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Career Adaptability And Retention Satisfaction Among Full-Time, Non-Tenure Track Faculty Researchers In Academic Medicine

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CAREER ADAPTABILITY AND RETENTION SATISFACTION AMONG FULL-TIME, NON-TENURE TRACK FACULTY RESEARCHERS IN ACADEMIC MEDICINE

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ABSTRACT

With the landscape of higher education changing, a new culture for faculty on campuses includes significant variation in employment types among faculty members. Regardless of institution type, the number of tenure track roles is declining, and non-tenure track positions are increasing. These positions often operate on employment contracts, do not have the same protected academic freedoms as tenure track positions, lack institutional support to promote individual success in job performance, and fall subject to state laws relating to termination. While non-tenure track faculty positions continue to see immense growth, the current structure of non-tenure track faculty researcher positions is challenging for personal career advancement.

This study had two purposes: first, to better understand the relationship between career adaptability and retention satisfaction, and second, to examine the unique career experiences of minoritized faculty in this field based on gender, race, and ethnicity. This quantitative study tested the associations among career adaptability and retention satisfaction factors. Further, the study assessed whether there were differences in career adaptability subscales and retention satisfaction between men and women, and if there were differences in career adaptability subscales and retention satisfaction between White faculty and Historically Marginalized faculty in academic medicine and the biomedical sciences.

This study collected data from 139 non-tenure track faculty working in research at Research 1 medical schools in the United States. Responses on career experiences were collected using the Career Adapt-Abilities Scale (CAAS; Savickas & Porfeli, 2012) and the Retention Factor

Measurement Scale (RFMS; Döckel et al., 2006). The 24-item CAAS measures concern, control, curiosity, and confidence. The RFMS is a multifactorial self-rating scale that includes 35 items that measure retention satisfaction factors, including compensation, job characteristics, training and development opportunities, supervisor support, career opportunities, and work–life balance. The canonical correlation examining the relationship between career adaptability and retention satisfaction was not statistically significant. Also, the MANOVAS comparing women and men on career adaptability and on retention satisfaction were not statistically significant. Similarly, the MANOVAS comparing faculty who identify as White and faculty who identify as Historically Marginalized were not statistically significant. While the findings were not statistically significant, these research questions and results add to the body of research on faculty development in academic medicine, non-tenure track faculty appointments, career adaptability, and retention satisfaction.

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Many people have been a part of my journey. I am fortunate that relationships throughout my education have continuously provided opportunities for personal growth and have helped me to discover who I could become. At various moments along the way, numerous individuals gave their time and energy to mentor, coach, and sponsor me. They fostered my aspirations. Some inspired me to pursue this degree, while others reminded me, when I struggled to affirm my abilities, what I could achieve. As a result, it is challenging to pen words that truly convey the depth of my gratitude and that include everyone I want to acknowledge. However, I am genuinely grateful to the many who have taught, supported, and shaped me as a researcher, mentor, and leader.

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Finally, I want to acknowledge my role in this achievement. Unfortunately, women are socialized to downplay their accomplishments and attribute achievements to others. At this moment, I want to openly recognize my commitment to myself throughout this process, my success, and my achievements.

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CHAPTER 1

INTRODUCTION

The intent of this study was to enhance the development and retention of non-tenure track faculty researchers in academic medicine and the biomedical sciences. Faculty development and academic leadership remain critical to the advancement of higher education institutions where the foci are research and teaching (Mathews, 2019). Organizations that center operations around employees' desire to grow create a supportive culture in which individuals' daily experiences and overall working life promote success (Kegan, 2016).

Faculty comprise a significant portion of the employees within higher education. Postsecondary institutions in the United States employed 1.5 million full-time faculty members, from lecturers to full professors, in the fall of 2018 (Hussar et al., 2020). Despite increases in some aspects of faculty diversity overall, the representation of women and Historically Marginalized faculty remains disproportionate to that of White men (McChesney & Bichsel, 2020). Sotto-Santiago et al. (2019) defined Historically Marginalized faculty as "those traditionally racially minoritized and under-represented in academia" (p. 83).

University student populations are often more diverse than those of the faculty (Li & Koedel, 2017). Hussar et al. (2020) stated,

> Of all full-time faculty in degree-granting postsecondary institutions in fall 2018, some 40 percent were White males; 35 percent were White females; 7 percent were

> Asian/Pacific Islander males; 5 percent were Asian/Pacific Islander females; and 3 percent each were Black males, Black females, Hispanic males, and Hispanic females. (p. 151)

In taking a closer look at specific faculty ranks, diversity remains lacking. Gender and representational diversity are higher among early-career faculty but do not ascend to the ranks of tenured faculty (McChesney & Bichsel, 2020). Hussar et al. (2020) found that White men made up the majority of full-time professors and associate professors, while White women were the majority at the levels of assistant professor, instructor, and lecturer. Women and Historically Marginalized faculty are overrepresented in non-tenure track positions and experience greater duty in these roles (Rideau, 2019).

Li and Kodel (2017) identified the science, technology, engineering, and mathematics (STEM) fields as the academic fields with the most significant racial and gender disparities. For women and Historically Marginalized faculty, job satisfaction is more likely to be weakened because of experiences of discrimination (Hesli & Lee, 2013). Campus climates influence the retention of women and Historically Marginalized faculty through perceptions of equitable treatment, time to do one's work, and maintaining authority over work itself (Seifert & Umbach, 2008).

The support and development of faculty members are central to faculty retention. Faculty development is a means for universities to enhance research and teaching outcomes by investing in the success, satisfaction, and growth of the faculty (Kegan, 2016; Mathews, 2019; Simpson, 2017). Within the faculty role, the socialization and development of individual faculty members rely not only on rank, but also on the individual's academic discipline and designated affiliations based on discipline specialty (Simpson, 2017).

The culture of academic disciplines heavily influences the culture of an entire campus and the operations of specific schools within the campus (Simpson, 2017). The changing higher education landscape is creating a new culture for faculty that includes greater variation in employment types among faculty members (DePaola & Kezar, 2017). In recent decades, university faculty positions have transitioned in structure and function (Hurlburt & McGarrah, 2016). Between 2011 and 2018, across all full-time faculty tracks at degree-granting institutions participating in Title IV federal funding, a total of nine percent growth occurred, with the greatest proportion in non-tenure track positions (Hussar et al., 2020).

Regardless of institution type, tenure track roles are declining and more non-tenure track positions are being added to the faculty workforce (Flaherty, 2018). The TIAA-CREF Institute identified the massification of higher education, changes in enrollment patterns, a reduction in available resources, technological advances, and competition from the private sector for highly educated and specialized professionals as the primary factors contributing to the decline in tenure track faculty positions (Kezar, 2013). The likelihood of college students receiving instruction from tenure track faculty is low compared to the likelihood that students will be taught by contingent faculty who are working full- or part-time (Flaherty, 2018).

In 2016, non-tenure track faculty accounted for 73% of instructional positions at all U.S. institutions (Curtis et al., 2019). Annual reports prepared by the American Association of University Professors (AAUP) illustrate the dramatic shifts in the professoriate. When comparing the 2008-2009 report to the 2018-2019 report, data from 870 colleges and universities across the county concluded that non-tenure track faculty working full time increased from 10.1% to 26.6% (AAUP, 2019; Thornton, 2009). At the same institutions during this 10-year period, tenured and tenure track faculty declined by 35% (AAUP, 2019; Thornton, 2009).

The current structure of the academy does not provide a labor system that supports the potential and success of all faculty (DePaola & Kezar, 2017). Non-tenure track positions differ from tenure track positions. These roles often operate on employment contracts, lack the protected academic freedoms of tenure track positions, lack institutional support to promote individual success in job performance, and fall subject to state laws relating to termination (Flaherty, 2018). As such, these positions, by design, are more susceptible to exploitation (Kezar & Sam, 2010). In academia, women and Historically Marginalized faculty often face exploitation reflected in policies and procedures, committee work, and teaching loads (Rideau, 2019).

The absence of non-tenure track faculty in national quantitative research studies limits a broader understanding of their professional experience (Cross & Goldenberg, 2009). Various models have been tested that seek to improve the status of faculty while accounting for new faculty tracks (Kezar, 2013). The greatest consistency among such models exists in medical schools. The lack of studies collecting data on the functions and work experience of non-tenure track faculty members remains a hindrance to institutional and field-specific improvements that would benefit higher education as a whole (DePaola & Kezar, 2017). Studies focusing on women and Historically Marginalized faculty remain critical to enhancing our understanding of non-tenure track faculty and the faculty models that improve work experiences to foster greater satisfaction and retention (Rideau, 2019). The most studied institutional type for examining non-tenure track faculty experiences and proposing models for structuring these positions is the medical school (DePaola & Kezar, 2017; Howell et al., 2010).

In academic medicine, faculty are central to achieving excellence in the areas of clinical care, education, and research. Career planning, professional development, and academic promotion differ among faculty who hold various types of positions within medical schools

(Walling, 2018). For biomedical science faculty, who are the majority of tenured faculty in academic medicine, the modern career path is particularly challenging, yet it is crucial for the future of science (Daniels, 2015).

In the biomedical sciences, recent studies on development center on the experience of trainees, such as graduate students and postdoctoral fellows (Andriole, 2008; Gibbs & Griffin, 2013; Gibbs et al., 2015; McGee et al., 2012; Tilghman et al., 2012). Scholarship has focused explicitly on the need to diversify biomedical sciences and recruitment pipelines (Coronado et al., 2012; Gibau et al., 2010; McGee et al., 2012; Meyers et al., 2018); the need to enhance knowledge and skills to promote readiness for careers outside academia (Byars-Winston et al., 2011; Fuhrmann, 2016; Gibbs et al., 2014; Gibbs & Griffin, 2013; St. Clair et al., 2017); and the importance of trainees' success and well-being as they relate to work–life integration and mental health (Holleman et al., 2015; Lewis et al., 2017; Williams et al., 2017). In comparison, research on the experiences of those who remain in the academy and on the development of biomedical science faculty remains sparse (Daniels, 2015); the research that does exist is often institutionally based and framed as a case study (Howell et al., 2010).

Despite increases in the number of doctoral degrees awarded, the number of tenure track faculty positions in the biomedical sciences has declined over the last 20 years (Tilghman et al., 2012). Between 1993 and 2013, the number of doctoral degrees awarded in the biomedical sciences increased by over 80%. Yet fewer than half of those who earned biomedical doctorate degrees took positions in academia, with fewer than a quarter moving into tenure track faculty positions (National Science Board, 2016).

While the number of tenure track faculty positions in the biomedical sciences is in decline, the number of non-tenure track positions associated with research careers continues to

increase (Daniels & Dzau, 2018; Kahn & Ginther, 2017; National Research Council, 2011; Pololi et al., 2015). Non-tenure track faculty positions differ from tenure track positions in both structure and function. Commonly, non-tenure track faculty conduct scientific research in a lab but do not have the same level of independence as their tenure track principal investigator (PI) counterparts (Daniels, 2015). The National Institutes of Health (NIH) recognizes non-tenure track faculty positions as a career path within academia and offers limited grant funding to non-tenure track researchers (Tilghman et al., 2012). While this funding can be helpful in achieving greater independence, the structure of the development pathway in academic medicine and the biomedical sciences for non-tenure track faculty remains unclear (Daniels, 2015).

The erosion of tenure and the lack of employment stability for non-tenure track faculty continues to be a critical and evolving issue in higher education (Flaherty, 2018). The increase in doctoral degrees awarded, the decline in tenure track roles, and the rise in non-tenure track faculty positions impact the status of scientific research (National Science Board, 2018). With the expectation that the number of non-tenure track faculty positions in the biomedical sciences will continue to increase, there is a need to create systems in academia that support research on faculty development by centering on the understanding of choice, satisfaction, preparation and readiness, and trajectory in the context of career.

Increasing awareness of the career adaptability and retention satisfaction of non-tenure track research scientists has the potential to shed light on the development of this highly skilled faculty population within the academy. Investigating career adaptability and retention satisfaction among women and Historically Marginalized faculty will help improve equity and support professional advancement (Rideau, 2019). Therefore, the purpose of this study was to explore how career adaptability relates to non-tenure track faculty members' satisfaction with

retention. Further, this study examined the relationships between the subscales of career adaptability and retention satisfaction among those underrepresented in faculty roles in academic medicine and the biomedical sciences, including women and Historically Marginalized faculty. The following section describes the background of the problem, highlighting the role of non-tenure track faculty positions in the biomedical sciences and academic medicine and addressing the interplay of biomedical science disciplines and faculty development in the broader landscape of higher education.

Background of the Problem

In the late 1990s, as tenure track career paths became more competitive and less accessible in the biomedical sciences and academic medicine, transitions began to occur within the academic training pipeline (Howell et al., 2010). Increases in funding to support research, coupled with the rising number of doctoral degrees awarded, fueled the growth of postdoctoral fellowship positions to meet training and research productivity needs (Fuhrmann, 2016). With a limited number of tenure track positions available for those concluding postdoctoral training and an abundance of highly skilled scientists seeking to contribute to academic research, a path to a growing number of non-tenure track faculty positions emerged (National Academies of Sciences, Engineering, and Medicine (NASEM), 2018).

Non-tenure track research faculty often complete a postdoctoral fellowship demonstrating trajectory beyond the training process; however, the role is not seen as independent in nature and relies on a PI (Howell et al., 2010). Employing research faculty provides medical schools with highly skilled individuals who can oversee the lab, share administrative tasks with the PI, train others in the lab protocol, manage equipment needs, and work more independently as scientists within the lab (Alberts et al., 2014). Nevertheless, according to the National Research Council

(2011), non-tenure track research faculty positions do not provide individual space, intellectual independence, or independent financial resources.

Non-tenure track research faculty may experience a variety of career outcomes based on personality, self-efficacy, and career adaptability (Cai et al., 2015), impacting their current and future trajectory in the workplace (Öncel, 2014; Tolentino et al., 2014). In part, this trajectory relies on aspects of work and the work role that facilitate retention and the desire to commit to one's work and workplace (Döckel et al., 2006). Practitioners such as career counselors and coaches can utilize knowledge of career adaptability and personal resilience to support constituents through career transitions (Bimrose & Hearne, 2012) and enhance employee retention (Coetzee & Stoltz, 2015). Behaviors in the workplace are affected by an individual's predisposition for the orientation and reaction to positive and negative stimuli (Bipp et al., 2017).

Given the unique structure of non-tenure track positions, the application of career construction theory will help shed light on the experiences and attitudes of individuals who hold these roles. Organizational commitment and the desire to continue in one's career path rely on factors such as compensation, job characteristics, training and development, supervisor support, career opportunities, and work–life policies, all of which contribute to satisfaction (Döckel et al., 2006). Specifically, assessing how personal and group-level characteristics influence career adaptability and retention satisfaction may reveal the influence of situational and personal factors in motivating non-tenure track faculty to cope with the challenges associated with their career development (Cai et al., 2015; Coetzee & Stoltz, 2015; Savickas, 1997; Savickas & Porfeli, 2012).

Studies of non-tenure track research faculty focusing on workers' ability to adapt to changes center on workers' experiences and needs (Bergom et al., 2010; DePaola & Kezar, 2017). Transparency and engagement with the academic appointment structure and promotion processes support all faculty, but are especially important in the retention and satisfaction of Historically Marginalized faculty members (Callahan et al., 2017). Additional studies are needed to investigate the concerns of this unique group of faculty members as higher education institutions continue to face challenges resulting in planning, coordinating, and restricting aspects of faculty roles (DePaola & Kezar, 2017). Identifying a specific problem or set of related issues provides insight into a research study's structure to inform practitioners and guide leadership in shaping and advancing policies and procedures while supporting satisfaction and retention. The next section will outline the statement of the problem.

Statement of the Problem

While non-tenure track faculty positions continue to see the largest growth among faculty roles in academic medicine and the biomedical sciences, among other fields (Meyers et al., 2018), the current structure of these positions hinders career advancement (Daniels, 2015). Within academic medical institutions, these positions lack access to many of the faculty development opportunities available in clinical roles, teaching-based positions, or tenure track positions (Alberts et al., 2014). For the most part, non-tenure track researchers in academic medicine and the biomedical sciences are not independent from PIs scientifically, financially, or professionally (Meyers et al., 2018; NASEM, 2018). The financial tie between PIs and non-tenure track researchers structures the role more closely to that of a scientific training step than an independent career path (Howell et al., 2010), as non-tenure track faculty tend to be subject to

the strategic initiatives and sources of funding supporting tenure track PIs, who may act as supervisors or mentors (National Research Council, 2011).

In the next decade, as the number of non-tenure track research faculty in the biomedical sciences continues to grow, these individuals will undoubtedly face ongoing challenges. These may include insecurity related to funding for salaries, the absence of institutional guidelines and practices promoting equitable levels of professional development, institutional invisibility impacting appointment advancement, and isolation that hinders formation of the networks and mentorship necessary for career independence (Bergom et al., 2010; DePaola & Kezar, 2017). The challenges associated with the role will influence the broader career experience of non-tenure track research faculty as well as the interplay between their work and personal lives (Kezar & Bernstein-Sierra, 2017).

Personal constructivism and social construction shape the way individuals build their careers over time and adapt to professional situations (Savickas, 2013). The longer an individual is in a non-tenure track faculty position, the more negative their professional views become, and the more likely they are to shift their work priorities (Kezar & Bernstein-Sierra, 2017). Non-tenure track research faculty experience a lack of shared governance, the de-professionalization of faculty, and marketization that contributes to low salary and employment status (Kezar & DePaola, 2018). In existing research studies, non-tenure track research faculty report frustration associated with a lack of opportunity for promotion, barriers to engaging in professional development, disconnection from faculty culture, and a lack of clarity others show for their contributions to the research and academic enterprise (Kezar & Bernstein-Sierra, 2017).

Obtaining a deeper understanding of how non-tenure track research faculty use transactional and psychosocial resources to effectively navigate the challenging and multifaceted

environment of the biomedical sciences will support institutional-level improvements in working conditions and professional advancement metrics (DePaola & Kezar, 2017; Flaherty, 2018; Holleman et al., 2015; Meyers et al., 2018; St. Clair et al., 2017). Transactional and psychosocial resources foster emotional support, provide a sense of place attachment and community, and encourage idea development while decreasing isolation (Bergom et al., 2010). According to Bergom et al. (2010), "In today's higher education climate, research-dedicated staff and faculty play a significant role. They not only advance knowledge but also . . . help build and maintain strong reputations for their universities in the wider academic community" (p. 49). Opportunities to engage in meaningful interactions with students (Kezar & Maxey, 2014) and colleagues (DePaola & Kezar, 2017) are vital to combat the frustrations associated with non-tenure track faculty work experiences and to create an inclusive environment in which to work (Bergom et al., 2010).

