development workshops that taught strategies through which to reframe difficult interactions (Theme 4). These affirming interactions helped participants to distance themselves from hostility; that is, they confidently reminded themselves: "it's not about me."

To overcome professional isolation, they sought external communities with colleagues in other colleges and professional societies. These external connections created a sense of closeness and community where participants tapped into a fountain of encouragement, support, and celebration (Theme 3). In their external relationships, participants felt accepted and affirmed in their emerging interests, and they felt validated and recognized as valuable colleagues. These connections with colleagues enhanced their productivity and helped to advance their careers through research collaborations and publications. Their new communities vouched for the quality of participants' work and helped them "funnel back" recognition into their departments in hopes of more favorable promotional evaluations and acknowledgement as departmental assets. Additionally, their transitions into these new sub-disciplines helped sustain their sense of satisfaction and happiness in their professional roles by incorporating personal passions (Theme 2) and generating a sense of intellectual stimulation and growth (Theme 4). In these spaces, participants were able to embrace emerging, meaningful professional identities and feel valued.

The participants also found their roles as leaders, mentors, and role models fulfilling. They expressed awareness and pride in their standing as examples of women successfully navigating engineering faculty careers (Theme 1). While participants did not see themselves as the well-being exemplars they pressured themselves to be, they saw value in sharing their challenges openly. They believed their stories could be mechanisms to normalize such challenges for others. That is, they thought they could provide evidence that these experiences were "real." Some participants wished for normalization and role models themselves and saw their part in this study as providing that to other women. This study was one more way they could "make things better." Participants remained committed to providing visible models of alternative approaches to well-being and professional success for other women. Some even directly challenged the common narrative of "balance" as a faculty member in engineering and offered "choice" as a more realistic and achievable alternative (Theme 4).

How Participant Experiences Relate to Well-Being Frameworks

Throughout these themes, the participants' accounts illuminated components of the well-being frameworks outlined in earlier sections. Their accounts also demonstrated complexity of the lived experience of well-being, uncovering tension that may arise among components of these frameworks . All three frameworks assert that **enhanced well-being arises from the presence of meaningful and satisfying experiences**. Participants detailed the happiness and relief they felt when their professional and personal lives reflected their core values, provided positive interactions and rewarding experiences, and enabled them to shape their lives in meaningful ways. They felt

unhappy and unsatisfied when these core well-being sources were absent, and they searched for them in other life spaces, developed new identities, or pursued new roles.

Psychological Well-Being

Elements of the psychological well-being framework (Ryff, 1989) can be seen throughout the themes. Throughout the first two themes, participants articulated struggles with *environmental mastery*. They did not feel like they could control their world when in their departmental spaces. Allison, Rose, and JoAnn articulated ongoing fears of being accosted and "attacked" by colleagues and they felt unable to protect themselves from interactions with hostile people. Dylan and Gabriella described feeling out of control when their professional demands began to "consume" them and when they were forced to sacrifice other meaningful roles. Conversely, Gabriella found the control she felt in the classroom to be psychologically comforting. Dylan described a stark difference in her happiness and satisfaction at two different universities. She cited regaining control over her time and protecting her connection to her partner as illustrations of how important of this sense of control over surroundings was to her.

All the participants struggled to maintain a sense of *autonomy*. They did not feel an internal locus of control or freedom that functioned apart from the norms within their universities. Instead, participants felt forced to align with departmental norms and expectations for how performance was measured. This feeling of forced alignment was especially present in which identities were privileged inside the academy. While the participants expressed escalating autonomy with each rank promotion, the tenure and promotion review process challenged this autonomy at each transition point. Conversely,

participants like Rose experienced astonishing improvements in their satisfaction after shifting their research projects to reflect personal passions. Likewise, Gabriella felt greater acceptance of outcomes when her choices of role prioritization felt self-determined.