While studies have begun to shed light on components of non-tenure track faculty experience at research universities (Cross & Goldenberg, 2009; DePaola & Kezar, 2017; Flaherty, 2018; Hurlburt & McGarrah, 2016; Kezar & Maxey, 2014; Maxey & Kezar, 2015), the continual expansion of these positions and the unique factors associated with this academic discipline call for additional research (DePaola & Kezar, 2017). Scholarship that advances our understanding of the non-tenure track faculty experience, the contributions of these faculty to research development, and their ability to adapt to a changing higher education environment is needed to inform university leaders and promote student success and retention (Kezar & Maxey, 2014). The following section will articulate the purpose of the study to demonstrate the specific value of this investigation. The study will add to the existing body of literature by advancing understanding of the relationship between career adaptability and retention satisfaction among

various groups of non-tenure track research faculty in academic medicine and the biomedical sciences.

Purpose of the Study

The purpose of this quantitative study was to explore how career adaptability relates to non-tenure track faculty members' satisfaction with retention. Further, this study examined the relationships between the subscales of career adaptability and retention satisfaction among those underrepresented in faculty roles in academic medicine and the biomedical sciences, including women and Historically Marginalized faculty. This study used the Career Adapt-Abilities Scale (CAAS) created by Mark L. Savickas and Erik J. Porfeli (2012) and the Retention Factor Measurement Scale (RFMS) developed by Andreas Döckel et al. (2006).

The CAAS is a 24-item instrument that measures career adaptability. The framework supporting the instrument noted that the construct of career adaptability encompasses four psychosocial resources—concern, control, curiosity, and confidence—that individuals can use to effectively manage their career development and the changes and challenges they confront in evolving work environments (Savickas, 1997; Savickas & Porfeli, 2012). Previous studies have utilized the CAAS because of the tool's emphasis on adaptability specific to the career, the broad-reaching existing application to multiple populations at various stages in the life-course, the desire to conduct comparative research, and the practicality of using a tool with validity and reliability (Johnston, 2018). The CAAS is the product of researchers from 13 countries working together to develop a scale measuring career adaptability (Savickas & Porfeli, 2012). Testing of this collaborative effort indicated that reliability and validity fell within an acceptable to excellent range in all 13 countries.

The RFMS is a multifactorial self-rating scale that includes 35 items that measure retention satisfaction factors (Ferreira & Mujajati, 2017). It was initially applied in the telecommunications field in South Africa (Döckel et al., 2006). Retention satisfaction factors included in the final scale are compensation, job characteristics, training and development opportunities, supervisor support, career opportunities, and work–life balance (Döckel et al., 2006). The scale is associated with career meta-capacities (Ferreira & Mujajati, 2017), career mobility (João & Coetzee, 2014), and career adaptability (Coetzee & Stoltz, 2015).

Existing studies have demonstrated the CAAS and RFMS questionnaires' ability to support data collection using well-developed questions that are designed and tested to maximize reliability and validity while promoting robust methodological design and transparency. The current study utilized these scales to collect data from non-tenure track faculty members at Research 1 medical schools in the United States. This study informs the scholarly community, higher education leaders, and faculty development practitioners about the adaptability and retention satisfaction of a subset of non-tenure track faculty in academic medicine and the biomedical sciences. The study's purpose, as previously delineated, provides support for the significance of the study, which is described in greater detail in the following section.

Significance of the Study

Higher education contributes to the political, social, and economic viability of society by advancing knowledge (Altbach et al., 1999). By training individuals for professions and fostering scientific development via research and innovation, higher education provides avenues to enhance social mobility and well-being (Birnbaum, 1988). Further, the efforts of higher education institutions increase the quality of civic life, social cohesion, and the ability to adapt and use technologies (Dickeson, 2010).

Faculty members are particularly crucial to higher education because faculty are the driving force behind the predominant functions within a campus (Cahn, 2011). As such, the ability of a higher education institution to achieve its articulated mission relies heavily on faculty members (Manning, 2017). Within academia, faculty are a vital component in fostering student learning, supporting student retention, and promoting student success (Fu, 2018). Faculty members are the largest stakeholder group in teaching and research and act as conduits for implementing essential work functions that support a university's mission (Kezar & Maxey, 2014). Universities seeking to be at the forefront of innovation, creativity, and strong collaborations to support teaching, research, and overall learning must emphasize faculty development, institutional culture, and working conditions to support faculty members, who are essential to influencing student outcomes and achieving institutional goals (de Brey et al., 2019).

The professoriate and the specific structure of faculty positions are changing, such that many studies note the erosion of tenure (Bergom et al., 2010; Curtis et al., 2019; DePaola & Kezar, 2017; Flaherty, 2018; Manson, 2009). Between the publication of the AAUP's 2008-2009 and 2018-2019 *Annual Report on the Economic Status of the Profession*, which included data from 870 colleges and universities, non-tenure track faculty positions grew from 10.1% to 26.6% of all full-time faculty positions. The increase in full-time non-tenure track faculty positions was especially high at doctoral-granting institutions, where research and training are often key priorities (Curtis et al., 2019). In certain disciplines and fields, especially those heavily associated with research, individuals are even more likely to be on the non-tenure track (Kezar, 2013; Maxey & Kezar, 2015).

In a qualitative study by Bergom et al. (2010), many non-tenure track faculty members in research-based positions noted the benefits of working in academia, such as being engaged in the

scientific community; training graduate students; and having access to university resources such as library services, scientific equipment, and technology. In the same study, disadvantages associated with non-tenure track faculty positions at research-intensive universities included financial and job insecurity, a lack of role clarity, limited access to peer networking, and feeling marginalized or disrespected by colleagues and administrators who see non-tenure track faculty as inferior to their tenure track counterparts (Bergom et al., 2010). Thus, for both the institution and for non-tenure track faculty, there are positives and negatives associated with clarity and consistency among roles. With greater emphasis on inclusion and professional development opportunities for non-tenure track faculty, institutions and individuals in non-tenure track faculty positions may see significant, long-term benefits towards achieving goals (Flaherty, 2018; Kezar & Maxey, 2014; Kezar & Sam, 2010).

The four primary models for non-tenure track faculty are the adjunct, full-time non-tenure track, medical/clinical, and for-profit/online models (Kezar, 2013). Kezar (2013) noted,

> While each of these models has emerged in response to an external driver (e.g., adjuncts to address the need for a flexible workforce), no model has been intentionally designed and deployed with long-term institutional goals in mind, with perhaps the exception of the medical school model. (p. 1)

Medical schools have worked to shape commonalities among faculty tracks; however, greater emphasis is placed on tracks associated with medical education and clinical care (Walling, 2018). The research community's recent calls for improvement in training, career development, diversity and inclusion, funding, and clearer research achievement metrics note the importance of academic institutions and medical schools for the future of science and innovation (Meyers et al., 2018; NASEM, 2018).

As the number of tenure track positions remains flat, the average age of PIs achieving scientific independence through grant funding increases. NIH award funding in the United States remains highly competitive among researchers and academic institutions. Universities risk losing national and international status and recognition in idea generation and discoveries, limiting their contributions to advancements in health and human wellness (NASEM, 2018).

For those who seek to be hired into tenure track positions, these factors create a highly competitive and challenging climate (Crockett, 2014; Gibbs et al., 2014; Kahn & Ginther, 2017; McGee & Keller, 2007; Meyers et al., 2018; National Research Council, 2011; St. Clair et al., 2017). According to the NASEM (2018), "Among the most salient of these challenges is the gulf between the burgeoning number of scientists qualified to participate in this system as academic researchers and the elusive opportunities to establish long-term research careers in academia" (p. 1). Competition for faculty positions and issues associated with funding and structure impair the culture within the academic biomedical sciences and the advancement of the biomedical science workforce (Meyers et al., 2018). Scientific progress relies on highly trained and skilled individuals to carry out studies (Crockett, 2014; Gibbs et al., 2014; Kahn & Ginther, 2017; McGee & Keller, 2007; Meyers et al., 2018; National Research Council, 2011; St. Clair et al., 2017). However, higher education institutions have an opportunity to establish new policies and procedures relating to non-tenure track research positions in the biomedical sciences that would support the ability of the U.S. to remain globally competitive in scientific development and advancement (Kahn & Ginther, 2017).

Research reports from the National Science Foundation, NIH, National Academies of Sciences, and individual scholars continue to highlight the need for additional research on all aspects of biomedical sciences careers. The current study examined information critical to the

development of future scientists in the academy to help higher education institutions respond effectively to current and future challenges through reactive and proactive steps, policies, and procedures. Improving institutional supports for faculty development and faculty careers requires an enhanced understanding of how career and life experiences blend together to shape choices and decision making in the work environment.

The concept of career adaptability provides an understanding of motivational, social-cognitive, and developmental adaptions while accounting for time, place, and social role (McAdams & Pals, 2006 p. 208), leaving adaptability susceptible to environmental and cultural influences (Einarsdóttir et al., 2015). Adaptability is central to career success (Sullivan & Baruch, 2009) and becomes increasingly desirable as career patterns are influenced by economic, social, and technological change (Johnston, 2018). The exploration of indicators relevant to academic culture supports career adaptability, development, and retention (St. Clair et al., 2017).

Studies exploring gender and race as predictors of career adaptability are needed to increase understanding of personal strengths and other positive psychosocial resources critical to career trajectories (Harry & Coetzee, 2013). In the biomedical sciences, research on the retention of Historically Marginalized faculty is critical to institutions' ability to address coaching and mentoring needs and the development of doctoral-level scientists (McGee et al., 2012). Additional studies are needed to illuminate how perceptions of retention factors support adaptive behavior among individuals working in the biomedical sciences (St. Clair et al., 2017). The emphasis on the self that is central in the study of career adaptability (Savickas, 2013) is closely related to retention factors demonstrating satisfaction and employee commitment (Döckel et al., 2006). Combining these essential factors of career development can provide scholars and

practitioners with a guide for conducting research and implementing career counseling practices that are vital to a healthy academic work culture (Sibunruang et al., 2016).

Career construction and intervention rely heavily on the individual as an actor, agent, and author who develops through work and other social roles (Savickas, 2013). Recognition of the self and one's relationships with others facilitates the ability of non-tenure track faculty to navigate challenges and rewards in the workplace and assess achievements for promotion (Bergom et al., 2010; Hur et al., 2017; Kezar, 2013; Kezar & Bernstein-Sierra, 2017; Kezar & DePaola, 2018; Kezar & Sam, 2011). There is a critical need to improve the model for and approaches to structuring non-tenure track research faculty positions in higher education, given that the U.S. is the global leader in biomedical science research and higher education institutions are key stakeholders supporting the longevity of the scientific ecosystem (NASEM, 2018).

Acknowledging COVID-19

Perhaps now more than at other points in time, higher education institutions and faculty members face a pivotal moment shaping their careers. In early 2020, the global COVID-19 pandemic began sweeping through the United States and continues nearly two years later. The COVID-19 pandemic caused colleges and universities to pivot quickly from offering the majority of their courses face-to-face to implementing online learning (Daumiller et al., 2021). In addition, research dramatically slowed or came to a halt at the onset of the pandemic, and for some labs, staffing challenges are expected to continue (Radecki & Schonfeld, 2020). Further, widespread hiring freezes were particularly impactful to non-tenure track faculty, who already faced employment insecurity that influenced their well-being (Mead et al., 2021).

Those with research-based careers reported additional challenges as a result of the pandemic. Johnson et al. (2020) described the financial impact scientists faced because of

COVID-19, finding that more than one in four scientists reported experiencing monetary challenges with at least one grant. Additionally, disruptions in conducting research not only impact current productivity but also affect long-term research efforts, collaborations, and career advancement (Myers et al., 2020). Non-tenure track faculty researchers reported difficulty concentrating on research efforts and increased anxiety regarding their health and the health of those in their lives (Johnson et al., 2020). When compared to tenure track colleagues, those in non-tenure track teaching positions reported greater increases in teaching loads and other academic responsibilities during the pandemic (Washburn et al., 2021).

This study was conducted during this global pandemic. As such, this study collected data and seeks to contribute to the field during a unique time. While the study did not specifically explore the impact of the COVID-19 pandemic on the career development of non-tenure track faculty, it is critical to acknowledge this context because of the significant reshaping of lives caused by this traumatic experience. The research questions and hypotheses of the current study considered career adaptability and retention satisfaction among non-tenure track faculty in the biomedical sciences and academic medicine and the unique career experiences of faculty who are underrepresented in this field based on gender and ethnicity.

Research Questions and Hypotheses

Fluctuations in the biomedical sciences support the need for research on faculty career tracks in academia (Meyers et al., 2018). Given the complexities of non-tenure track faculty work roles, exploration of individual and institutional factors associated with career advancement and retention satisfaction is critical to the career development of individuals in these roles (Kezar & DePaola, 2018). In light of the need for modern faculty careers to fit workers' lives, the

construct of career adaptability can illuminate aspects of the development, identity, and context of non-tenure track positions (Savickas, 2013).

Further, the experiential components of work facilitate adaptability and retention satisfaction. Workers' ability to adapt and the workplace characteristics that promote retention vary based on individual workers' experiences. Women and members of Historically Marginalized racial or ethnic groups report vastly different work experiences from those of their White male colleagues (Eagan & Garvey, 2015). Given that women and Historically Marginalized faculty are overrepresented in non-tenure track positions, greater understanding of adaptability and retention is needed (Rideau, 2019). Perceptions of the work environment, tasks, and relationships with colleagues characterize challenging situations that influence career advancement and satisfaction.

Research Questions

The following research questions were examined in the study:

R1. Among non-tenure track faculty in academic medicine and the biomedical sciences, does career adaptability relate to retention satisfaction?

R2. Among non-tenure track faculty in academic medicine and the biomedical sciences, is there a difference in career adaptability between women and men?

R3. Among non-tenure track faculty in academic medicine and the biomedical sciences, is there a difference in career adaptability between faculty who are White and faculty who are Historically Marginalized?

R4. Among non-tenure track faculty in academic medicine and the biomedical sciences, is there a difference in retention satisfaction between women and men?

R5. Among non-tenure track faculty in academic medicine and the biomedical sciences, is there a difference in retention satisfaction between faculty who are White and faculty who are Historically Marginalized?

Null Hypotheses

The following null hypotheses were tested in the study:

H01. Among non-tenure track faculty in academic medicine and the biomedical sciences, there is not a relationship between career adaptability and retention satisfaction.

H02. Among non-tenure track faculty in academic medicine and the biomedical sciences, there is not a difference in career adaptability between women and men.

H03. Among non-tenure track faculty in academic medicine and the biomedical sciences, there is not a difference in career adaptability between faculty who are White and faculty who are Historically Marginalized.

H04. Among non-tenure track faculty in academic medicine and the biomedical sciences, there is not a difference in retention satisfaction between women and men.

H05. Among non-tenure track faculty in academic medicine and the biomedical sciences, there is not a difference in retention satisfaction between faculty who are White and faculty who are Historically Marginalized.

Research Design

The research design of the study was an ex post facto design. Data from non-tenure track faculty conducting research at Research 1 medical schools or medical colleges were collected via Qualtrics, an online survey data collection tool. Following questions that prescreened participants for the study, the survey collected data on career adaptability, retention satisfaction, professional attainment, and personal demographics.

Definition of Terms

Career adaptability encompasses four psychosocial resources individuals can use to manage their career development: concern, control, curiosity, and confidence. These concepts are defined below. These resources help employees effectively manage career changes and challenges in evolving work environments (Savickas, 1997; Savickas & Porfeli, 2012).

Career adaptability is defined by Savickas (2005) as a "psychosocial construct that denotes an individual's readiness and resources for coping with current and imminent vocational development tasks, occupational transitions, and personal traumas" (p. 51).

Concern is the extent to which an individual is oriented toward the future and inclined to anticipate and prepare for career moves. It is described with adjectives such as aware, anticipating, involved, planful, and preparing (Hall, 1996; Porfeli et al., 2011; Savickas & Porfeli, 2012).

Control is the extent to which an individual assumes responsibility for building a career. It is described with adjectives such as conscientious, responsible, assertive, reliable, and disciplined (Hall, 1996; Porfeli et al., 2011; Savickas & Porfeli, 2012).

Curiosity is the extent to which an individual tends to imagine possible selves, explore opportunities, and gather information. It is described with adjectives such as open, inquiring, probing, searching, investigative, and aspiring (Hall, 1996; Porfeli et al., 2011; Savickas & Porfeli, 2012).

Confidence is the extent to which an individual has faith in their ability to make wise career decisions and succeed in reaching occupational goals. It is described with adjectives such as resilient, innovative, problem solver, efficient, and persistent (Hall, 1996; Porfeli et al., 2011; Savickas & Porfeli, 2012).

Retention satisfaction uses a set of specific factors identified by Döckel et al. (2006) that encourage employee retention. These factors include compensation, job characteristics, training and development opportunities, supervisor support, career opportunities, and work–life balance (Coetzee & Stoltz, 2015; Döckel et al., 2006).

Compensation pertains to monetary payments, rewards, and incentives through benefits, raises, and policies and procedures involving these items (Döckel et al., 2006).

Job characteristics encompass work content, job tasks, skill variety, and job autonomy for the worker (Döckel et al., 2006).

Training and development opportunities offer the ability to learn and exchange information and the opportunity to increase knowledge and enhance skills (Döckel et al., 2006).

Supervisor support refers to behaviors of one's supervisor connected to employee reward and recognition (Döckel et al., 2006).

Career opportunities relate to perceptions of available opportunities to build knowledge throughout one's career that facilitate one's ability to advance within the organization. They also encompass perceived organizational policies for filling vacancies (Döckel et al., 2006).

Work–life balance is associated with the ability to have a flexible schedule, benefits relating to family leave and dependent care, and the recognition of one's work relationship to one's personal life (Döckel et al., 2006).

Historically Marginalized faculty (HMF) in higher education include, "those traditionally racially minoritized and under-represented in academia. This group may include Black/African American, Hispanic/Latinx, Native American, Pacific Islander, and specific groups within the Asian American community" (Sotto-Santiago et al., 2019, p. 83).

Summary and Organization of the Study

This quantitative study investigated career adaptability and retention satisfaction among non-tenure track research faculty in academic medicine and the biomedical sciences, a career track experiencing rapid growth in higher education institutions across the country. The purposes of this study were to better understand the relationship between career adaptability and retention satisfaction and to examine the unique career experiences of faculty who are underrepresented in this field based on gender or ethnicity.

This manuscript consists of five chapters forming the doctoral dissertation. Chapter 1 provided an introduction, described the background of the problem, identified the statement of the problem, and established the purpose of the study. Further, Chapter 1 explained the significance of the study, acknowledged the context of COVID-19, identified the research questions and research design, defined key terms, and provided a general summary of the study. Chapter 2 will review the research literature related to career development theory, career adaptability, retention satisfaction, career experiences of women and Historically Marginalized faculty, and the state of the academic medicine and biomedical sciences ecosystem. Chapter 3 will describe in detail the research methodology and procedures used to carry out this study. Chapter 4 will explain the results. Chapter 5 will review the study's findings, conclusions, and limitations and recommend avenues for future research.

CHAPTER 2

LITERATURE REVIEW

At face value, the data on faculty positions in the U.S. would indicate an overall growth in faculty positions. However, a closer look reveals significant variation among faculty roles (Curtis et al., 2019). AAUP reports between 2008 and 2018 found that the most significant growth in faculty roles occurred in full-time, non-tenure track faculty positions. Further, in 2016, doctoral-granting universities reported the greatest increases in full-time, non-tenure track faculty. As the professoriate diversifies, institutions must recognize the need for changes in working with faculty members and addressing faculty concerns, which includes acknowledging how the structure of institutional systems and policies treats tenure track and non-tenure track faculty in very different ways (Bergom et al., 2010; DePaola & Kezar, 2017; Kezar & Bernstein-Sierra, 2017; Kezar & DePaola, 2018; Kezar & Sam, 2011; Maxey & Kezar, 2015).

As faculty positions have grown in number to accommodate the changing climate of higher education, Cross and Goldenberg (2009) noted the importance of clear and accurate data collection to make accurate comparisons across tracks and within institutions. Scholars who wish to study faculty members, and institutions desiring to improve faculty development approaches, need the ability to collect data that will enhance their understanding of the non-tenure track faculty experience, not just data providing the basic demographic characteristics of faculty (Cross & Goldenberg, 2009). In fact, because non-tenure track faculty have been trained and socialized in the same disciplines, culture, and institutions, their professional expectations,

values, and career goals are similar to those of their tenure track colleagues (DePaola & Kezar, 2017; Kezar & DePaola, 2018; Schuster & Finkelstein, 2008).

The decline in tenure track positions and changes in research funding facilitate growth in the number of non-tenure track faculty working in the biomedical sciences (Andriole, 2008; Lewis et al., 2017; St. Clair et al., 2017; Thakore et al., 2014). As tenure erodes and full-time non-tenure track faculty become more numerous, it is essential for university leaders to recognize that tenure is not the only marker of professionalism for members of the professoriate (Curtis et al., 2019; Kezar, 2013). Non-tenure track faculty as a group possess the same quality, dedication, and academic values critical to enhancing their fields and supporting institutional goals as their tenure track peers (Kezar & DePaola, 2018).

While scholars have sought to increase understanding of the circumstances impacting the academic research enterprise, there is a paucity of scholarship available on non-tenure track research faculty experiences. Specifically, a lack of studies examining the internal psychological processes that facilitate or hinder career transitions and career satisfaction limits the ability to improve work culture. An understanding of career satisfaction is vital for creating systematic and institutional frameworks that contribute to faculty development and the continued growth of the scientific enterprise.

The interplay between personal characteristics and career adaptability informs scholars and practitioners committed to developing the individuals and groups that are central to research and training within the academic biomedical sciences. Large research institutions are often models, both nationally and internationally, of best practices in higher education (Cross & Goldenberg, 2009). Thus, when non-tenure track faculty are responsible for the bulk of teaching

or research initiatives, addressing challenges and inequities facing thius group becomes key if the U.S. wishes to maintain its status as a global higher education leader (Kezar & DePaola, 2018).

Chapter 2 highlights the research in higher education describing career adaptability and retention satisfaction within the academy and narrows to the application of these concepts in the context of academic biomedical sciences. The chapter begins with a review of the landscape of higher education for faculty appointments, with special emphasis on faculty models in medical schools. The chapter then discusses theories that are foundational to assessing the contextualization of various factors of career choice behavior, identity, and self-perceptions, including career construction theory, social cognitive theory, and the theory of social capital.

In the next section, career influences such as motivation, self-efficacy, perceived support, internal and external control, and independence are described. Because careers develop and evolve over time, the concept of career adaptability is central to understanding career experiences and transitions as well as the various aspects of effectively managing career changes and challenges. Further, work satisfaction is driven by factors such as compensation, job characteristics, training and development opportunities, supervisor support, career opportunities, and work–life balance. Factors contributing to work satisfaction support retention. The chapter concludes by reviewing scholarship on vocational development in the biomedical sciences, which illuminates the unique training and discipline-specific characteristics associated with the biomedical science focus areas of academic medicine. Overall, Chapter 2 frames the individual and institutional factors associated with career advancement.

Landscape of Higher Education and Faculty Appointments

As the context of higher education changes, institutional leaders continue to prepare for newly developing faculty appointments, evolving expectations for faculty work, and an

increasing need to prepare future faculty in a climate of ongoing shifts in graduate education (Wulff & Austin, 2004). Higher education leaders focus on reviewing the structure of systems and policies relating to faculty appointments and tracks as a means to address faculty concerns (Curtis et al., 2019; Maxey & Kezar, 2015). Schuster and Finkelstein (2008) observed:

> The turbulent environmental forces challenging the higher education enterprise in the closing decade of the twentieth century include, most tangibly, changes in the composition of the faculty and the nature of their appointments, in the makeup and preparation of student bodies, and in the resources available to higher education; less tangible (but no less momentous) changes have occurred in public expectations for higher education and in technologies that influence how we go about organizing and implementing the teaching and learning enterprise. (p. 19)

Regardless of the type of institution, faculty positions are in the greatest state of flux on college campuses (Hurlburt & McGarrah, 2016), with tenure track roles in decline and non-tenure track faculty comprising the majority in the workforce (Flaherty, 2018). In 2016, non-tenure track faculty accounted for over 70% of instructional positions at all U.S. institutions (Curtis et al., 2019). Each year, the AAUP's *Annual Report on the Economic Status of the Profession* provides a current snapshot of the professoriate. Between the 2008-2009 report and the 2018-2019 report, non-tenure track faculty working full time experienced a 16.5% growth in appointments, while tenured and tenure track faculty declined by 35%.

Non-tenure track faculty operate in highly demanding roles in a system that is not structured to accommodate their positions (Kezar & DePaola, 2018). At most campuses, non-tenure track faculty members are not unified and may be spread across disciplines and academic schools (Bergom et al., 2010). In recent years there have been efforts to unionize or collectivize

non-tenure track faculty as a means to address professional development, tackle concerns, and shape higher education to fit the modern professoriate (Kezar & DePaola, 2018).

The lack of collectivism among non-tenure track faculty is not the only challenge impacting faculty developers on campuses. Underlying assumptions about the approach to work, appointment status, demographic characteristics, and scholarly contributions limit the understanding of the work environment and the adaptability of non-tenure track faculty (Bergom et al., 2010; Flaherty, 2018; Ott & Cisneros, 2015). Rideau (2019) noted that the experiences of Historically Marginalized non-tenure track faculty result from structural systems in higher education that, if addressed, would provide everyone with "the resources and opportunities to be in the best position to succeed" (p. 12). Existing literature points to commonalities among non-tenure track faculty members and tenure track colleagues regarding expectations of disciplines (Bergom et al., 2010; DePaola & Kezar, 2017; Kezar, 2013; Maxey & Kezar, 2015; Ott & Cisneros, 2015). While faculty roles and responsibilities do hold common threads, however, they are not consistent across academic institutions (Schuster & Finkelstein, 2008).

Institutional data collection methods often exclude non-tenure track faculty members or combine all faculty appointments together (DePaola & Kezar, 2017). Instituting systematic approaches to addressing non-tenure track faculty needs is challenging when essential data are lacking or skewed (Kezar & Bernstein-Sierra, 2017). Data collection and studies on university faculty remain critical to continuing to shape higher education in challenging times (Finkelstein et al., 2016). The needs of society, as well as those in specific career fields, help influence advances made in faculty tracks. Because of the teaching and training environment, medical schools are often at the forefront of shaping changes in the academic environment, including those associated with faculty structure and workload (Walling, 2018). Looking deeper into

faculty roles and development in academic medicine reveals the need for additional studies relating to scientific researchers (Meyers et al., 2018).

Faculty Appointments in Medical Schools

Adapting faculty roles entails action, such as the restructuring of academic appointments and shifts in academic work, which reform academic careers (Schuster & Finkelstein, 2008). As in other fields within higher education, faculty appointments in medical schools adapt to meet financial, training, and workforce needs (Bunton & Mallon, 2007). Academic medicine is critical to meeting health care needs and expanding research, which in turn furthers the advancement of U.S. and global society (Coleman, 2014). Rapid advances in patient care and science historically place medical schools at the forefront of shaping commonalities among faculty tracks (Walling, 2018).

In academic medicine and the biomedical sciences, faculty appointments can include full-time and part-time tenure track and non-tenure track positions, clinical appointments, and adjunct and lecturer positions. Within these faculty ranks, titles and credentials vary (Jhala et al., 2017). Faculty appointments consistent with the historical aspects of tenure, where there is an expectation of achieving excellence in teaching, research, and service, are declining (Coleman & Richard, 2011). For the most part, today's tenure track faculty are PIs (Coleman & Richard, 2011). Clinical faculty are more likely to advance in tracks with a flexible definition of scholarship or in non-tenure tracks (Harris et al., 2018). The rise of non-tenure track faculty positions in many fields traces back to academic medicine, where these positions began in the 1980s (Allen & Sweeney, 2017). Non-tenure faculty tracks are common for some clinical faculty and research scientists (Bunton & Mallon, 2007).

Institutional factors such as the number of faculty, the intensity of the research enterprise, and the degree of focus placed on the community contribute to variations in faculty tracks (Coleman & Richard, 2011). In addition, many institutions are working to implement and support flexible policies relating to faculty tracks and roles as a means to support an increasingly diverse faculty population and promote a workplace climate that can operate beyond the career trajectory (Bunton & Corrice, 2011). The longevity of a faculty career relies heavily on the ability of leaders to recognize and foster institutional change and to work collaboratively to enact policies, procedures, and practices that support holistic and long-term career development for faculty members (Wingard et al., 2019).

Career Development Theory

Building on the work of earlier scholars, Super (1953) sought to provide a holistic theory of vocational development that considered the changes and transitions occurring within a career, such as stage, choice, entry, and adjustment. Further, Super brought awareness to fluctuations individuals experience in interests, capacity, values, and opportunities in times when these processes are in compromise (Schuster & Finkelstein, 2008). Super (1953) defined a "career" as "the series of positions held by an individual throughout the life course" (p. 189).

Super highlighted the concepts of "life-span" and "life-space" as interactive elements that shape a career (Super, 1980). According to Super (1980):

> Enhancements in career development theory encourage scholars and practitioners to treat decision points more adequately, and to incorporate also the various personal and social determinants of the use of life-space in the occupying of career positions and in the playing of roles during the course of the life career. (p. 283)

Super's (1980) theory considers that people will hold multiple roles (e.g., partner, parent, worker, homemaker) at one time, and these roles increase and decrease in importance throughout the life span (Super, 1980). Individuals' work roles are influenced by finding adequate outlets for their abilities, interests, personality traits, and values (Slocum, 1959; Super, 1953, 1980; Tiedeman et al., 1972). Viewing one's career role as enjoyable and applicable depends on one's personal growth and experiences, which also influence overall work and life satisfaction (Super, 1953, 1980).

As in other fields, career development theory in academic supports understanding the experiences of individual faculty members and groups of faculty members, centralized around socially constructed identities (Baldwin, 1990). Key attributes of the life-span approach to career development theory are applicable to faculty careers, as the faculty path includes specific points at which vitality, adaptability, and relationships contribute to career-related well-being, success, and satisfaction (Cruz & Herzog, 2018). For some faculty members, transition points provide opportunities to adapt and shape their roles in new ways, while for others these transition points result in career stagnation (Baldwin, 1990).

Career development theory includes the ability to assess behaviors of self and others and the interplay between the two in relation to career outcomes (Lent et al., 2017). Faculty engage in the development of students and colleagues throughout their careers, and as a result influence these students' and colleagues' careers (Cruz & Herzog, 2018). The vitality and work satisfaction of faculty thereby rely on sustained and close relationships with students and colleagues.

An important component of career development theory is that individuals' abilities and interests related to their occupation provide them with compatible requirements and rewards

(Savickas, 1997). Qualitative research on the vitality of senior faculty identified interactions with students and colleagues, the enjoyment of work, and the connectedness to their field of study as important indicators that the individuals would choose the same career again and are satisfied in their work (Cruz & Herzog, 2018). These factors become increasingly important as the role of faculty members expands and a variety of faculty career paths continue to emerge (Allen & Sweeney, 2017; Beach et al., 2016). The recruitment, retention, and professional development of faculty members rely heavily on the ability to adapt over time (Allen & Sweeney, 2017; Beach et al., 2016; Cruz & Herzog, 2018). Thus, the construction of faculty careers requires the ability to adapt to evolving demands at any time (Wang et al., 2007).

Career Construction Theory

In its original form, career adaptability is described as a mechanism of readiness, centered on maturity, which is held by adults and aids their ability to handle changes in their work or working conditions (Super & Knasel, 1981). As the nature of work evolved and research studies provided additional data throughout the late 1900s and early 2000s, it became apparent that the shape of the modern career path is less linear than at prior historical points (Savickas, 2013). Career construction theory involves the ideals of career development theory through awareness that modern careers take shape by adapting to fit the lives of individuals (Beck, 1994; Savickas, 2013). The result of regular changes to vocational behaviors shapes the meaning one places on work, which guides the direction of their career (Beck, 1994; Savickas, 2013). Building upon the work of Super, Savickas (1997) enhanced career adaptability by incorporating elements such as identity, development, and context (Johnston, 2018).

Savickas (1997) indicated, “Adaptability means the quality of being able to change, without great difficulty, to fit new or changed circumstances” (p. 254). Career adaptability

provides a single concept to explain development across stages in the life course and fits children, adolescents, and adults (Savickas, 1997). It has been applied to aspects of forming an interest in careers early in life and to schooling decisions for children (Hartung et al., 2008), the pursuit of degrees and areas of study among college students (Douglass & Duffy, 2015; Wessel et al., 2008), and career transitions and the processing of experiences throughout the life course (Chan et al., 2016; Creed et al., 2009; Guan et al., 2016; Johnston, 2018; McMahon et al., 2012; Sibunruang et al., 2016). According to Savickas (2002), "To understand an individual's career, it is important to know and appreciate the web of life roles that connects the individual to society" (p. 159). In life and work, career adaptability functions as a psychosocial construct, acting as a resource for coping with current and anticipated tasks, transitions, and traumas (Savickas, 1997, 2013).

Maturity, planning, exploration, and decision-making in the context of career occur throughout the life span and rely on adaptability as a process of vocational behavior (Savickas, 1997). Applied to career roles, career adaptability shapes and alters an individual's social integration (Savickas, 1997, 2002, 2013). Differentiation between readiness, resources, responses, and results are asserted within career adaptability and career construction theory (Johnston, 2018). Personal constructivism and social construction shape how individuals build their careers (Savickas, 2013).

The emphasis on the self, which is central to career construction theory, provides scholars and practitioners with a guide for conducting research and implementing career counseling practices (Sibunruang et al., 2016). Career construction and intervention rely heavily on an individual as an actor, agent, and author who develops through work and in other social roles (Savickas, 2013). Adaptability is considered central to career success (Sullivan & Baruch, 2009)

and becomes increasingly desirable as career patterns are influenced by economic, social, and technological change (Johnston, 2018). The inclusion of adaptability and identity is a critical element in career construction theory.

As intersections between the person and environment occur, career adaptabilities function through self-regulation and may change over time (Koen et al., 2012; Savickas & Porfeli, 2012; Zacher, 2014b). Vocational tasks, occupational transitions, and work traumas stimulate career changes (Savickas, 2013). Career construction theory emphasizes individuals' ability to self-adapt during transitions, such as by changing positions or employers, revising goals, or entering an unfamiliar space (Savickas, 2013). Developmental dimensions, including planning, exploring, and deciding, are central to the conceptualization of adaptability and career construction theory (Savickas, 1997). Characteristics of career construction theory support the function of several elements of the field of higher education and actions within institutions that carry out their mission, such as teaching and training current and future members of the workforce.

Several studies have focused on the experiences of students and the process of preparing these students to enter employment fields (Douglass & Duffy, 2015; Tuna et al., 2014; Urbanaviciute et al., 2016). Because career adaptabilities act as predictors of positive outcomes, Tuna et al. (2014) researched the effects of academic advising on the career construction of students studying tourism and hotel management. The researchers found that intellectual and affective academic advising approaches led to positive effects on students' career adaptabilities.

Douglass and Duffy (2015) found that career calling related to higher levels of career adaptability, which had positive mediating effects on career decisions and self-efficacy among students.

Career construction and adaptability are important factors in objective and perceived fit with academic major and major-related outcomes (Wessel et al., 2008). In a study by Wessel et al. (2008), relationships providing support proved important to major-related academic outcomes among undergraduate students. More specifically, those with higher adaptability reported greater institutional satisfaction, higher grade point averages and affective commitment, and a lower probability of changing their academic major. Career construction extends beyond the student population and provides guided understanding of faculty roles.

The influence of faculty and advisors is central to the career trajectory of graduate students (Gibbs et al., 2015; Kahn & Ginther, 2017; St. Clair et al., 2017). Savickas (2011) emphasized that creating a narrative for potential new career trajectories relies on a process of co-construction. Vocational counselors who participate in conversations and dialogues with advisees use experiences, expectations, and goals to develop a narrative regarding their career and career trajectory. For those pursuing faculty positions, it is often the primary mentor and graduate committee who guide the construction for entering careers (Gibbs et al., 2014). For those seeking tenure track assistant professor roles or research associate positions, Wang et al. (2007) found that career construction was critical to the job search and position attainment processes, particularly for international scholars seeking roles outside their home country. For individuals pursuing academic careers, the success of a job search is directly related to continued achievements early in the career, as well as the attainment of promotion and tenure, thus pointing to the need to be aware of adaptability over time.