The second and fourth theme illustrated participants' drive for *personal growth*. Through Dylan's quotes, we uncovered the frustration participants felt when they perceived their pedagogical efforts stagnated by the "old guard," senior colleagues, in their department. We learned that some participants came to understand that their colleagues expected them to maintain a static research identity throughout their career despite the "addiction" and intense gratification from novel intellectual stimulation. JoAnn and others articulated valuing personal growth. They came to see themselves as "works in progress" and would strive for growth in all of their roles. They desired to take risks and continually engage in the process of self-improvement.

These stories, especially those in the third and fourth themes, demonstrate a growing sense of *self-acceptance*. Mary revealed that she felt that her research productivity would never be seen as enough. She felt a sense of relief from feeling inadequate during recognition moments like a validating conversation with her superior. Conversely, Gabriella felt an increased sense of self-acceptance by shifting her views of role navigation to emphasize self-determined choices. Rose explained that "it's *okay* to be a work in progress" and demonstrated greater self-acceptance in incremental role improvement after adopting a growth mindset. Marie decided she was proudly going to move forward as a "jaguar" and no longer cared if she was seen as "gopher" or a "duck."

Participants became more accepting of themselves through promotional progression, and they more easily embraced emerging research interests through affirming interactions with external colleagues. These experiences and others as their careers progressed led to increased confidence and increased comfort in risk-taking.

In themes one and two, we discovered how participants felt a yearning for *positive relations with others* within their departments. Mary saw a direct connection between personal relationships and her sense of well-being. The emotional callousness she felt from her colleagues was detrimental; her confidence and sense of connection suffered. Many of the participants felt professionally and socially isolated in their departments, and they cultivated external networks to meet their needs for warm, trusting collegial relationships. Participants like JoAnn believed what was said by external mentors and colleagues who were empathetic, cared about their welfare and success, and accepted them. Participants also found sanctuary in the meaningful relationships they had with their partners or children. These relationships were all sources of validation and gave participants the support they needed to persist in their faculty roles.

Finally, every one of the participants articulated a shared commitment to using their career as a mechanism to enact their *purpose in life* of "making things better." This drive to improve the world around them was seen throughout themes, most explicitly in theme two. In theme one participants were committed to remaining visible as a woman even when it caused them personal discomfort, as it did for Gabriella and Mary. In theme three, we learned that participants gave their time selflessly to those they mentored. Lastly, in theme four we saw that participants were equally, if not more, dedicated to

ensuring the happiness and well-being of their family members as they were to the well-being of their career.

Throughout the four themes, participants faced emotional and professional consequences when psychological well-being dimensions were absent. Participants felt relief, satisfaction, and joy when psychological well-being dimensions were present, but also faced tension when meeting these needs.

The participants also revealed tensions arising from meeting one or more of these well-being components. For nearly all of the participants, pursuing their purpose in life forced them to face conflict head-on. Participants faced aggression from colleagues that damaged their sense of closeness and trust and they relinquished their sense of control over their environment. JoAnn had to "upset the apple cart" in order to make her department better for women. Gabriella stayed in a department that violated her sense of environmental mastery in order to remain visible as a role model.

We also saw tension between the participant's achievement of autonomy and relational needs in the professional space. When Allison and Mary contrasted their interactions in conferences and departmental spaces they revealed barriers to meeting these two needs in the same space. Environments where participants felt compelled and able to establish professional autonomy tended to be spaces where they could not meet their need for recognition and social connection. The evaluative nature and marginalizing culture of these environments forced competition and undermined their ability to form positive relations with others. Participants were forced to expand their professional spaces to meet relational needs with external colleagues.

Finally, we learned that participants' need for personal growth created substantial conflict in their relationships. Growth demanded change. Pursuing new research interests helped participants achieve a sense of intellectual stimulation and renewed passion but this change was not embraced by colleagues. Some participants like Rose event lost "long-term connections" because their colleagues could not understand—or would not accept—the participants' needs for change and growth. Their personal growth created tension in their department and so the participants were again forced to establish new connections outside of their immediate colleagues to continue to meet their relational needs.