Adaptability Research and Career Outcomes

Adapting through tasks, transitions, and traumas requires behaviors such as orientation, exploration, establishment, management, and disengagement (Savickas, 2013). In such

circumstances, value and meaning are established through the four psychosocial constructs that form career adaptability: concern, control, curiosity, and confidence (Einarsdóttir et al., 2015). As an individual places value and meaning in work, demonstrations of motivation, engagement, empowerment, career development, job satisfaction, performance, and personal fulfillment increase (Rosso, 2010).

Career adaptability applies self-regulation strategies to self-concepts of work (Einarsdóttir et al., 2015). Work follows certain social constructs, requiring people to adapt in an effort to pursue an occupation and sustain a placement in society (Savickas & Porfeli, 2012). The body of research utilizing career adaptability is broad, supporting application throughout the career life course and within different societal cultures (Brown et al., 2012; Celen□Demirtas et al., 2015; Chan et al., 2015; Chan et al., 2016; Duffy et al., 2015; Fiori et al., 2015; Guan et al., 2015; Johnston, 2018; Luke et al., 2016).

The application of career adaptability across stages and employment sectors suggests characteristics that may support non-tenure track research faculty. Applying the framework of career competencies and the use of formal and informal learning, Brown et al. (2012) found that positive mid-career changes resulted from the adoption of behaviors that fostered skill development. The application of career adaptability competencies supports coaching and counseling in mid-career when there is

> a shift away from traditional and static concepts of employability, to more of a focus on career adapt-ability, with the goal of supporting individuals to become more resilient and able to manage both risk and uncertainty in fast changing, unpredictable education, training and employment contexts. (Brown et al., 2012, p. 760)

The turnover of employees is directly impacted by career satisfaction and promotability, which are heavily controlled by organizational culture (Chan et al., 2016). When individuals are able to access experiences and training that enhance skills and learning, the potential for being promoted and retained is higher. In part, Chan et al. (2016) noted the importance of implementing "a fair and transparent promotion policy using clear requirements (i.e., minimum tenure in the organization, performance records, etc.) and measurable outcomes rather than depend[ing] on the subjective evaluation of the immediate supervisors" (p. 173). Clarity in policies and procedures related to the function of the position, agency over one's own work tasks, and pay equity all contribute to the positive perception of departmental culture and the overall campus climate (Seifert & Umbach, 2008). The influence of higher education's cultural and social contexts presents unique challenges and benefits for those working in the academic environment (Andriole et al., 2017; Ginther et al., 2011; Hur et al., 2017; Trejo, 2017).

Understanding career adaptability both in the academy and within specific disciplines can foster advancements in faculty development (Steinert, 2020). In particular, Celen-Demirtas et al. (2015) found that achievements and social leisure aid in adjusting to changes in work and support subjective well-being, which was a predictor of career adaptability. As faculty members experience new demands that may influence their overall career satisfaction (Kraimer et al., 2019), opportunities for retention, promotion, networking and mentoring relationships, and overall career success for non-tenure track faculty (Kezar, 2013; Kezar & Maxey, 2014; Kezar & Sam, 2010; Waltman et al., 2012) become essential to the longevity of careers in higher education (Gillespie & Robertson, 2010; O'Sullivan & Irby, 2011; Sorcinelli et al., 2006).

While certain personal dispositions promote career success, career adaptability acts as a transactional and self-regulatory process to positively predict career satisfaction and self-rated

career performance (Zacher, 2014a). Career adaptability is a key contributor to the capacity to update existing skills and develop new skills (Lent & Brown, 2017). Employees satisfied with their career achievements and professional welfare are more likely to be satisfied by their career prospects and less likely to move outside of an organization (Chan & Mai, 2015). When individuals are highly secure in job situations, career success and future career perspective are increased (Spurk & Abele, 2014). However, when job situations are viewed as insecure, individuals report feelings of reduced control over their career future (Maggiori et al., 2013).

Career satisfaction and success are conceptualized differently in different occupational groups (Spurk & Abele, 2014). In relation to outcomes and the sense of workplace success, the way the occupational structure is viewed contributes to the efficacy that influences promotional dimensions of occupational mobility (Johnson & Mortimer, 2002). Career mobility and adaptability are positively influenced by the attainment of a college degree and increase further with advanced degrees (Chan & Mai, 2015). Among those who are high achievers, higher levels of career adaptability are associated with greater career planning activities and positive outlooks on the vocational future (Negru-Subtirica & Pop, 2016).

Regardless of the complexity of a career, career adaptability predicts job performance ratings. However, the association between mental ability and job performance ratings is stronger in high complexity jobs (Ohme & Zacher, 2015). Career adaptability has shown the capacity to mediate a positive relationship with happiness and a negative relationship to work stress (Johnston et al., 2013). For faculty members, particularly those in STEM fields, job satisfaction and happiness are essential in supporting their retention and advancement (Taylor et al., 2017).

Career Success, Satisfaction, and Retention

Ng et al. (2005) defined career success as both the objective and subjective outcomes associated with an individual's accumulated work experiences. Career satisfaction develops through feelings of pride gained from career achievements (Johnston et al., 2013). Organizational experiences, mentorship, sponsorship, supervisory support, organizational acceptance, and career strategies facilitate the development of one's career competencies and attitudes toward the employer (Culié et al., 2014; Fleisher et al., 2014).

Career satisfaction and success are also subject to contextual influences, such as culture and organization (Spurk et al., 2019). Career satisfaction relies on factors that encourage and motivate staff retention (Döckel et al., 2006). Compensation, job characteristics, training and development opportunities, supervisor support, career opportunities, and work–life balance influence employee satisfaction levels (Coetzee & Stoltz, 2015; Döckel et al., 2006). Organizational policies and practices further contribute to the retention of employees and influence overall employee engagement (Ferreira & Mujajati, 2017).

Employees' perceptions of their career success may be impacted by satisfaction levels with organizational retention factors (Coetzee & Stoltz, 2015; Döckel et al., 2006). Career satisfaction and success are the convergence of an individual's abilities and interests in relation to a position's associated requirements and rewards (Savickas, 2002). Extrinsic rewards, such as salary and occupational prestige, and intrinsic factors, such as satisfaction experienced in occupational life, influence career success (Converse et al., 2012; Ng et al., 2005) and are associated with retention (Döckel et al., 2006). Career success encompasses psychological feelings and work-related outcomes, which are accrued through one's experiences at work (Converse et al., 2012; Judge et al., 1995; Ng et al., 2005).

Employees who are satisfied with their work achieve greater productivity and work-based outcomes, in addition to reporting higher levels of life satisfaction and overall well-being (Dik et al., 2013). When dimensions of the role held, perceptions of the profession, the collegial climate, and overall tolerance contribute to positive feelings of career satisfaction, future employability is positively influenced (Converse et al., 2012). Employee engagement supports goal achievement and facilitates retention through perceptions of career success (Coetzee & Harry, 2014; Coetzee & Stoltz, 2015; Döckel et al., 2006; Ferreira & Mujajati, 2017; João & Coetzee, 2014).

For many faculty, career decision-making is positively and negatively influenced by work experiences and external factors (Seibert et al., 2016). Positive influences facilitate the achievement of goals, while negative influences tend to perpetuate a desire to assess career transitions and are more likely to facilitate turnover (Seibert et al., 2013). Equity and distribution of labor are particularly important to faculty satisfaction and the ability to meet success markers (O'Meara et al., 2019).

Regardless of the stage within a faculty position, there are positive and negative influences affecting career success and satisfaction (Kraimer et al., 2019). Both tenure track and non-tenure track faculty members experience new and often competing demands that decrease their ability to achieve academic success and overall career satisfaction. Non-tenure track faculty report challenges associated with establishing the psychosocial relationships and networks that improve the career success outcomes and career satisfaction of their tenure track colleagues (Kezar, 2013; Kezar & Maxey, 2014; Kezar & Sam, 2010; Waltman et al., 2012).

Variation in equity and equality extends beyond faculty tracks, as the contextual and cultural work experience varies for faculty members with diverse demographic characteristics (Seifert & Umbach, 2008). Women and Historically Marginalized faculty report participating in

teaching, mentoring, and service at higher rates, which relates to their reported levels of satisfaction, perceived equity, and overall retention (O'Meara et al., 2019). Women and Historically Marginalized faculty also report experiencing a less welcoming environment in higher education than White men (Eagan & Garvey, 2015).

Overall, colleges and universities lack the representation, symbolism, and cultural inclusion of women and Historically Marginalized faculty that would foster a sense of voice and belonging (Li & Koedel, 2017). Further, outdated and biased policies and procedures continue to uphold a system in which White men are situated at the highest levels of success (Delgado & Stefancic, 2017). In certain fields, the adherence to tradition in academic structure and culture hinders women and Historically Marginalized faculty from full participation (Li & Koedel, 2017). Within higher education, multiple stakeholders must continue working to increase awareness of both the explicit and implicit gender and racial bias that exists in the professoriate (Delgado & Stefancic, 2017).

Career Adaptability and Retention of Women

The entrenchment of gender stereotypes and bias, combined with outdated image of the ideal worker, continue to impact working women negatively (Kossek et al., 2010). In the global workforce, men are represented in greater numbers than women (Peila-Shuster, 2017). Careers are established largely through self-concept, in which people combine personalities and inner needs with outer opportunities through the application of past experiences and aspirations (Savickas & Porfeli, 2012). Career aspirations and work engagement are closely tied to individual identity and career adaptability (Porfeli et al., 2011). Social constructs of gender and women's roles are reflected across employment sectors and throughout the structural levels of

organizations, resulting in challenges accessing the tangible and psychosocial resources that foster positive career trajectories (Peila-Shuster, 2017).

For women, career adaptability heavily involves social networks and the broader sociopolitical systems in which they work and reside (McMahon et al., 2012). Women reported higher barriers to accessing career information through career networks and lower levels of career support from family and friends (Ferrari et al., 2017). Support from others within one's organization and field, in addition to relationships held outside the organizational environment, connect to employee satisfaction with retention factors (Döckel et al., 2006). While organizations commonly emphasize work–life initiatives to support and retain employees, these often reveal systematic and structural factors that negatively influence the work experience of women (Kossek et al., 2010).

Identity and modeling in the workplace are important for women during times of change, when higher levels of adaptability promote career transition processes (McMahon et al., 2012). According to Peila-Shuster (2017), "Career control is not about independence, but instead consists of intrapersonal self-discipline and being conscientious, intentional, and decisive when engaged in career developmental tasks and transitions" (p. 290). Given women's lack of representation in senior leadership positions and the resulting constraints on their ability to serve as change agents in managerial roles, modeling aspects of adaptability may come with limitations for women (Abendroth et al., 2017). Sibunruang et al. (2016) found that "the significant indirect effect of career adaptability on supervisor-rated promotability through ingratiation is stronger for those who receive greater career sponsorship from their supervisors" (p. 142). Individuals who feel support from their supervisor are more inclined to make a

difference on the job, try out new skills, exercise discretion, and receive feedback on their performance, which increases positive associations with retention (Döckel et al., 2006).

Career development reduces the impact of gender stereotypes while generating increased employability, career resilience, and career adaptability for women (Maree, 2017). In male dominated STEM fields, career development, supportive supervision, identity models, and changes in gender-biased policies and procedures are essential to fostering career adaptability and retention (Peila-Shuster, 2017). Women in faculty positions have different work experiences than their White male colleagues (D'Armiento et al., 2019; Gibbs et al., 2014; Remich et al., 2016; Sabharwal & Corley, 2009; Villablanca et al., 2011; Wood et al., 2016). In the research-intensive environment at Research 1 institutions, fields including biology, chemistry, and physics label women as less competent, less hirable, and less deserving of mentorship (Moss-Racusin et al., 2018). In the life sciences, women are less likely to be hired or trained in an elite male's lab, and research labs with alumni who move into assistant professor roles are more likely to train and employ male postdoctoral fellows (Sheltzer & Smith, 2014).

Gibbs and Griffin (2013) noted that the "pipeline" is not the only problem. Even where there are enough women in the "pipeline" to fill faculty roles and leadership positions, the exclusion and unequal treatment women encounter in the academy cause many of them to leave and pursue other fields. Thus, women often make different career choices before entry into the professoriate or as early- or mid-career faculty. While the number of doctoral degrees awarded to women in science areas continues to increase, a significant decline in the number of tenured academic positions, coupled with a considerable expansion of the requirements for publications and team-based science, can make it difficult for women to maintain careers in research (Milojević et al., 2018). The bias and discrimination women face in the academy make reaching

critical career goals more challenging (Moss-Racusin et al., 2018), ultimately impacting the promotion and inclusion of women (Peila-Shuster, 2017).

Career Adaptability, Retention, Diversity, and Culture

Cultural identities and social contexts intersect and interface with the constructs of career adaptability and conceptions of narrative identity (Rottinghaus et al., 2017). Previous studies of career adaptability have explored its relationship to various aspects of identity, including age (Duffy, 2010; Zacher & Griffin, 2015), race and ethnicity (Coetzee & Stoltz, 2015; Harry & Coetzee, 2013), gender (McMahon et al., 2012), and disability (Ferrari et al., 2017; Santilli et al., 2014). Vocational self-concepts and work roles come together through the blending of individuals' attitudes, beliefs, and competencies with their problem-solving strategies and coping behaviors (Savickas & Porfeli, 2012). For individuals who are minoritized in organizations and career cultures, the day-to-day circumstances surrounding work often include systematic and structural challenges, instances of bias, and acts of discrimination (Eagan & Garvey, 2015). In a review of career adaptability, Johnston (2018) posited that situations that are perceived as challenging activate career adaptability.

Rottinghaus et al. (2017) noted, "Holding certain privileged or marginalized identities has the power to mold how concern, control, curiosity, and confidence are experienced and expressed" (p. 97). In a study conducted in the South African automotive industry, Black participants scored significantly higher on all career adaptability variables than their White counterparts (Coetzee & Stoltz, 2015). In another study, race was found to significantly, positively predict satisfaction with retention factors (Ferreira & Mujajati, 2017).

Coetzee and Stoltz (2015) found that White automotive workers scored significantly higher on the retention satisfaction scores of compensation and organizational commitment than

their Black colleagues, indicating that race may impact the decision to remain with an organization or to leave it. Previously, Döckel et al. (2006) established that compensation had a strong, significant relationship to organizational commitment, affective commitment, and normative commitment when assessing retention satisfaction factors. While studies on race, ethnicity, career adaptability, and retention are limited and often focus on employment sectors outside of academia, the findings suggest that within academia, cultural identities and social contexts may activate career adaptability differently for White and non-White faculty members.

In academia, job satisfaction is more likely to be weakened for Historically Marginalized faculty than for individuals identifying as White because of instances of discrimination (Hesli & Lee, 2013). Campus climate influences on retention include satisfaction with perceptions of equitable treatment, time to do one's work, and maintaining authority over work itself (Seifert & Umbach, 2008). In a qualitative study on academic medicine, Historically Marginalized faculty noted challenges centered around the

> difficulty of cross-cultural relationships; isolation and feeling invisible; lack of mentoring, role models and social capital; disrespect, overt and covert bias/ discrimination; different performance expectations related to race/ethnicity; devaluing of research on community health care and health disparities; the unfair burden of being identified with affirmative action and responsibility for diversity efforts; leadership's role in diversity goals; and financial hardship. (Pololi et al., 2010, p. 1363)

Stress caused by instances of discrimination was found to negatively impact research productivity for Historically Marginalized faculty, where the higher the level of stress reported, the lower one's reported research productivity (Eagan & Garvey, 2015). Further, individuals of color noted the additional impact of providing free labor to participate more frequently in work

meant to enhance diversity and campus climates (Eagan & Garvey, 2015; Pololi et al., 2010; Seifert & Umbach, 2008; Williams et al., 2017).

Career development and career confidence promote retention satisfaction and are fostered by interactions with colleagues (Rottinghaus et al., 2017). However, building relationships can be particularly challenging for individuals who feel isolated or disconnected because they are the only person of color in their department or specialty area (Seifert & Umbach, 2008). Further, the support of colleagues and supervisors generates long-term career advancements because of the ability to discuss one's career and job, review written job and career goals, and participate in training and development opportunities (Coetzee & Stoltz, 2015). Relationships and activities that foster career adaptability foster satisfaction in retention factors and support advances within organizations (del Corso, 2017; Döckel et al., 2006).

Faculty Development within Higher Education

Despite its inclusion throughout the history of higher education, early instances of faculty development centered primarily on furthering scholarship and knowledge (Sorcinelli et al., 2006). As practitioners of faculty development began placing greater emphasis on improving instruction on college campuses (Astin et al., 1974; Centra, 1978; Gaff & Justice, 1978), the organizational emphasis of faculty development first emerged as a mechanism of institutional improvement in the 1970s (Astin et al., 1974). During that time, as higher education institutions sought responses to financial challenges, faculty development became a strategy to meet institutional needs while benefitting faculty, students, and administrators (Gaff & Justice, 1978).

The earliest components of faculty development included generating high-level expertise in one's academic discipline and staying current in the field (Gaff & Simpson, 1994). To accomplish these goals, scholars encouraged increasing the number of programs and units that

concentrated on faculty members' instructional development needs (Centra, 1978). Faculty development centering on the outcomes of learners extended well into the 1990s, when scholars recognized the growth in complexity of faculty roles and moved to support more holistic approaches to their professional development needs (Ouellett, 2010).

To meet the needs of faculty as colleges and universities grew and technology advanced, the number of professional and administrative roles engaged in supporting faculty success began to increase (Sorcinelli et al., 2006). Improving teaching and learning to support student success remained a focus of faculty development practitioners throughout the 2000s. However, fostering the growth of skills needed to achieve success in a more collaborative environment also gained prominence (Sorcinelli et al., 2006) as the role of faculty continued to face rising and competing demands.

Beyond conducting quality research and teaching, faculty requirements extended to incorporate an increased number of service roles (Ouellett, 2010). Networks and multiple stakeholders were needed to holistically support faculty development (Gillespie & Robertson, 2010; Ouellett, 2010; Sorcinelli et al., 2006). An emphasis on relationships with colleagues and networking are key components of modern faculty development and retention (Gillespie & Robertson, 2010; O'Sullivan & Irby, 2011; Sorcinelli et al., 2006). In addition, to support the primary faculty roles of teaching, research, and service, institutions sought to focus and tailor faculty development to incorporate individually-based factors, such as faculty track, career stage, diversity, and institutional type, to enhance faculty retention (Ouellett, 2010).

With the growth of the faculty development field came a growing array of research. For decades, the body of scholarship on faculty development consisted primarily of evaluation research (Webster-Wright, 2009). More recently, scholars have called for additional studies

highlighting the development of specific faculty groups, investigating continuous professional learning, and concentrating on the dynamics and connections among individuals and between individuals and the institution (O'Sullivan & Irby, 2011; Webster-Wright, 2009). Additionally, research on faculty professional development assessed whether models and programs promoted individual faculty member outcomes, rather than supporting the need for additional studies examining group-level aspects of faculty development and career advancement (O'Sullivan & Irby, 2011). Throughout the growth period of faculty development, the most robust array of faculty development initiatives and a significant portion of the studies on faculty development emerged from academic medicine (Allen & Sweeney, 2017). The following section discusses this work.

Faculty Development in Academic Medicine

Over the last four decades, research contributions highlighted faculty professional development trends emerging within academic medicine and health science fields (Steinert, 2020). Faculty development scholarship centering on the efforts and practices of academic medicine and the needs of its faculty demonstrated the rise to prominence of this scholarly field and solidified the need to continue building on previous works (Bilal & Chen, 2019; Ouellett, 2010; Skarupski et al., 2020; Steinert, 2020; Steinert et al., 2019). At its core, faculty development seeks to prepare faculty members for their roles and fosters the institution's ability to support its faculty constituents (Steinert, 2011).

Academic medicine lacks a universal model for the professional development of faculty members (Bilal & Chen, 2019). The traditional framework for faculty development is linear, where a faculty member participates in an activity or program, acts in a particular manner moving forward because of the program or activity, then impacts learners and their work as an

outcome (O'Sullivan & Irby, 2011). It is common for needs assessments, evaluations of trainer-led programming, and attitude-based data collection to emphasize faculty participants' acquisition of knowledge and skills (Steinert et al., 2019). Faculty development often focuses on improving teaching, increasing the ability and capacity for research, and enhancing leadership skills (Steinert, 2020).

However, faculty roles and the professional development of faculty members are more complex (Sklar, 2016). In recent years, more expansive frameworks have taken into account the many functions of modern faculty roles (O'Sullivan & Irby, 2011). O'Sullivan and Irby (2011) proposed an expanded model of faculty development that embeds faculty development in two communities of practice: the faculty development community and the workplace community. The expanded model stimulates change by requiring interactions among all involved—including the facilitator, participant, context, and program—with their associated processes and roles, and views faculty members as active participants in faculty development (Sklar, 2016). Faculty development efforts to facilitate mentoring, coaching, and support networks can influence organizational culture through individual participants (Corral et al., 2017). Sklar (2016) proposed encompassing identity, growth, and empowerment in the framework as a means of continuing faculty members' learning and improvement across their careers and allowing the work environment to "nurture and facilitate growth" (p. 1586).

Beyond frameworks and programs, recent studies call for faculty development scholarship in medicine that seeks to understand influences on professional identity (Steinert et al., 2019), assess shifts in attitudes and behaviors, and increase understanding of the long-term impact of interventions (Sorinola et al., 2017). According to Steinert (2011), it is critical for

faculty developers and institutions to consider factors that broaden faculty development and to place faculty development in a global context. Steinert (2011) emphasized

> The need for faculty development to broaden its focus and target the various roles that clinicians and basic scientists play, including that of leader and scholar; the critical role that faculty development can play in curricular and organizational change; the necessity to enlarge the scope of faculty development activities by moving beyond formal, structured activities and incorporating notions of self-directed learning, peer mentoring, and work-based instruction; and the value of situating faculty development in a more global context. (p. 409)

The exclusivity within academic medicine and the biomedical sciences drives the need for a unique focus on professional development that addresses the variety of faculty tracks, occurs at key moments in one's career, and extends across the workforce (Hurtado et al., 2017). Corral et al. (2017) highlight the importance of focusing on identity development, organizational culture, and who count as "faculty" when approaching faculty development. The greatest emphasis in faculty development within medical schools is placed on faculty positions associated with medical education and clinical care (Walling, 2018). However, recent studies highlight the importance of focusing on the ongoing professional development of scientists conducting biomedical research (Meyers et al., 2018; NASEM, 2018). To better understand the continued evolution of the faculty role and transitions in academic career paths in the biomedical sciences, it is important to consider the role of career development and adaptability (Steinert, 2011).

Vocational Development in the Biomedical Sciences

Historically, graduate programs and doctoral fellowships in the biomedical sciences have focused on preparing individuals to be PIs (Fuhrmann, 2016). On average, graduate programs are

five years and postdoctoral fellowships are three years. In recent years, discussion around the career development and preparation of biomedical scientists has increased (Andriole & Jeffe, 2016; Lewis et al., 2017; St. Clair et al., 2017; Thakore et al., 2014). In part, the existing culture guides this call. Trends such as the increase in doctoral degrees conferred, shifts in scientific funding sources, and modifications within academic culture have limited the number of faculty positions and led to declining interest in such positions (Andriole et al., 2017; Ginther et al., 2011; Hur et al., 2017; Trejo, 2017). As a result, colleges and universities have sought to establish career development programs aimed at widening career options in science to generate a culture that supports preparation for positions outside the academy (Fuhrmann, 2016). Funding organizations and science associations are leading the push for such changes at institutions of higher education.

To support these efforts, agencies like the NIH, American Heart Association (AHA), Howard Hughes Medical Institute (HHMI), and National Science Foundation (NSF) have allotted competitive funding to broaden exposure to career-related training for undergraduate students, graduate students, and postdoctoral fellows (Saetermoe et al., 2017; St. Clair et al., 2017). In addition, scientific societies such as the American Association for the Advancement of Science (AAAS), the American Society for Microbiology (ASM), and the American Society for Cell Biology (ASCB) have added sessions on career development outside academia to their annual meetings, created and shared online resources with trainees and institutions, and highlighted their broad engagement in the science community beyond the academy (Gibbs et al., 2015; NASEM, 2018; Tilghman et al., 2012; Wulff & Austin, 2004).

Career development outside academia encompasses the use of individual development plans, exposure to research-related occupations, career coaching and mentoring, and engagement

in experiential learning activities such as internships and fellowships outside the academy during the training process (Thakore et al., 2014). These efforts provide biomedical scientists with exposure to career paths in science policy, science communication and writing, government positions, and industry (National Science Board, 2016; Woolston, 2015). However, not everyone within the biomedical science community agrees that promoting careers outside of academia contributes to the greater good.

Research Careers in Academic Medicine

Within the scientific community, there is concern that a massive shift in broadening career pathways is decreasing the number of talented individuals who want to dedicate themselves to a traditional academic research career path (Saetermoe et al., 2017; St. Clair et al., 2017). In the traditional pathway to research careers, the postdoctoral stage was a natural point in the training process where most career planning and decision-making took place, but this is no longer the case. While there is a decline in interest among postdoctoral fellows and graduate students in pursuing a faculty position (Gibbs & Griffin, 2013), the majority of students and postdoctoral fellows in STEM programs remain interested in careers in academia (Roach & Sauermann, 2017). In a 2015 study conducted by *Nature* surveying 3,400 graduate students, nearly 78% of respondents indicated an interest in academic careers (Woolston, 2015 p. 597).

While studies of postdoctoral fellows and graduate students noted that some desired to leave academia, the majority of participants reported seeking an academic career (Gibbs et al., 2015; Roach & Sauermann, 2017; Woolston, 2015). Those who lose interest often do so because of a misalignment between preferences for specific job attributes and their perception of academic research careers (Roach & Sauermann, 2017). *Nature*'s 2015 study found that 55% of those who were not interested in academic careers descruved the field as too competitive, 43%

expressed concerns regarding balancing family life and work, and 34% believed they would not make enough money (Woolston, 2015).

Influences on career decisions range from the encouragement that comes from mentors to online research to formal career training (Gibbs et al., 2015. As in other areas within higher education, those who are Historically Marginalized in the biomedical sciences are more likely to lose interest in academic careers in comparison to their majority peers (Eisen & Eaton, 2017). With the need to diversify scientific workers and academic researchers, recruiting and retaining women and Historically Marginalized faculty is critical to the success of the biomedical sciences (Andriole, 2008; Gibbs et al., 2015; Gibbs & Griffin, 2013; McGee et al., 2012; Tilghman et al., 2012).

Exiting an Academic Path

The continued emphasis on diversifying the scientific community and retaining Historically Marginalized individuals in the sciences is particularly important for academia. While Historically Marginalized individuals are pursuing STEM doctoral programs, graduating, and finding postdoctoral positions, they are not moving into the professoriate at the same rate as White graduates (Meyers et al., 2018). Data from the NSF's *Survey of Earned Doctorates and Survey of Doctoral Recipients* found that the greatest loss of Historically Marginalized individuals pursuing the professoriate occurs at the transition point from postdoctoral fellow to a tenure track faculty position in basic science departments at medical schools. At the most advanced stage of their training, immediately prior to entering a professorship, minoritized individuals on postdoctoral fellowships are leaving the academy (Eisen & Eaton, 2017).

While qualitative studies have explored factors contributing to low interest in faculty careers, large-scale quantitative studies have not been conducted to identify distinct socially

constructed or personal factors. Gibbs and Griffin (2013) interviewed 38 biomedical scientists, including 23 women and 18 individuals from minoritized backgrounds, who received doctoral degrees between 2006 and 2011. They found that values, social identity, and the culture of the biomedical science workforce were considerations influencing the decision to leave academia.

Gibbs et al. (2015) found that research productivity, research self-efficacy, and relationships with advisors influenced the career interests of Historically Marginalized individuals in the biomedical sciences during their training experience. Thus, while individuals' scientific output does not influence their decision to leave academia, their perceptions of their scientific success may (Roach & Sauermann, 2017). When combined with the indication that those who are minoritized in academic spaces find the academic career path less navigable than those from majority groups (Wood et al., 2016), addressing social factors such as race, ethnicity, and gender becomes incredibly important to diversifying the professoriate. These studies support the need to explore the intersections of career interest, faculty roles, and individual characteristics as factors that influence "readiness" for academic positions and continue to attract individuals into these roles.

Invigorating the professoriate with new and younger researchers is essential to innovation and is tied to the growing issue that the largest outflux of faculty due to retirement is occurring in the current times (Lindholm, 2004). To prepare young scientists for the increased demand and need for faculty positions, it is important to address concerns related to this career path and model a training mechanism that meets the current culture of research in academic medicine and the biomedical sciences. Doing so requires understanding the role of the individual within the institutional framework, which calls for an analysis of individual and training characteristics. Within academic medicine and the biomedical sciences, the associations between personal and

situational factors shape academic career goals and accomplishments, yet the interplay between such factors is not well documented.

Summary

The purpose of this chapter was to highlight the research on career adaptability and retention satisfaction in higher education and narrow the application of these concepts to the context of academic biomedical sciences. The chapter established career construction theory as the foundation guiding this study. Because modern careers are influenced by their ability to fit the lives of individuals, career adaptability encompasses elements such as the individual, development, identity, and context as a single concept that explains development across stages in the life course (Savickas, 1997).

For women and Historically Marginalized faculty, challenging situations may activate career adaptably differently. Additionally, negative experiences and perceptions of the work environment, tasks, and colleagues may also influence the retention satisfaction of women and Historically Marginalized faculty differently. For non-tenure track faculty in academic medicine and the biomedical sciences, the need to shape a career occurs in an ever-evolving field. Given the complexities faced in one's work and life, exploration of individual and institutional factors associated with career advancement and retention satisfaction is critical to the development of non-tenure track positions. Further, better understanding the career adaptability and retention satisfaction of non-tenure track faculty in academic medicine and the biomedical sciences may support the long-term advancement and diversification of science itself.

CHAPTER 3

METHODOLOGY

The intent of this study was to enhance the faculty development of researchers in academic medicine by targeting non-tenure track faculty who conduct research. As the number of non-tenure track researchers continues to grow, the engagement of this group in the research enterprise and the training of future scientists also expands. With this increasing workload, it is common to see shifts in the effort allocated to research, service, teaching, and other role requirements. Existing studies highlight the need to support non-tenure track research faculty in effectively navigating such career changes and challenges.

This study seeks to help higher education institutions respond positively to such shifts in academic medicine and the biomedical sciences. Further, the study centers on investigating the adaptability of non-tenure track research faculty as a means of enhancing their ability to navigate career challenges and changes. The application of adaptability and retention satisfaction supports engaging in work duties and transitioning through changes in vocational development tasks, job stress, occupation moves, and work traumas. The purpose of this study was to explore how career adaptability relates to non-tenure track faculty members' satisfaction with retention. Further, this study examined the relationships between the subscales of career adaptability and retention satisfaction among those underrepresented in faculty roles in academic medicine and the biomedical sciences, including women and Historically Marginalized faculty.

The literature review in Chapter 2 informs this chapter. Chapter 3 describes the study's methodology and identifies the research questions and hypotheses that guide the study. The rationale and benefits discussed throughout the chapter support the design and specific methodology of the study. The chapter also describes the process for recruiting participants, the characteristics of the sample, and the survey instruments. Finally, the chapter concludes with a discussion of the methods of data analysis.

Research Questions and Hypotheses

The research questions and hypotheses of the current study considered career adaptability and retention satisfaction among non-tenure track faculty in academic medicine and the biomedical sciences and the unique career experiences of faculty who are underrepresented in this field based on gender and ethnicity. The research questions were formed based on a review of the literature as it pertains to career development theory, career adaptability, retention satisfaction, career experiences of underrepresented groups, and the state of the biomedical science ecosystem. The research questions and hypotheses are supported by the design of the research methodology.

The following research questions guided this study:

R1. Among non-tenure track faculty in academic medicine and the biomedical sciences, does career adaptability relate to retention satisfaction?

R2. Among non-tenure track faculty in academic medicine and the biomedical sciences, is there a difference in career adaptability between women and men?

R3. Among non-tenure track faculty in academic medicine and the biomedical sciences, is there a difference in career adaptability between faculty who are White and faculty who are Historically Marginalized?

R4. Among non-tenure track faculty in academic medicine and the biomedical sciences, is there a difference in retention satisfaction between women and men?

R5. Among non-tenure track faculty in academic medicine and the biomedical sciences, is there a difference in retention satisfaction between faculty who are White and faculty who are Historically Marginalized?

The null hypotheses were as follows:

H01. Among non-tenure track faculty in academic medicine and the biomedical sciences, there is not a relationship between career adaptability and retention satisfaction.

H02. Among non-tenure track faculty in academic medicine and the biomedical sciences, there is not a difference in the career adaptability between women and men.

H03. Among non-tenure track faculty in academic medicine and the biomedical sciences, there is not a difference in the career adaptability between faculty who are White and faculty who are Historically Marginalized.

H04. Among non-tenure track faculty in academic medicine and the biomedical sciences, there is not a difference in retention satisfaction between women and men.

H05. Among non-tenure track faculty in academic medicine and the biomedical sciences, there is not a difference in retention satisfaction between faculty who are White and faculty who are Historically Marginalized.

Participants

Participants for this study were sampled from Research 1 institutions with medical schools located in the U.S. In total, 152 individuals entered the online survey site, but 13 were unusable because they did not complete the survey, leaving 139 participants. Women participated in greater numbers than men, with 70.5% of the 139 participants identifying as

women and 29.5% as men. The majority were White (64.7%), followed by those identifying as Asian (19.4%), Black (5%), and another race (2.9%). Missing responses accounted for 4.3%. Only 3.6% of participants identified as Hispanic.

The age of respondents ranged from 25 to 70 years old ($M = 44$, $SD = 1.13$) with 68% reporting an age under 50. The majority of participants reporting relationship status were married (78.4%), while 11.5% indicated being single and never married, 4.3% separated or divorced, 2.6% lived with a partner, and 2.2% widowed. Those who are parents accounted for 72.6% of participants, with 48.9% of those who are parents having children under the age of 18.

Table 1

Personal Demographics (N=139)

	N	%
Gender		
Women	98	70.5
Men	41	29.5
Race/Ethnicity		
White	90	64.7
Black	7	5.0
Asian	27	19.4
Other	4	2.9
Hispanic	5	3.6
No Response	6	4.3
Marital/Relationship Status		
Single and Never Married	16	11.5
Married	109	78.4
Living with Partner	4	2.9
Separated or Divorced	6	4.3
Widowed	3	2.2
No Response	1	.7
*Parental Status		
No Children	41	29.5
Children under 18 Yrs.	68	48.9
Children18 Yrs or Older.	33	23.7

*Participants were allowed to check multiple answers.

The majority of participants reported that the the COVID-19 global pandemic had some level of impact on their career productivity. At the highest level, 15.1% of participants reported that their productivity was greatly impacted, with 18% responding that it was very much impacted, 36% moderately impacted, 19.4% somewhat impacted, and only 11.5% indicating no influence on productivity. Along with the undermining of productivity, participants reported that their overall stress level increased as a result of the pandemic as well. The majority of participants reported high levels of stress, with 23% reporting a very high stress level, 34.5% a high level, and 25.9% a moderate level of stress. Participants who described their stress level as low accounted for 15.1% of the sample, while those who identified no increase in stress due to the pandemic comprised only 1.4% of study participants.

Table 2

Covid-19 Influence (N=139)

	N	%
Impact on Productivity		
Greatly	21	15.1
Very Much	25	18
Moderately	50	36
Somewhat	27	19.4
Not at all	16	11.5
Overall Level of Stress		
Very High	32	23
High	48	34.5
Moderate	36	25.9
Low	21	15.1
None	2	1.4

The participants' academic credentials varied, with most holding doctoral degrees (62.6%), 30.2% holding a professional terminal degree, and 7.2% who were physician scientists (i.e., holding both an M.D. and Ph.D.). The majority work at a public university or college (62.6%), while 37.4% work at a private institution. In their roles, 38.8% conduct basic science

research, 25.9% clinical research, 12.9% applied or policy-oriented research or analysis, 10.8% program and curriculum design and development, and 10.1% focus on another area of scholarship.