Subjective Well-Being

In the final theme, participants articulated a holistic evaluation of their own well-being. They described their search across interconnected life spaces for sources of happiness and satisfaction as was predicted by the subjective well-being framework (Diener, 1984). Gabriella and Marie, for example, described their process for monitoring and searching for well-being across roles. Participants reflected on their experiences in their professional and personal life spaces to determine which roles held meaning and which provided consistent positive emotional experiences. They prioritized roles where they felt joy and excitement, describing overwhelming love felt with family and "addiction" to the positive feelings associated with intellectual stimulation. They also articulated a willingness to tolerate infrequent uncomfortable or unhappy experiences when those were outweighed by positive experiences. Conversely, when negative affect was the more consistent experience (e.g., as Allison described was often the case in

faculty meetings), their sense of well-being was threatened and they began to dread this part of their professional role. Dylan was a clear example of a fading source of positive affect. A lack of pleasant interactions with colleagues led to diminished happiness in her role.

Workplace Well-Being

Participants also clearly indicated the centrality of their faculty identities to their sense of self. They did indeed emphasize their workplace well-being (Page & Vella-Brodrick, 2009) as having particular influence on their global sense of well-being. Negative interactions and infrequent moments of recognition contributed to psychological and physical "burnout" that impacted all areas of their life; however, some faculty tasks and classroom spaces also offered a sense of control and reassurance when their personal lives felt chaotic. Several articulated their sense of professional happiness and satisfaction directly influenced their commitment to their roles and institutions. JoAnn and Dylan, for example, clearly articulated—and in fact, their careers demonstrated—willingness to leave a role and a department when their needs where not met and when their well-being was threatened. Conversely, positive professional environments like professional society conferences that fostered as sense of communal encouragement and celebration amplified participants' motivation and commitment to their research roles.

Participants looked across their life spaces and expanded their professional networks to find psychological fulfillment and emotional strength. Marginalizing environments could be mitigated through meaningful relationships. New intellectual

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passions could emerge and fuel growth. External recognition combated stagnation. Family connections fueled persistence. Inner dialogues of self-doubt could be silenced with evidence. Feelings of failure could be reframed as growth opportunities and risk could be embraced. The following sections will detail what these findings mean for various stakeholders including administrators, colleagues, and women who are now engineering faculty or may become engineering faculty in the future.

Limitations

My work, while transformative in introducing the theoretical perspectives of well-being into the engineering education space, stands only as a starting point to explore the experience of well-being for women who are engineering faculty. The IPA methodology offered a powerful tool to illuminate the individual and shared experience of well-being for women engineering faculty members and revealed insights not possible through other quantitative methodological means. Using these lenses and methodological tools, I was able to reveal a previously unstudied component of the engineering faculty experience. My findings were constructed and presented in a way that remains true to the philosophical commitments of the IPA methodology: shared patterns of well-being emerged among the participants and their individual accounts offered nuance, contradiction and coherence, and a rich description of their attempts to make sense of their experiences across their life spaces.

While the IPA methodology was valuable, it required a substantial investment of time to systematically analyze the expansive accounts of individuals. It is possible other qualitative methodologies could offer equally valuable insights—which build on the

idiographic perspective of this study— through a more efficient use of resources.
Furthermore, the dearth of work on faculty well-being demanded that I took an
exploratory stance to capture the landscape of well-being within engineering higher
education contexts which led to a wide array of accounts during interviews. Future
studies would allow for narrowed focus in the data collection and potentially could
reduce the time of analysis. The insights garnered from my study can now be
strengthened through wider sampling and mixed-method research methodologies.