Despite holding non-tenure track appointments, participants reported high engagement in activities essential for promotion and tenure. In the context of grant funding, 64.7% serve as the PI or co-PI on a current grant, 57.6% are listed as the PI or co-PI on an active grant or fellowship proposal, and 41% prepare grants for which they are not recorded as either PI or co-PI. The majority of participants write scholarly papers and technical reports (66.9%); serve as reviewers for conference proposals, journal articles, or organizational committees (77%); and attend professional conferences (92.8%). The non-tenure track faculty participants also teach courses (33.8%) and engage in the training and supervision of graduate students, postdoctoral fellows, and staff (76.3%).

The primary reasons participants accepted their non-tenure track positions were the opportunity to make a positive contribution (62.6%), the opportunity to conduct and publish their own independent research (50.4%), the geographic location of the position (51.8%), and family-related reasons such as children or a spouse or partner's job location (39.6%). Thinking ahead to the career tracks participants are most interested in pursuing for the next 10 years, 25.9% selected tenured or tenure track faculty positions, 18% clinical track faculty positions, 12.9% another non-tenure track faculty position, and 11.5% plan to move into an administrative position. Only 10.1% intend to leave academia in the next 10 years.

Table 3

Professional Profile (N=139)

	N	%
Degree/Credential		
Doctoral Degree (Ph.D.)	87	62.2
Professional Degree (M.D., D.O., D.D.S.)	42	30.2
Physician Scientist (M.D., Ph.D.)	10	7.2
University Type		
Public	87	62.6
Private	52	37.4
Research Focus		
Basic Science	54	38.8
Clinical Research	36	25.9
Applied or Policy-Oriented Research	18	12.9
Program and Curriculum Design and Development	15	10.8
Other	14	10.1
Missing	2	1.4
*Position Duties		
Write technical reports or working papers	93	66.9
Attend professional conferences	129	92.8
Serve as a reviewer for a conference, journal, or organization	107	77
Supervise graduate students, postdocs, or staff	106	76.3
Teach courses	47	33.8
Serve as the PI or co-PI on funded grant	90	64.7
Prepare grants/listed as the PI or co-PI on active grant	80	57.6
Prepare grants/you are not the PI or Cc-PI on	57	41

*Participants were allowed to check multiple answers.

Instruments

The instruments selected for the study are reliable and valid. The Career Adapt-Abilities Scale (CAAS) and Retention Factor Management Scale (RFMS) demonstrate replication across career fields and respondent populations (Coetzee & Stoltz, 2015; Döckel et al., 2006; Savickas & Porfeli, 2012). The CAAS and RFMS are existing instruments designed to collect responses on items related to career adaptability and retention satisfaction. Similarly, the Professional Attainment Questionnaire, Demographic Questionnaire, and Screener Questionnaire were designed to support data collection for the current study. The selection of the appropriate

instruments supports the design of the study, provides greater ease in data collection, and strengthens the researcher's ability to ethically conduct data collection and analysis (Creswell & Creswell, 2018).

Career Adapt-Abilities Scale (CAAS)

The CAAS, developed by Savickas and Porfeli (2012), includes 24 items evenly split into the subscales of concern, control, curiosity, and confidence (see Appendix A). Responses are presented on a 5-point scale ranging from *not strong* (1) to *strongest* (5). These adaptabilities are psychosocial resources for managing occupational transitions, developmental tasks, and work traumas, which together form the career adaptability scale (Savickas & Porfeli, 2012).

The initial CAAS was established with testing in 13 countries. Confirmatory factor analysis supported the four-factor structure. Internal consistency was strong with the following Cronbach's alphas: .85 for concern, .89 for control, .85 for curiosity, and .91 for confidence (Savickas & Porfeli, 2012). When the CAAS was tested internationally, the total adaptability scale produced a Cronbach's alpha of .92, with the subscales yielding slightly lower Cronbach's alphas: .85 for confidence, .83 for concern, .79 for curiosity, and .74 for control (Porfeli & Savickas, 2012). For the present study, the Cronbach's alpha for career adaptability was .83, which is in the "good" range (.81-.90) for internal consistency or reliability (Creswell & Creswell, 2018). The subscales yielded .80 for confidence, .79 for concern, .81 for curiosity, and .86 for control.

Retention Factor Measurement Scale (RFMS)

The RFMS, created by Döckel et al. (2006), measures six retention factors, including compensation, job characteristics, training and development opportunities, supervisor support, career opportunities, and work–life policies (see Appendix B). Participants provide answers on a

5-point scale from *strongly disagree* (1) to *strongly agree* (5). The scale includes 35 items spread across the scales, with compensation containing 13 items; job characteristics containing two items; training and development opportunities containing six items; supervisor support containing six items; career opportunities containing four items, and work–life policies containing four items.

Some items on the RFMS are negatively worded and are reverse scored to provide consistency in direction. An exploratory factor analysis of the RFMS items conducted by Döckel et al. (2006) supported six factors using the criterion of an eigenvalue of greater than 1.0. Items with factor loadings above .50 were kept. Döckel et al. (2006) reported the following Cronbach's alphas for the subscales: .90 for compensation, .90 for supervisor support, .87 work–life balance, .83 for training and development opportunities, .76 for career opportunities, and .41 for job characteristics. For the present study, the Cronbach's alpha for retention satisfaction was .66, which is in the "acceptable" range (.61-.70) for internal consistency or reliability (Creswell & Creswell, 2018). The subscales yielded .91 for compensation, .91 for supervisor support, .88 for work–life balance, .76 for training and development opportunities, .67 for career opportunities, and .67 for job characteristics.

Professional Attainment Questionnaire

The Professional Attainment Questionnaire (see Appendix C) was developed for the current study. The items were based on those in questionnaires developed by the National Center for Education Statistics that collect experiential data from recent graduates and the faculty workforce via the Survey of Earned Doctorates (National Science Board, 2018). Participants' professional attainments were assessed through a series of seven questions relating to work tasks, functions of the professional role, and professional goals. Specific areas included principal

scholarly activities, factors important in the decision to take their current position, and roles they are interested in pursuing for the next 10 years. Additionally, as data collection for the current study occurred during the global COVID-19 pandemic, two items were developed to assess the self-reported impact of the pandemic on productivity and stress level.

Demographic Questionnaire

The Demographic Questionnaire consisted of items regarding gender, age, race, ethnicity, relationship status, and parental status (see Appendix D). Demographic questions were selected to provide a description of study respondents. Care was taken to include items most pertinent to describing non-tenure track faculty. Finally, the demographics included supporting an increased understanding of experiences associated with career adaptability and retention satisfaction (Coetzee & Stoltz, 2015; Savickas & Porfeli, 2012).

Screener Questionnaire

The Screener Questionnaire was developed for the current study and consisted of three items relating to degree earned, job focus, and rank designation (see Appendix E). Responses to these questions aided in the qualification for participating in the study. The study sought to include non-tenure track faculty in academic medicine and the biomedical sciences who conduct research. The screener questions captured participant characteristics at the beginning of the questionnaire. Using screener questions supported reaching respondents who met the inclusion criteria (e.g., on a non-tenure track and conducting research) critical to the study and allowed individuals not meeting the criteria to be filtered out.

Procedure

Exempt level approval from Indiana State University's Institutional Review Board (IRB) was given. This study involved human subjects; thus a research training and assessment were

necessary. The researcher completed the Social and Behavioral track Collaborative Institutional Training Initiative (CITI) to fulfill this requirement.

Data collection began in April of 2021. Emails providing an overview of the study with the link to access the questionnaires were sent to administrators in faculty development and research affairs at medical schools that are affiliated with Research 1 institutions. Administrators were asked to distribute the information to non-tenure track faculty researchers at their institution. Requests to distribute information were also made via the listservs for the Association of American Medical Colleges (AAMC), American Medical Women's Association (AMWA), Professional and Organizational Development (POD) Network, and Biomedical Sciences Association of Graduate Admissions Professionals (BioGAP).

When accessing the questionnaire, participants were first provided with a brief overview of the study (see Appendix F) and asked to provide informed consent by clicking, "I agree to participate in this research study" or "I do not want to participate in this research study." When selected, both responses directed participants to a corresponding outcome (e.g., continuing to the questionnaires or exiting the study), respectively (see Appendix F). Participants were then asked a series of screener questions to determine whether they met the inclusion criteria.

The target population for the study hold a terminal degree, conduct research in a medical school, and have a non-tenure track appointment. Individuals who did not meet the inclusion criteria were thanked for their time, and the survey did not move forward. Individuals meeting inclusion qualifications were asked to provide responses to the CAAS, RFMS, Professional Attainment Questionnaire, and Demographic Questionnaire.

Data for this study were collected using Qualtrics, a survey research management software. Analysis of the data required the use of IBM's Statistical Package for the Social

Sciences (SPSS). SPSS is a professional analysis program used regularly in quantitative research studies (Creswell & Creswell, 2018). Creswell and Creswell (2018) noted that the use of professional software enhances data security, minimizes human error during data preparation and analysis, and best supports efficiency with large data sets.

Data Analysis, Rationale, and Supporting Literature

The goal of the present study was to explore career adaptability and retention satisfaction among non-tenure track research faculty in the biomedical sciences. The study specifically tested the associations among factors in career adaptability and retention satisfaction. Further, the study assessed whether there were differences in career adaptability subscales and retention satisfaction between men and women, and whether there were differences in career adaptability subscales and retention satisfaction between White faculty and Historically Marginalized faculty in academic medicine and the biomedical sciences.

Before beginning the statistical analyses to answer the research questions, Cronbach's alphas were conducted for the CAAS and its subscales and RFMS subscales to determine internal consistency, which is a type of reliability. Next, the means for each of the CAAS and RFMS subscales were calculated. Within each subscale, participants were allowed to omit at most one item, with the mean calculation adjusted accordingly.

In addition, gender and Historically Marginalized identity groups were created. In the questionnaire, these items allowed participants to enter a text response, providing enhanced inclusivity. Text responses were coded into like groups. For gender, two response groups emerged. Race and ethnicity responses of Black/African American, Hispanic/Latinx, Pacific Islander, and Asian groups were used to create the Historically Marginalized identity group.

Career Adaptability's Relationship to Retention Satisfaction

To examine the first research question, "Among non-tenure track faculty in academic medicine and the biomedical sciences, does career adaptability relate to retention satisfaction?" a canonical correlation analysis was used. This analysis examined the relationship and shared variance between the career adaptability variables of concern, control, curiosity, and confidence, and the retention satisfaction variables of confidence to compensation, job characteristics, training and development, supervisor support, career opportunities, and work–life policies.

Canonical correlation analysis allowed the researcher to examine the relationship between the subscales of the CAAS and the subscales of the RFMS and to determine how much variance was shared between them. Canonical correlation analysis is "a method of correlating linear relationships between two multidimensional variables" (Hardoon et al., 2004, p. 2639). As the CAAS and RFMS provide the potential for multiple intercorrelated variables, canonical correlation was selected over multiple regression (Afifi et al., 2004). Canonical correlation was previously used by Coetzee and Stoltz (2015) when studying the multivariate relationship between the subscales of the CAAS and the subscales of the RFMS.

Career Adaptability Differences Between Women and Men

To examine the second research question, "Among non-tenure track faculty in academic medicine and the biomedical sciences, is there a difference in career adaptability between women and men?" a multivariate analysis of variance (MANOVA) was used. For the MANOVA, the independent variable was gender, with two levels: women and men. The dependent variables were the subscales of CAAS, including concern, control, curiosity, and confidence.

Career Adaptability Differences Between White and Historically Marginalized Faculty

To examine the third research question, "Among non-tenure track faculty in academic medicine and the biomedical sciences, is there a difference in career adaptability between White and Historically Marginalized faculty?" a MANOVA was used. For the MANOVA, the independent variable was a combination of race and ethnicity with two levels: White and Historically Marginalized faculty. The dependent variables were the subscales of CAAS, including concern, control, curiosity, and confidence.

Retention Satisfaction Differences Between Women and Men

To examine the fourth research question, "Among non-tenure track faculty in academic medicine and the biomedical sciences, is there a difference in retention satisfaction between women and men?" a MANOVA was used. For the MANOVA, the independent variable was gender, with two levels: women and men. The dependent variables were the subscales of the RFMS, which include compensation, job characteristics, training and development opportunities, supervisor support, career opportunities, and work–life policies.

Retention Satisfaction Differences Between White and Historically Marginalized Faculty

To examine the fifth research question, "Among non-tenure track faculty in academic medicine and the biomedical sciences, is there a difference in retention satisfaction between White and Historically Marginalized faculty?" a MANOVA was used. For the MANOVA, the independent variable was a combination of race and ethnicity with two levels: White and Historically Marginalized faculty. The dependent variables were the subscales of the RFMS, which include compensation, job characteristics, training and development opportunities, supervisor support, career opportunities, and work–life policies.

Separate MANOVAs, rather than separate ANOVAs, were used to test the second through fifth research questions to control for Type I error. Exploring the differences in career adaptability subscales and retention factor measurement scales provides greater insight into faculty careers. Personal identity characteristics such as gender, race, and ethnicity are noted as impactful to career adaptability (Ferreira & Mujajati, 2017; João & Coetzee, 2014; McMahon et al., 2012) and retention satisfaction (Coetzee & Stoltz, 2015; Eagan & Garvey, 2015; Pololi et al., 2010) in previous studies. In the current study, gender and ethnicity were not included together in one MANOVA because of small cell sizes.

Data Storage and Confidentiality

Software necessary for data collection and analysis were licensed through Indiana State University. All data and reporting software, data files, project notes, and study documentation were electronic and password protected. In some cases, two-step authorizations were necessary prior to document viewing and editing.

Summary

This chapter outlined the research methodology used in this study, including the theory applied to develop the framework of the study and the research questions and hypotheses. It also described the sample for the study, instruments used, data collection questionnaires, and data analysis procedures. It outlined the research process, described the software necessary to carry out the study and the data storage and confidentiality measures used, and provided a holistic overview of the study. The goal of the present study was to investigate the interplay between the career adaptability subscales and retention factor measurement scales among non-tenure track research faculty in the biomedical sciences. The results of the study are presented in the following chapter.

CHAPTER 4

RESULTS

This chapter presents the results of the study, which consist of quantitative analyses. The focus of this study was to examine the career experiences of non-tenure track faculty researchers in academic medicine. To collect data for this study, an online survey was distributed between April and August of 2021. Faculty development leaders, research development officers, and key national listservs were utilized to recruit potential participants. Non-tenure track faculty members who conduct research at public and private Research 1 medical schools throughout the U.S. were the target participants.

Before reviewing the research question results, it is important to discuss the creation of the variables used in the analyses. Prior to creating the variables, the items from the Career Adapt-Abilities Scale (CAAS) were recoded so that high scores would be the affirmative (e.g., 5 = *strongest* for "thinking about what my future will be like"). Recoding was necessary because Qualtrics coded the scale anchors differently by default and it was important to mirror the established scoring. Recoding was also done for a subset of items on the Retention Factor Measurement Scale (RFMS) because the items needed to be reverse coded based on negative wording. The items in the RFMS instrument that were reverse coded included: 15, 16, 23, 24, 26, 32, 33, 34, and 35.

After coding was completed, scale scores were computed for each career adaptability variable and each retention satisfaction variable. For the scale scores, responses from each subscale were combined into a total average score for each individual based on the mean of all items within the subscale. Participants were allowed to skip at most one item within each subscale and the mean was adjusted accordingly. After the variables were created via the subscale mean process, data analysis began.

This chapter presents the findings related to the following research questions:

R1. Among non-tenure track faculty in academic medicine and the biomedical sciences, does career adaptability relate to retention satisfaction?

R2. Among non-tenure track faculty in academic medicine and the biomedical sciences, is there a difference in career adaptability between women and men?

R3. Among non-tenure track faculty in academic medicine and the biomedical sciences, is there a difference in career adaptability between faculty who are White and faculty who are Historically Marginalized?

R4. Among non-tenure track faculty in academic medicine and the biomedical sciences, is there a difference in retention satisfaction between women and men?

R5. Among non-tenure track faculty in academic medicine and the biomedical sciences, is there a difference in retention satisfaction between faculty who are White and faculty who are Historically Marginalized?

Career Adaptability's Relationship to Retention Satisfaction

To investigate the first research question, "Among non-tenure track faculty in academic medicine and the biomedical sciences, does career adaptability relate to retention satisfaction?" a canonical correlation was performed between the set of career adaptability variables and the set

of retention satisfaction variables. Canonical correlation analyzes the strength of the relationship between two sets of variables known as canonical variates. Canonical variates are linear combinations of the variables in each set, and are created to maximize the overlap in variance between the sets. For analysis, the career adaptability variables, which were the subscales from the CAAS, included concern, control, curiosity, and confidence. Retention satisfaction variables, which were the subscales from the RFMS, included measured compensation, job characteristics, training and development opportunities, supervisor support, career opportunities, and work–life policies.

All 139 participants were included in the canonical correlation. Table 1 shows the descriptive statistics and correlations among the variables. Before beginning the analysis, the assumptions of normality, linearity, and homoscedasticity were examined and met. No within-set multivariate outliers were identified. Within-set multicollinearity assumptions were met with correlations among career adaptability ranging from .46 to .62, and correlations among retention satisfaction ranging from -.08 to .56. See Table 4 to review the bivariate correlations.

The maximum number of canonical roots (pairs of canonical variates) for this analysis was four, because the highest number of possible canonical roots is equal to the smallest number of variables on one side of the equation. In this case, there were four variables included in the career adaptability canonical variate and six in the retention satisfaction canonical variate. For the first canonical root, the canonical correlation between career adaptability and retention satisfaction was not statistically significant, Wilk's Lambda = .34, $F(24, 444) = 1.10$, $p = .340$. Hence, there was not a statistically significant relationship between the career adaptability variables of concern, control, curiosity, and confidence and the retention satisfaction variables of compensation, job characteristics, training and development opportunities, supervisor support,

career opportunities, and work–life policies. Given that the first canonical correlation root was not statistically significant, no other roots were examined.

Table 4

Bivariate Correlations and Descriptive Statistics (N=139)

Variable	1	2	3	4	5	6	7	8	9	10
1. Concern										
2. Control	.54**									
3. Curiosity	.53**	.62**								
4. Confidence	.46**	.61**	.61**							
5. Compensation	.10	.09	.01	.07						
6. Job Characteristics	.17	.17*	.15	.20**	-.08					
7. Train & Develop	.20*	.13	.18*	.18*	.32**	.29**				
8. Supervisor Support	.06	.01	.06	.15	.32**	.27**	.25**			
9. Career Opportunities	.19*	.12	.09	.13	.56**	.12	.31**	.45**		
10. Work-life Policies	.14	.17*	.04	.12	.14	.10	.23**	.23**	.22**	
M	3.17	3.53	3.48	3.72	3.10	4.21	3.14	3.44	2.90	2.38
SD	.76	.71	.73	.74	.71	.65	.78	.88	.78	1.01

*$p < .05$. **$p < .01$.

Career Adaptability Differences Between Women and Men

To examine the second research question, "Among non-tenure track faculty in academic medicine and the biomedical sciences, is there a difference in career adaptability between women and men?" a multivariate analysis of variance (MANOVA) was used. MANOVA considers the

relationships among the dependent variables by allowing the researcher to evaluate the mean differences between levels of the independent variable(s) on all dependent variables at the same time. Using one MANOVA instead of using multiple ANOVAs keeps the experiment-wise alpha at the same level as the test-wise alpha, which reduces the likelihood of a Type I error. For this research question, the independent variable was gender with two levels: women and men. The dependent variables were the career adaptability variables, including concern, control, curiosity, and confidence.

Descriptive statistics are presented in Table 5. A total of 139 participants were included, with 98 identifying as women (70.5%) and 41 identifying as men (29.5%). The MANOVA was not statistically significant, Pillai's Trace = .01, $F(4, 134) = .29$, $p = .887$. Hence, there was not a statistically significant difference between women and men on the career adaptability variables of concern, control, curiosity, and confidence.

Table 5

Descriptive Statistics of Career Adaptability Variables by Gender (N=139)

Career Adaptability Variables	Women		Men	
	M	SD	*M*	SD
Concern	3.15	.78	3.20	.65
Control	3.49	.69	3.60	.70
Curiosity	3.47	.74	3.50	.67
Confidence	3.67	.74	3.78	.72

Career Adaptability Differences Between White and Historically Marginalized Faculty

To examine the third research question, "Among non-tenure track faculty in academic medicine and the biomedical sciences, is there a difference in career adaptability between faculty

who are White and faculty who are Historically Marginalized?" a MANOVA was used. In this research question, the independent variable was a combination of race and ethnicity with two levels: White and Historically Marginalized. Historically Marginalized consisted of those identifying as Black, Asian, and Hispanic. The dependent variables were the career adaptability variables, including concern, control, curiosity, and confidence.

From the total of 139 participants, seven were excluded because of missing data. Descriptive statistics are shown in Table 6. Of the 132 remaining participants, 93 identified as White (70.5%) and 39 identified within a Historically Marginalized race or ethnicity (29.5%) (Table 3). The MANOVA was not statistically significant, Pillai's Trace = .01, $F(4, 127) = .21$, $p = .932$. Hence, there was not a statistically significant difference between faculty who identify as White and faculty who identify with a Historically Marginalized race or ethnicity on the career adaptability variables of concern, control, curiosity, and confidence.

Table 6

Descriptive Statistics of Career Adaptability Variables by Race/Ethnicity (N=132)

Career Adaptability Variables	White		Historically Marginalized	
	M	SD	*M*	SD
Concern	3.17	.80	3.15	.60
Control	3.52	.69	3.58	.66
Curiosity	3.44	.74	3.53	.63
Confidence	3.70	.72	3.77	.73

Retention Satisfaction Differences Between Women and Men

To examine the fourth research question, "Among non-tenure track faculty in academic medicine and the biomedical sciences, is there a difference in retention satisfaction between

women and men?" a MANOVA was used. In this research question, the independent variable was gender with two levels: women and men. The dependent variables were the subscales of retention satisfaction, including compensation, job characteristics, training and development opportunities, supervisor support, career opportunities, and work–life policies.

Of the 139 participants in the study, two were excluded from this analysis because of missing data. The descriptive statistics for this research question are depicted in Table 7. Of the 137 participants included, 96 identified as women (70.1%) and 41 identified as men (29.9%). When evaluating whether there were mean differences in the retention satisfaction variables of compensation, job characteristics, training and development opportunities, supervisor support, career opportunities, and work–life policies between women and men, no statistically significant difference was found, Pillai's Trace = .07, $F(6, 130) = 1.64$, $p = .141$.

Table 7

Descriptive Statistics of Retention Satisfaction Variables by Gender (N=137)

Retention Satisfaction Variables	Women		Men	
	M	SD	*M*	SD
Compensation	3.02	.76	3.28	.76
Job Characteristic	4.23	.64	4.20	.67
Training and Development	3.13	.73	3.13	.85
Supervisor Support	3.33	.89	3.75	.81
Career Opportunities	2.83	.76	3.00	.78
Work-life Policies	2.33	1.04	2.50	.92

Retention Satisfaction Differences Between White and Historically Marginalized Faculty

To examine the fifth research question, "Among non-tenure track faculty in academic medicine and the biomedical sciences, is there a difference in retention satisfaction between faculty who are White and faculty who are Historically Marginalized Faculty?" a MANOVA was conducted. In this research question, the independent variable was a combination of race and ethnicity with two levels: White and Historically Marginalized, which consisted of those identifying as Black, Asian, and Hispanic. The dependent variables were the subscales of retention satisfaction, including compensation, job characteristics, training and development opportunities, supervisor support, career opportunities, and work–life policies.

Nine of the 139 participants in the study were excluded due to missing data. The descriptive statistics are displayed in Table 8. Of the 130 participants who were included, 92 identified as White (70.8%) and 38 identified within a Historically Marginalized race or ethnicity (29.2%). When evaluating whether there were differences in the retention satisfaction subscales of compensation, job characteristics, training and development opportunities, supervisor support, career opportunities, and work–life policies between those who identify as White and those who identify with a Historically Marginalized race or ethnicity, no statistically significant difference was found, Pillai's Trace = .05, $F(6, 123) = 1.13$, $p = .349$.

Table 8

Descriptive Statistics of Retention Satisfaction Variables by Race/Ethnicity (N=130)

Retention Satisfaction Variables	White		Historically Marginalized	
	M	SD	*M*	SD
Compensation	3.10	.74	3.12	.52
Job Characteristic	4.29	.65	4.07	.65
Training and Development	3.18	.81	3.04	.69
Supervisor Support	3.50	1.00	3.40	.88
Career Opportunities	2.87	.75	3.00	.75
Work-life Policies	2.31	.93	2.60	1.16

Summary

This chapter presented the findings for the five research questions included in this study. For each research question, the variables were identified and the rationale for the analysis conducted was presented. The first research question was analyzed using canonical correlation. Research questions two through five were analyzed using MANOVAs. The results were not statistically significant for any of the five research questions included in the study. While the findings were not statistically significant, these research questions and results add to the body of research on faculty development in academic medicine, non-tenure track faculty appointments, career adaptability, and retention satisfaction. The contributions the current research study makes to the broader academic community are discussed in the next chapter.

CHAPTER 5

DISCUSSION

The current study intended to explore how career adaptability relates to non-tenure track faculty members' satisfaction with retention. Further, this study examined the relationships between the subscales of career adaptability and retention satisfaction among those underrepresented in faculty roles in academic medicine and the biomedical sciences, including women and Historically Marginalized faculty. Data analysis indicated that among non-tenure track research faculty in academic medicine and the biomedical sciences, there was not a statistically significant relationship between career adaptability and retention satisfaction. Further, when considering differences in career adaptability and retention satisfaction between men and women and between those who identify as White and those who identify with a Historically Marginalized race or ethnicity, there were not statistically significant differences. While the findings of the current study were not statistically significant, this does not negate the study's contributions to understanding the career experiences of non-tenure track faculty researchers. This chapter summarizes the study, provides an overview of the findings, discusses the application of this work, shares the limitations of the study, highlights recommendations, and concludes with the researcher's remarks.

Theoretical Basis

Career construction theory was central to the current study and provided a framework. Career construction theory involves the ideals of career development theory through the awareness that modern careers take shape by adapting to fit the lives of individuals (Beck, 1994; Savickas, 2013). Further, the theory encompasses the regular changes to vocational behaviors and how those changes shape the meaning one places on work, guiding the future direction of one's career (Beck, 1994; Savickas, 2013). Career adaptability, built upon career construction theory, focuses on the inclusion of elements such as identity development and context (Johnston, 2018). Savickas (1997) indicated, "Adaptability means the quality of being able to change, without great difficulty, to fit new or changed circumstances" (p. 254). Career adaptability provides a single concept to explain development across stages in the life course and is relevant for children, adolescents, and adults.

In addition to life and career experiences, other factors also shape career satisfaction. Career satisfaction is developed through the feelings of pride gained from career achievements (Johnston et al., 2013). Organizational experiences, mentorship, sponsorship, supervisory support, organizational acceptance, and career strategies facilitate the development of one's career competencies and influence attitudes toward the employer (Culié et al., 2014; Fleisher et al., 2014). Career satisfaction and success are also subject to contextual influences, such as culture and organization (Spurk et al., 2019).

Career satisfaction relies on factors that encourage and motivate staff retention (Döckel et al., 2006). Compensation, job characteristics, training and development opportunities, supervisor support, career opportunities, and work–life balance influence employees' satisfaction levels (Coetzee & Stoltz, 2015; Döckel et al., 2006). Organizational policies and practices contribute to

the retention of employees and influence overall employee engagement (Ferreira & Mujajati, 2017).

When considering the application of career adaptability to non-tenure track faculty in academic medicine and the biomedical sciences, the need exists to shape a career in a field that is ever-evolving. For women and Historically Marginalized faculty, challenging situations often shape career movements. Additionally, negative experiences and perceptions of the work environment, tasks, and colleagues influence the retention satisfaction of women and Historically Marginalized faculty differently (Kossek et al., 2010), solidifying the application of the theory.

Sample and Research Instruments

Participants were sampled from Research 1 institutions with medical schools located in the U.S. The participants were non-tenure track faculty conducting research in academic medicine and the biomedical sciences. In total, 152 entered the survey, but 13 were unusable because they did not complete the survey, leaving 139 participants.

The Career Adapt-Abilities Scale (CAAS; Savickas & Porfeli, 2012) and Retention Factor Management Scale (RFMS; Döckel et al., 2006) demonstrate replication across career fields and respondent populations (Coetzee & Stoltz, 2015; Döckel et al., 2006; Savickas & Porfeli, 2012). The CAAS and RFMS are existing instruments designed to collect responses on items related to adaptability and retention satisfaction. Both demonstrated high reliability (i.e., internal consistency) in the current study. The Professional Attainment Questionnaire, Demographic Questionnaire, and Screener Questionnaire were designed to support data collection for the current study.

Findings and Considerations

The findings and considerations of the research questions will be discussed in detail below. In addition, an in-depth examination of the study results makes connections to the theoretical underpinnings framing the current scholarship landscape. Finally, links to practical implications for knowledge gained will be presented through further discussion.

Career Adaptability's Relationship to Retention Satisfaction

The first research question, "Among non-tenure track faculty in academic medicine and the biomedical sciences, does career adaptability relate to retention satisfaction?" was examined using a canonical correlation. Contrary to what was anticipated based on existing research by Coetzee and Stoltz (2015), which served as a model for the current study, there was not a statistically significant relationship between the career adaptability variables of concern, control, curiosity, and confidence and the retention satisfaction variables of compensation, job characteristics, training and development opportunities, supervisor support, career opportunities, and work-life policies.

Coetzee and Stoltz (2015) utilized a sample of 321 employees in the South African automotive industry, whereas the current study was conducted with a sample of 139 non-tenure track faculty in academic medicine and the biomedical sciences. The canonical correlation analysis conducted by Coetzee and Stoltz found that the career adaptability variants of concern, control, curiosity, and confidence significantly related to the participants' satisfaction with their career opportunities, work–life balance, training and development opportunities, and characteristics of the jobs offered by the South African automotive company. While the analysis for the current study was not statistically significant, there are aspects of the current study that are close to that of the model study by Coetzee and Stoltz.

The means of the career adaptability and retention satisfaction variables in the current study were slightly lower than those in the South African automotive study. However, among the career adaptability variables, the correlations from the current study were stronger than those reported by Coetzee and Stoltz (2015), indicating that the current study showed stronger relationships among the career adaptability variables. Next, while the canonical correlation that examined career adaptability's relationship to retention satisfaction among non-tenure track faculty researchers was not significant, the squared canonical correlation describing the overall model fit was .10, which was close to that reported in the South African automotive study (.14). In canonical correlation, the squared canonical correlation provides the proportion of variance that is shared by the canonical variates. This means that Coetzee and Stoltz demonstrated 14% overlap in variance between the career adaptability and the retention satisfaction variables, while the current study demonstrated 10% overlap.

The difference in sample sizes between the current research study and the study conducted by Coetzee and Stoltz (2015) may partially explain the difference in findings. In canonical correlation, the power is impacted by the number of cases. According to Tabachnick and Fidell (2007), in the social sciences a minimum of 10 cases are needed for every variable, providing that the reliability of the instruments (e.g., Cronbach's alpha) is near .80. While the number of participants and internal consistency coefficients met the criteria, the small sample size may limit the power. As a result, the differences in sample size may contribute to the divergence in findings between the two studies.

Another aspect of difference between the two studies relates to the application of the CAAS and RFMS. The CAAS has been applied in many work environments and with workers at various stages in their life and career courses. The RFMS was applied by Döckel et al. (2006) to

the technology sector and by Coetzee and Stoltz (2015) to the automotive industry, but has not been broadly utilized with varying career types. Working in either of these environments is fundamentally different from working in academia. It is possible that the items of compensation, job characteristics, training and development opportunities, supervisor support, career opportunities, and work–life policies included in the RFMS were not as applicable to the non-tenure track faculty in the current study.

Though there was no statistical significance when assessing career adaptability's relationship to retention satisfaction among non-tenure track faculty, the literature on canonical analysis offers insight into the contributions this study makes to the field. Tabachnick and Fidell (2007) indicated, "in its present stage, canonical correlation is best considered a descriptive technique or a screening procedure rather than a hypothesis-testing procedure" (p. 568). In the current study, the screening aspect of canonical correlation may support the finding that the RFMS may not be as applicable in the academic work environment. The findings reflected that individuals experience a number of career outcomes based on personality, self-efficacy, and career adaptability (Cai et al., 2015), such that their current and future trajectory in the workplace is impacted (Öncel, 2014; Tolentino et al., 2014).

Career Adaptability Differences Between Women and Men

The second research question, "Among non-tenure track faculty in academic medicine and the biomedical sciences, is there a difference in career adaptability between women and men?" was analyzed using a MANOVA. The MANOVA was not statistically significant. In other words, there was not a statistically significant difference between women and men on the career adaptability variables of concern, control, curiosity, and confidence. In this regard, the

current study mirrored Coetzee and Stoltz's (2015) study. Coetzee and Stoltz found that the relationships between gender and the CAAS variables were not significant.

The academic experience and environment may shape the lack of statistically significant differences in career adaptability between women and men in academic medicine and the biomedical sciences. Behaviors in the workplace are affected by an individual's predisposition for the orientation and reaction to positive and negative stimuli (Bipp et al., 2017). Women in faculty positions have different work experiences from their male colleagues, face additional challenges in seeking promotions, and are less likely to hold leadership positions (D'Armiento et al., 2019; Gibbs et al., 2014; Remich et al., 2016; Sabharwal & Corley, 2009; Villablanca et al., 2011; Wood et al., 2016). However, the women who participated in the current study work in male-dominated fields. The socialization of women in STEM fields may contribute to their career experiences and may help to explain this study's findings.

Existing research studies have noted that the academic experiences of women in STEM fields differ from those of women faculty in other disciplines (Moss-Racusin et al., 2018). Research shows that women's views of STEM subjects and their experiences within scientific fields differ from those of their male peers as early as primary school (Makarova et al., 2019). STEM identity, like gender identity, is socially and individually constructed. For women, a persistence in pursuing STEM fields is closely connected to their gendered sense of belonging (Hawthorne et al., 2018).

Developing masculine identities around STEM fields and associating masculine stereotypes with STEM disciplines may impact women's participation in these areas (Makarova et al., 2019). For women to engage in STEM fields, a sense of belonging and acceptance is needed at the individual and group levels (Kim et al., 2018). Like other identities, STEM identity

follows a socially constructed script, which for women may become problematic when the stereotypes of STEM do not align with traditional gender norms (Hawthorne et al., 2018).

This misalignment impacts women regardless of their career or training stage. Undergraduate students often seek same-gendered mentors; when these mentors provide instrumental and socioemotional mentoring, undergraduates report establishing a stronger science identity (Robnett et al., 2018). In a study of faculty in STEM fields, Hawthorne et al. (2018) found that as women's identification with a STEM career increased, their gender identification decreased. Further, the less the women in the study identified with being a woman, the more likely they were to report receiving supportive advice from other women in STEM and the lower their levels of stress were. Thus, women who separate themselves from their gender identity may have different experiences in the faculty career.

Women's experiences are also shaped based on career progression. Those at mid-career develop career adaptability through informal and formal learning, and women utilize the dimensions of career adaptability as resources in their interactions with work (Johnston, 2018). As such, the current study may suggest that women use career adaptability to adapt in male-dominated areas; hence, their career adaptability looks similar to men's career adaptability. In academia, there is a particular prevailing narrative that is inaccurate, which frames career success and aspirations around male- and White-centered socialization and norms.

Career Adaptability Differences Between White and Historically Marginalized Faculty

The third research question of the study, "Among non-tenure track faculty in academic medicine and the biomedical sciences, is there a difference in career adaptability between faculty who are White and faculty who are Historically Marginalized?" was analyzed using MANOVA. When evaluating whether there were mean differences in the career adaptability variables of

concern, control, curiosity, and confidence between faculty who identify as White and faculty who identify with a Historically Marginalized race or ethnicity, there was not a statistically significant difference. Coetzee and Stoltz (2015) found that race was significantly correlated with all the career adaptability variables, with Black participants having higher ratings than White participants on each of the career adaptability variables. The work environment and context of the social conditions in post-apartheid South Africa were noted as potential explanations for the findings and may explain the difference in findings from the current study (Coetzee & Stoltz, 2015).