Consistent with the sampling commitments of high-quality IPA research, my
sample was narrow, and thus, the breadth of knowledge claims is highly contextualized
and limited. IPA studies and this work speak to a *perspective* not a population. The
idiographic and phenomenological commitments of IPA demanded a very small sample,
and so naturally, there are many faculty voices I could not represent. I limit the
knowledge claims made from this study to the context of cis-gendered, post-tenure,
White and African American women who are faculty in engineering disciplines in the
United States.

Within the sample, five of seven participants were White women and two were
African American. The voices of the racial majority are therefore over-represented, and
the voices of women of color were limited to those who identified as African American.
One of the limitations of my study was in including the voices of African American
women. Initially four African American participants were recruited into the study,
however two later expressed a change of heart and requested to be removed citing
feelings of vulnerability. They feared they would be identifiable. Women of color who

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are engineering faculty members, regardless of their specific racial or ethnic identities, are starkly underrepresented in engineering education spaces. Women of color are particularly underrepresented in tenured engineering faculty positions, so their perception of threat was understandably amplified. Participant vulnerability and sense of identifiability is a subjective experience, particularly in research reporting. What I as a cis-gender, White, able-bodied, heterosexual woman with training in educational research perceived as identifiable could be very different from what a participant felt made their story unique and recognizable. Educational researchers exploring well-being, or any personal experience, may come face-to-face with the limitations of sound methodological plans and regulatory guidance and then must navigate participants' unexpected responses or concerns as they emerge.

Regardless of identity, the stories of participants must be collected and reported with great care. To protect the identities of these women, some of the rich detail (e.g., family structures and work details or background) of their accounts needed to be stripped away. My aim as a qualitative researcher to provide rich contextual detail such that the reader may see transference was therefore limited. My study attempted to include the voices of African American and White women. The voices of women of color, women of all racial and ethnic identities, are essential in well-being work.

The sample and my knowledge claims are also limited in terms of faculty career stage. The sample included participants at various career stages and ranks, however it did not include women who were pre-tenure. Participants revealed that their well-being was most precarious during their pre-tenure phase and so it must be more deeply studied. My

findings present only a snapshot of experience and sense-making in time. While a range of career stages were represented, participants showed that individual understandings of events change over time. Exploring longitudinal well-being would be valuable. Finally, my findings only speak to the experience of those faculty members who have remained in faculty careers past tenure. We do not know the experiences of women who have left the faculty pathway. We also do not know if or how well-being contributed to their departure.

Future Work

In the next stage of this research, I will expand the sample utilizing qualitative methodologies and then possibly introduce a quantitative component to complement the findings reported here. My work in this project stands as a starting point for my future research career and the exploration of well-being among engineering faculty. The scope and sample of this study was necessarily limited, thus, further studies are needed in order to more fully understand the phenomenon of well-being in engineering faculty life. The idiographic commitment of the IPA methodology was essential to my findings, yet necessarily limited the inclusion of faculty voices in the study sample. The next phase of my work will begin by widening the sample to include more voices of women engineering faculty. For example, my study over-represented the voices of White women and so including more voices of women of color—of all racial and ethnic identities— is an essential next step. My sample also included only women who had earned tenure. The participants revealed that well-being is most precarious during transition points thus it is important to include the experiences of pre-tenure faculty as well as future faculty

(graduate students). In addition to these sample expansions, voices of faculty of all gender identities must be sought out including the voices of non-binary and transgender faculty. Finally, men faculty should be included in well-being studies all faculty face well-being challenges and all colleagues contribute to department and university cultures that either challenge or foster well-being.

In this work, I have introduced well-being language and constructs into the field of engineering education, as an additional phase I will introduce well-being instruments that will collect data from a larger sample of women faculty. I see value in leveraging mixed methods approaches to capture a wider understanding of engineering faculty well-being for women in the United States. Several established well-being survey instruments exist and can be adapted and contextualized to be more relevant to the study of the engineering faculty women. I will be able to introduce my findings as additional constructs and determine how widely these experiences are salient for women.

I also intend to expand into additional research questions. For example, I am interested to learn if other women adopt the reframing strategies presented here in their engineering faculty careers. Is reframing a common well-being strategy that should be introduced early in faculty careers? How can professional development workshops be leveraged to enhance faculty well-being? Are there other strategies women engage to cope with well-being threats within their faculty roles? And finally, are there American universities that can stand as positive models of organizational support for faculty well-being?

CHAPTER NINE

IMPLICATIONS AND CONCLUSIONS

Implications

In detailing what I see as the implications of my work, I offer starting points from which we can critically reflect on our attitudes and approaches towards faculty success and well-being. My well-being findings have implications and actionable steps for everyone in the engineering higher education ecosystem, including those who possess input on the recruitment and retention of engineering faculty. I will address some key players who can provide support to faculty and then, I will directly address those of you who may be traversing this faculty pathway alone.

University Leaders and Administrators

University leaders play a key role in shaping the culture and policies of an institution, and therefore, they can stand as trailblazers of positive change to support faculty well-being. The participants in this study showed us the negative consequences of unchecked marginalization and of the internalization of unreasonable productivity expectations. Universities have lost faculty members to other universities as a result. Participants emphasized the power of relationships and mentoring across colleges in their sense of acceptance and happiness in their institutions. University leaders can indirectly contribute to the well-being of their faculty, at all ranks, by encouraging and rewarding cross-college mentoring and collaboration. New faculty need a sense of camaraderie and support from a cohort network. Mid-career faculty need community to explore emerging

interests and to continue to hone skills. Senior faculty need support in new identities and in preparation for assuming leadership roles. Participants also revealed how essential external networks were. University leaders need to advocate for all faculty to receive start-up funding to support their travel to traditional and non-disciplinary conferences to build these external networks of colleagues, peers, and mentors early on and to continue these relationships as their careers evolve.

University leaders can directly support the well-being of their faculty by advocating for flexibility in work to lessen the strain between roles and to provide care for themselves and be rejuvenated by their family. Family connections should not be limited to children; they include partners and aging parents among other connections. However, all of the participants with children were concerned with identifying childcare for their children during the summer so that they could successfully continue to meet their faculty performance demands. University leaders can advocate for their institutions to provide childcare services in summers so that their faculty are not distressed by this problem. They can also help to avoid placing a "Mommy Tax" on faculty by preparing Chairs in training and policies related to supporting faculty in family and other types of leave. This change signals value for multi-dimensional faculty lives.

Finally, university leaders play a key role in tenure and promotion processes. With the evidence provided here, leaders can critically reflect on how promotional merit is assessed in their institutions. Ask faculty to justify the *quality* of their work, not the *legitimacy* of it especially when pulled into inter-disciplinary work; when quality is

questioned, invite outside experts in those fields to weigh in and recognize, as Allison said, that alternative funding "is green."

Department Leaders

Like university leaders, department leaders who act as superiors and potential mentors to faculty also stand as influential change agents who can enhance the well-being of engineering faculty. Department Chairs can similarly encourage diverse collaboration and mentoring between engineering and non-engineering colleges. They can seek out faculty outside of the department to act as external mentors as these relationships reduce the sense of professional threat faculty feel and these relationships create safe spaces for honesty. In addition to formal connection, we learned that informal social connection is valuable to well-being and also to professional advancement. As Dylan explained, informal social interactions without an agenda often resulted in increased productivity, so creating time and space for faculty to connect socially (away from campus) can help foster meaningful relationships and lead to professional collaboration.

Departmental leaders can also directly support their faculty's well-being by cultivating personal connection with each faculty member. We learned how detrimental "gaslighting" was for participants' trust and confidence in their department. Thus, department leaders should take perceptions of marginalization and attack seriously and acknowledge these interactions as being traumatic even if they happen to everyone. As we saw in Mary's accounts, "*small* gestures," such as "Liking" posts and posting public acknowledgements of faculty efforts (not just large grants awards or products) on social media, take little effort but hold great meaning. These public gestures signal appreciation

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and value for faculty and their work. We learned that faculty feel valued and respected when their superiors gave critical feedback in "humane" ways that acknowledge the individual's effort and service and did not just demand for "one more" product. Gabriella's "Mommy Tax" showed us that faculty can feel dismissed and discriminated against when responsibilities are assigned without their input, and that it is likely that faculty would sacrifice their health rather than teach unprepared and "half-hearted." Developing personal relationships with faculty opens doors to knowledge about their lives outside of the university and allows departments to meet their teaching and service needs without forcing faculty to suffer physically and emotionally.

Finally, departmental leaders also play a key role in the tenure and promotion review process. Department leaders may be concerned with continuing to meet the teaching, research, advising, service, and leadership needs of their program when faculty change, but they must critically ask themselves if the faculty member's interest change will actually prevent needs from being met. For the participants in this study, their shifts in research—including those who moved into non-traditional spaces—still produced funding and publications. They were still advising and recruiting students, they were still teaching their same courses, they were still serving on committees, and they were still seeking leadership roles. Their evolutions diversified all areas of their career in positive and meaningful ways, and the changes made them excited about their work again.

Department Chairs can acknowledge and support identity and interest evolutions of their faculty throughout their careers. Chairs can think about how to make space for transition and change while continuing to meet the department's needs. The person hired

into a particular role is likely not going to be the exact same person still contributing to the success of a department 5, 10, or 15 years later and we learned that expressing an evolving and holistic sense of self in the professional space has personal and organizational benefits. Professional growth is necessary for well-being. Professional evolution was one of the central ways the faculty maintained happiness and satisfaction in their professional roles; they felt renewed passion, inspiration, motivation, and, when they felt accepted in their new identities, they felt increased commitment to their careers. Supporting professional evolution could enhance retention of talented faculty into whom universities have invested so much and who they need for future generations of departmental leaders.

Potential Faculty (Graduate Students)

As the participants explained, astute graduate students see all what was presented in the findings; they keenly watch faculty struggle against the weight of departmental norms, they feel consumption expectations, they see isolation and unhappiness, and they believe faculty careers will eternally demand personal sacrifice. Dylan believed that current barriers to well-being in engineering departments "turn graduate students away from thinking about academia" because as Rose explained they "wouldn't want that life." They are not willing to sacrifice other identities to "just be a professor."

For those thinking about attracting and retaining talent into academia, the time has come to focus on well-being. Participants showed us that universities are losing talented, bright potential faculty because of the well-being threats they perceive in pursuing careers in higher education. In a time when universities compete to attract and retain the

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most talented individuals, well-being is something young (and also established) faculty are thinking about, and they are demanding well-being from their professional environments. When graduate students believe careers in academia threaten, rather than facilitate, well-being, universities risk losing the future members they have been investing in within their own programs.

Faculty

Last, and most important of all readers, I address you who are navigating this faculty pathway. I have conducted this study and written this piece for you. I believe this research holds the greatest meaning and implications for you. I hope that these findings bring you comfort and let you know that you are not alone. Others care about your well-being. Your experiences are real, shared, and normal. While many of the experiences described in the participants' stories were shared across faculty ranks, your well-being journey before and after tenure warrants individual attention.

Colleagues Who Have Not Yet Achieved Tenure

From this study, we have learned that you feel your future is precarious and uncertain. Participants have shown us the large toll this uncertainty can take on your holistic sense of self. You may feel alone in your department and in a "vacuum" without guidance or mentorship. You may feel unsafe to reveal challenges to your immediate colleagues and superiors. There are senior colleagues who want to support and validate you, you just may need to look outside of your department to access them.

Participants showed us that you can support your personal and professional well-being by expanding your professional spaces to include external mentor networks.

Connect with faculty outside of your department, outside of your college, and outside of your university in professional society spaces. These connections can offer an enhanced sense of safety to be open in informal, relaxed spaces. These connections can also support you in your tenure reviews. You can follow Mary's lead and use professional conference networks to "take some of your recognition and appreciation from people in the field and funnel that back into" your department. Before being promoted, Rose gained letters of support and legitimized her work using these external connections and found it rewarding to be able to do that for junior faculty like you.

We have also learned that you may feel unprepared to teach effectively. You feel real pain when reading your student evaluations and criticisms stay in your mind and "spills over" into your other life spaces. Allison explained how valuable professional development workshops are for supporting your confidence and self-acceptance in your teaching role. While your time is extremely limited due to seeking tenure, in these workshops you can expose yourself to new ideas that may change your thinking and behavior patterns for the rest of your career. Allison introduced us to student "strikers" who are students expressing their own psychological needs for recognition in your classroom in potentially hostile ways. She showed us that professional development workshops offer faculty ways to reframe hostile interactions to separate yourself from being feeling attacked. She explained that you may need to be reminded that hostile interactions are "not about you" and that you do not have to internalize colleagues' or students' behavior as an indication of personal flaws. As many of the participants said, risk-taking also becomes easier through adopting a growth mindset. By engaging with

other faculty in these professional development spaces, you can learn how to reframe student feedback as opportunities to grow and to improve after realizing that your senior colleagues have learned that "it's *okay* to be a work in progress."

Finally, like Gabriella you may hear an inner voice of self-doubt telling you that "you are hopeless, you are helpless, you will never be a . . ." and like her you can collect evidence of your abilities and success as an instructor, researcher, advisor, partner, parent, and any other role that is meaningful to you so that you can tell your "imposter to shove it."

Colleagues Who Are Post-Tenure

We have learned that you may have felt compelled to fracture your identity or felt you needed to conceal new passions to make it appear as though you fit with what your colleagues demanded of you. Perhaps like Marie you were a "jaguar" who had to pass as a "duck" and was treated like a "gopher." Like Allison you may have felt you were "navigating the waters" of your professional development alone. You may have been traumatized by the fear of losing your identity as a faculty member during your tenure review or when seeking Full rank. That distress may still sit in the recesses of your mind. You may have started to prioritize your roles differently, evolved in some way, or changed professional paths to follow your passion and experienced tension from doing so. And despite having achieved tenure, your career may still feel precarious and uncertain and your colleagues may still feel hostile. Again, all of these experiences are real and common.

All of the participants in this study stood as post-tenure colleagues. From their stories, we have learned that there are strategies you can engage to protect yourself and enhance your well-being across your life spaces. They emphasized taking time to reflect on well-being and satisfaction. As Dylan explained, exploring other job opportunities can help crystalize what you feel is rewarding about faculty life and can also help you identify what needs you have that are not being met and should be. These participants validated changing interests and identities as well as the difficulty of gaining acceptance after changing. They continued to engage in the strategies outlined above for pre-tenure faculty, and they took advantage of sabbatical time for self-care. They gave themselves permission to "put myself first" and prioritize their needs and well-being.

For senior faculty like JoAnn, Marie, and Rose, their greatest support remained connections they forged outside of their universities and even outside of their disciplines. They invested deeply into their relationships and leaned on those relationships to feel someone was "in my corner." They also revealed that mentoring junior colleagues within their universities was a source of mutual connection and support. They shared that progress further down the faculty pathway affords more flexibility and time to invest in these relationships.

Conclusions

Previous well-being research has been conducted almost exclusively outside of the field of engineering education research. Those in fields such as psychology and health laid the theoretical and methodological groundwork for this study; however, work in

these fields largely centered on quantitative studies and did not concentrate on faculty, let alone engineering faculty. Thus, I saw a central part of the faculty experience going unstudied and the nuanced stories of women in engineering went untold. As a field, we were missing a key component of the faculty experience. The existing body of research from other fields offered a valuable lens through which I was able to capture the lived experience of JoAnn, Allison, Dylan, Gabriella, Marie, Rose, and Mary so that we, as a research and higher education community, could better understand what is it like to be a woman navigating a faculty career in engineering. We are all indebted to them for sharing their stories.

My work underscores the necessity to acknowledge and support well-being as an essential component of faculty life and ongoing success. Through introducing this qualitative well-being lens to the field of engineering education and higher education spaces, I believe we can better illuminate structures in our institutions that continue to systematically disregard faculty well-being and marginalize women. We can learn how to better support women—and all people—throughout their faculty journeys by understanding what supports (or threatens) their happiness and satisfaction.

Across the themes we saw that all spaces and roles of a faculty member's life contribute to their well-being. Their professional roles cannot be all-consuming *and* life-sustaining; well-being was maintained through an array of roles. Faculty need other spaces from which to draw energy and support in order to persist professionally. We also learned that their holistic sense of self was inseparable from their professional roles. Their values, passions, and personal skills were *assets* they brought to their professional

spaces that supported their persistence and happiness. We learned faculty are not static. The things that defined them and sustain well-being change over time, and so identities and psychological needs evolve also to maintain satisfaction. Finally, we learned that relationships matter—with departmental colleagues, superiors, external colleagues, and family. By encouraging personal connection, making space for growth and evolution, and not requiring fracturing, sacrifice, or concealment of identities in order to persist we may hope to create environments that support long, meaningful, and joyous faculty careers.

Closing Thoughts

I hope this work encourages you, dear reader, to reflect on how you can better support your current and future colleagues as well as how you can enhance your well-being along your own journey. There are shared experiences in a well-being journey but no singular narrative of faculty well-being. There is no single remedy to an individual's well-being challenges.

We are all colleagues to someone else. We must reflect on the cultural narratives and norms we propagate and the colleagues we may alienate in everyday interactions. Together we can interrupt and challenge rather than recreate exclusionary cultures that threaten faculty well-being. We can do this by jointly cultivating close personal connections, affirming diverse sense of fit within a department, and validating each other's efforts and developing interests. We can become mentors to colleagues inside and outside of our departments. Finally, we can share these stories and our own stories to free ourselves from any guilt we might feel over wanting to prioritize our well-being above all else.

It is time for the field of engineering and higher education institutions everywhere to attune to and support the well-being of their faculty. We can no longer afford to ignore the personal identities that enter into professional spaces and the well-being needs of those who work for and alongside us. It is time to decide that faculty well-being matters.

APPENDIX

FACULTY WELL-BEING INTERVIEW PROTOCOL

Consent
o Do you have any questions about the letter I sent about being in the study? Do I have your permission to record this interview?
o This interview is about learning more about you and your experiences of well-being at work and home. I want to encourage you to take time as much time as you want to think. You can say as much or as little as you like.

1. **I'd like to start by asking you to tell me about yourself. When you think about who you are as a person, what's important to being [name]?**
    o Tell me a little bit about your life outside of work
    o How do you stay committed to this

2. **Talk about how your job fits into your life - the bigger picture of who [name] is?**

3. **When you think about yourself as a whole person, what are parts or aspects of yourself that you want to nurture?**
    o Where do you see those aspects reflected in your life at work

4. **How do you remain happy and satisfied globally in your life?**
    o Are there other things you do to maintaining happiness
    o Walk me through a recent time when you felt happy

5. **Give me a brief overview of your time as a faculty member**
    o Tell me a little bit about your current role at your university

6. **Can you tell me about what a good day looks like for you?**
    o What are the main differences between a good day and a bad day at work?
    o Can you walk me through recent time when you had a good day at work, when you felt happy and satisfied with how things were going
        ▪ Are there sources of happiness/satisfaction in your role as a faculty member?
    o What would someone else – another faculty member or a student – say about your happiness and satisfaction at work?

7. **Is there anything you thought I might ask you, but didn't?**

8. **Is there any final comments you would like to make**?

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