Existing research studies found that those who are Historically Marginalized regularly face systematic and structural challenges, instances of bias, and acts of discrimination at work (Eagan & Garvey, 2015). Johnston (2018) indicated that situations that are perceived as challenging activate career adaptability for individuals who are minoritized within organizations and career cultures. When considering the social context of academia and the findings of these studies, it was expected that the current study would be influenced by the day-to-day work experiences of those who are Historically Marginalized. However, statistically significant career adaptability differences between White and Historically Marginalized faculty were not found, in contrast to previous research.

While the concept of career adaptability is broadly applied across geographic locations and career industries, the majority of studies demonstrating statistically significant differences for those with Historically Marginalized identities were conducted in South Africa. Findings drawn from a specific geographic location and social context reduce the potential to generalize the results. The sample for the current study consisted of individuals working in the U.S. Further,

the sample used in the current study was predominantly White. The lack of greater inclusion in this study limits its ability to accurately represent a diverse range of experiences.

Also, it is possible that socialization through the education system itself may help explain the lack of differences found in the current study. Academia encompasses strong cultural norms that guide and dictate actions. These norms are interwoven into all aspects of teaching, research, and service within a university, and the way faculty navigate this academic culture shapes their experience (Carson et al., 2019). It is possible that because of a dominant narrative describing a "need" to "fit" the environment, Historically Marginalized faculty do not report differences in career adaptability.

Retention Satisfaction Differences Between Women and Men

The fourth research question, "Among non-tenure track faculty in academic medicine and the biomedical sciences, is there a difference in retention satisfaction between women and men?" was analyzed using MANOVA. When evaluating whether there are differences in the retention satisfaction variables of compensation, job characteristics, training and development opportunities, supervisor support, career opportunities, and work–life policies between women and men, no statistically significant difference was found. Similarly, Coetzee and Stoltz (2015) found that the relationships between gender and the RFMS variables were not significant. In this regard, the findings of the current study were in alignment.

Based on the countless sources noting that men are more highly compensated than women (Kossek et al., 2010; Peila-Shuster, 2017) and the finding by Döckel et al. (2006) that compensation had a strong, significant relationship to organizational commitment, affective commitment, and normative commitment when assessing factors in the retention satisfaction scale, the current study's results do not align with existing literature. In addition to differences in

compensation for work, the current study's anticipated findings associated with dimensions of support and representation in the workplace. In academic medicine and the biomedical sciences, women often face numerous challenges related to career advancement. Women lack representation in senior leadership positions and experience limitations to being change agents in managerial roles (Abendroth et al., 2017).

Despite existing research documenting the work experiences of women in academic medicine, the current study did not find statistically significant differences concerning the retention satisfaction variables between women and men. It is possible the socialization of women contributes to the lack of statistically significant findings. Many women lost their jobs during the pandemic or faced incredible work challenges (Kurtz, 2021). For women, caring for children and parents disproportionately impacted their work–life balance and the career routines they had prior to the pandemic (Power, 2020). Many women in academia were forced to blend working and dependent care in ways they had not experienced before (Gabster et al., 2020). Because the global COVID-19 pandemic impacted women and men differently, women working in academia and the biomedical sciences might have felt thankful, even under stress, for the flexibility provided by their academic career at a time when children were home for everything, including school.

Retention Satisfaction Differences Between White and Historically Marginalized Faculty

MANOVA was used to analyze the fifth research question, "Among non-tenure track faculty in academic medicine and the biomedical sciences, is there a difference in retention satisfaction between faculty who are White and faculty who are Historically Marginalized?" When evaluating whether there were differences in the retention satisfaction subscales of compensation, job characteristics, training and development opportunities, supervisor support,

career opportunities, and work–life policies based on race and ethnicity, no statistically significant difference was found between those who identify as White and those who identify with a Historically Marginalized race or ethnicity.

Career advancement, growth opportunities, and career development support were found to be more important for Black automotive workers in South Africa than for other workers (Coetzee & Stoltz, 2015). In addition, Coetzee and Stoltz (2015) found that Black automotive workers were less satisfied with compensation and demonstrated less commitment to the organization than White employees. When comparing statistical means for career opportunities, the current study found similar aspects of retention satisfaction were also important to Historically Marginalized non-tenure track faculty; however, the differences were not statistically significant.

It is possible that efforts in academia to improve the institutional culture for people of color, which coincided with the rise of the national Black Lives Matter movement following the murder of George Floyd, are beginning to provide greater career development opportunities. In March of 2021, Francis Collins, Director of the NIH, issued a statement regarding the institution's missteps and deficits in failing to support Black researchers. Though the NIH has spent years funding efforts aimed at diversifying the biomedical sciences, in speaking of such efforts, Collins said, "To those individuals in the biomedical research enterprise who have endured disadvantages due to structural racism, I am truly sorry."

The NIH is planning "new ways to support diversity, equity, and inclusion," and will address existing policies supported by the NIH "that may harm our workforce and our science" (Kaiser, 2021). However, addressing aspects of the work environment is not enough. As Collins noted, policies may also contribute to the outcomes of faculty who identify as Historically

Marginalized. During the 2021 AAMC Learn Serve Lead conference, several sessions addressed challenges facing academic medicine and the biomedical sciences. Racism and a lack of support for work–life integration, in addition to the repercussions of the COVID-19 global pandemic, were noted as particularly confounding challenges that must be addressed (Fuentes-Afflick et al., 2021).

Limitations

The current study was not without limitations, which may have impacted the study's results and replicability. Perhaps the most significant limitation was the historical moment in which the study was conducted. The COVID-19 global pandemic began sweeping the U.S. in early 2020, and continues nearly two years later. Data collection for the study began in April 2021, one year into the pandemic.

At that time, the vaccine was not readily available and many university staff were working from home. Their typical work–life roles were interrupted and changed. When contacted, several university administrators noted a desire to encourage their faculty's participation in the study; however, many institutions had blanket moratoriums on sharing external surveys. This made reaching potential participants challenging. In addition, fatigue and burnout among university faculty, and particularly those in academic medicine and the biomedical sciences, increased during the pandemic (Daumiller et al., 2021; Mead et al., 2021; Washburn et al., 2021). The result was a smaller sample size than might otherwise have been obtained and responses that were likely shaped by the current circumstances, which will be challenging to replicate in the future.

Another limitation of the study relates to the sample. As previously mentioned, the study was conducted with a sample of 139 non-tenure track faculty in academic medicine and the

biomedical sciences. Women participated in greater numbers than men, with 64.5% identifying as women, 27% as men, and 8.6% providing no response. Also, the majority were White (61.2%), followed by those identifying as Asian (17.8%), Black (4.6%), or another race (3.9%). Only 3.3% of participants identified as Hispanic. Respondents choosing not to share a response regarding race or ethnicity accounted for 12.5% and 11.8% respectively.

With most statistical analyses, the number of cases drives the power behind the analysis. Four of the research questions in the current study related to demographic variables. While women are overrepresented in non-tenure track positions (Kezar & Acuña, 2020), making the representation of women in research studies important, the smaller number of men in the study and the inadequate representation of those identifying as Historically Marginalized based on race and ethnicity were limitations of this research. To conduct the analyses, various racial and ethnic groups that are minoritized in academic medicine and the biomedical sciences were combined. Ideally, to understand their true experiences, racial and ethnic groups would not be combined.

Future Research

The intent of this study was to explore how career adaptability relates to non-tenure track faculty members' satisfaction with retention. Further, this study examined the relationships between the subscales of career adaptability and retention satisfaction among those underrepresented in faculty roles in academic medicine and the biomedical sciences, including women and Historically Marginalized faculty. While the findings of the current study were not statistically significant, this does not negate the study's contributions to understanding the career experiences of non-tenure track faculty researchers. The study illuminates future research directions to pursue in building scholarly knowledge of the career experiences, career adaptability, and job satisfaction of non-tenure track faculty researchers.

First, given that the study included questions related to the COVID-19 global pandemic, a traumatic experience that caused a significant shift in the daily life experiences of many, future research should investigate the impact of COVID-19 on career adapt-abilities. Multiple reports reflect how women's careers have been upended by the pandemic (Gabster et al., 2020; Kurtz, 2021; Power, 2020), particularly as the care burden has disproportionately impacted women (Power, 2020). For women in academia, the COVID-19 pandemic has resulted in "a loss of women's scientific expertise from the public realm," as domestic burdens and childcare duties have increased and the ability to devote time to scientific outputs has decreased (Gabster et al., 2020, p. 395).

Recent studies note the potential for a mass exodus of women in early career faculty positions in STEM disciplines (Cardel et al., 2020). Kurtz (2021) reported that women accounted for all 156,000 U.S. jobs lost in December 2020, while in the same period men gained 16,000 jobs. Thus, a future study should consider the relationship of gender and career adaptability and retention satisfaction while including the perceived impact of COVID-19 stress as a moderating variable.

Second, the career adaptability correlations included in the current study were strong and indicate that career adaptability is applicable in the context of the academic work environment. The current study was based on Savickas' (1997) theory of career adaptability, which is an offshoot of Super's theory of career construction. Part of Super's theory focuses on role salience and the roles individuals carry, not only in their work but also in personal domains, with the family as one such domain (Super, 1953, 1980). The theory posits that people hold multiple roles (e.g., partner, parent, worker, homemaker) at any given time and that these roles increase and decrease in importance throughout the various life stages (Super, 1980).

An individual's work role is influenced by finding adequate outlets for their abilities, interests, personality traits, and values (Super, 1953, 1980). Viewing one's career role as enjoyable and applicable depends on one's personal growth and experiences, which also influence overall work and life satisfaction. While this helps scholars understand work and life salience, the components of job and retention satisfaction for non-tenure track faculty positions remain unanswered.

The retention satisfaction instrument used in the current study might not have been the best fit for collecting data from faculty members. A qualitative study could be conducted to explore the factors associated with job satisfaction and retention for non-tenure track faculty in academic medicine and the biomedical sciences. Such a qualitative study might provide an explanation as to why the current study did not find statistical significance for compensation, job characteristics, training and development opportunities, supervisor support, career opportunities, or work–life policies, which are often noted as aspects of employment satisfaction. Qualitative research would also allow a more intentional focus on women and Historically Marginalized faculty who receive lower salaries, are underrepresented in leadership positions, and would benefit from greater career flexibility and more family-friendly work policies (Abendroth et al., 2017; Villablanca et al., 2011).

Finally, there are significant variations across institutions in terms of non-tenure track roles. The position titles, responsibilities, and engagement in faculty culture vary widely. The lack of consistency in data collection limits the growth of the faculty development field. While different models that seek to improve the state of faculty development have been tested in various academic fields (Kezar, 2013), the greatest consistency among such models remains in medical schools (Jhala et al., 2017). Nevertheless, even within academic medicine and the

biomedical sciences, the current study exposed the challenges in reaching non-tenure track faculty members as research participants because of differences across institutional roles.

Field-specific improvements and benefits to higher education as a whole may be achieved by undertaking studies that collect data on the functions and work experiences of non-tenure track faculty members. To establish greater consistency and job security for non-tenure track faculty, additional studies should focus not only on career experiences, but also on inclusion in governance and decision making, academic contributions and freedom, and promotability and contract terms. Further studies in this vein could examine the resources availability to non-tenure track faculty members—whether these resources exist, and if so, the awareness and use of such resources among these faculty members. Within this context, future studies could examine the experiences of faculty members seeking to transition to tenure track or leadership positions, in contrast to those who choose to remain within the non-tenure track.

Conclusion

The erosion of tenure and the decline in tenure track faculty positions have increased the number of non-tenure track roles in higher education, resulting in a critical and evolving issue (Flaherty, 2018). Non-tenure track positions are vital in academic medicine and the biomedical sciences, where faculty are essential to achieving excellence in clinical care, education, and research. With the expectation that the number of non-tenure track faculty positions will continue to increase, research on faculty development centering on understanding choice, satisfaction, preparation and readiness, and trajectory in the context of career can improve equity and support professional advancement.

Academia remains a challenging and multifaceted environment in which those who are underrepresented encounter drastically different work experiences than their majority colleagues.

While providing support for faculty at all levels remains critical, faculty with unique circumstances and those who face inequity in academia should be a specific focus of such efforts. Faculty development and academic leaders (i.e., administrators) vital to advancing higher education institutions that focus on research and teaching (Mathews, 2019). Organizations that center their operations around their employees' desire to grow will create a supportive culture in which individuals' daily experiences and overall working lives promote success (Kegan, 2016).

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APPENDIX A: CAREER ADAPT-ABILITIES SCALE (CAAS)

Different people use different strengths to build their careers. No one is good at everything, each of us emphasizes some strengths more than others. Please rate how strongly you have developed each of the following abilities using the scale below.

5 = Strongest 4 = Very Strong 3 = Strong 2 = Somewhat Strong 1 = Not Strong

STRENGTHS

Concern Subscale

1. Thinking about what my future will be like
2. Realizing that today's choices shape my future
3. Preparing for the future
4. Becoming aware of the educational and vocational choices that I must make
5. Planning how to achieve my goals
6. Concerned about my career

Control Subscale

7. Keeping upbeat
8. Making decisions by myself
9. Taking responsibility for my actions
10. Sticking up for my beliefs
11. Counting on myself
12. Doing what's right for me

Curiosity Subscale

13. Exploring my surroundings
14. Looking for opportunities to grow as a person
15. Investigating options before making a choice
16. Observing different ways of doing things
17. Probing deeply into questions that I have
18. Becoming curious about new opportunities

Confidence Subscale

19. Performing tasks efficiently
20. Taking care to do things well
21. Learning new skills
22. Working up to my ability
23. Overcoming obstacles
24. Solving problems

APPENDIX B: RETENTION FACTOR MEASUREMENT SCALE (RFMS)

The statements below describe various aspects of job satisfaction. For each statement, indicate your level of agreement. Use the scale provided to reflect your view.

5 = Strongly agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

Compensation

1. My benefits package.
2. My most recent raise.
3. The information about pay issues provided by the institution.
4. My current total salary package (base pay, benefits, and incentives).
5. The institution's pay structure.
6. Influence my supervisor has on my pay.
7. The competitiveness of my total salary package (base pay, benefits, and incentives).
8. The value of my benefits.
9. Consistency of the institution's pay policies.
10. Size of my current financial incentive.
11. The number of benefits I receive.
12. How my raises are determined.
13. How the institution administers pay.

Job characteristics

14. The job requires me to use a number of complex or high-level skills.
15. The job denies me any chance to use my personal initiative or judgment in carrying out the work.
16. The job is quite simple and repetitive.
17. The job gives me considerable opportunity for independence and freedom in how I do the work.

Training and development

18. This institution is providing me with job-specific training.
19. Sufficient time is allocated for research and development training.
20. I can apply the training I receive in this organization.
21. Sufficient money is allocated for research and development training.

Supervisor support

22. My supervisor looks for opportunities to praise positive employee performance, both privately and in front of others.
23. I feel undervalued by my supervisor.

24. The supervisor almost never gives me any "feedback" about how well I complete my work.
25. My supervisor rewards a good idea by implementing it and giving the responsible employee(s) credit.
26. My supervisor seldom recognizes an employee for work well done.
27. My supervisor often lets me know how well they think I am performing the job.

Career opportunities

28. My chances of being promoted are good.
29. There are enough career opportunities for me in this organization.
30. It would be easy to find a job in another department.
31. An employee's career development is important to this organization.

Work–life policies

32. I often feel like there is too much work to do.
33. My work schedule in often in conflict with my personal life.
34. My job affects my role as a spouse/partner and/or a parent.
35. My job has negative effects on my personal life.

APPENDIX C: PROFESSIONAL ATTAINMENT QUESTIONNAIRE

The next few questions are related to professional attainment.

1. What is your principal scholarly activity?
   1 = Basic research
   2 = Clinical research
   3 = Applied or policy-oriented research or analysis
   3 = Program and curriculum design and development
   4 = Other, please specify

2. In your current position, do you… (Select all that apply)
   1 = write technical reports or working papers?
   2 = attend professional conferences?
   3 = serve as a reviewer for a conference, journal, or organization?
   4 = supervise graduate students, postdocs, or staff?
   5 = teach courses?
   6 = provide clinical or professional services?
   7 = develop marketable products?
   8 = work with researchers outside your department or lab?
   9 = serve as the principal or co-investigator on funded grants?
   10 = prepare grant or fellowship proposals as the principal or co-investigator?
   11= prepare grant proposals in which you are not listed as the principal or co-investigator?

3. Which of the following factors were important in your decision to take this position? (Select all that apply)
   1 = It was the only position you were offered at the time
   2 = Opportunity to conduct and publish your own independent research
   3 = Opportunity to teach
   4 = Opportunity to make a positive contribution
   5 = Opportunity to increase knowledge in your PhD degree field of study
   6 = Opportunity for training outside of your PhD degree field of study
   7 = Opportunity to work in a particular department or with a particular individual
   8 = Prestige of the institution
   9 = Opportunity for promotion or tenure
   10 = Compensation (salary and benefits such as health insurance)
   11 = Family-related reasons (e.g., children, spouse's or partner's job location)
   12 = Geographic location of position
   13 = Other (Please specify)

4. Currently, which career track are you most interested in pursuing for the next 10 years? (Pick one)
   1 = Tenured or tenure track faculty position
   2 = Clinical-track faculty position
   3 = Other non-tenure track faculty position
   4 = Administrative position
   5 = Independent consultant or business owner
   6 = Leave academia
   7 = Same positions
   8 = Undecided

5. What is your primary reason for your choice? (Pick one)
   1= Your interests, strengths, and skills
   2 = Availability of positions
   3 = Work environment
   4 = Work–life balance
   5 = Opportunity for advancement
   6 = Funding opportunities
   7 = Compensation (salary and benefits)
   8 = Family-related reasons
   9 = Job security
   10 = Autonomy
   11 = Opportunity to make a positive contribution
   12 = Other (Please specify)

6. Since the COVID-19 pandemic began, how much has your productivity been impacted?
   5 = Greatly
   4 = Very much
   3 = Moderately
   2 = Somewhat
   1 = Not at all

7. As a result of the COVID-19 pandemic, please rate your overall level of stress.
   5 = Very high
   4 = High
   3 = Moderate
   2 = Low
   1 = None

APPENDIX D: SOCIODEMOGRAPHIC QUESTIONNAIRE

The last few questions ask you to describe yourself.

1. What is your gender?
   Open text box to be coded by the researcher.

2. What is your age?
   Open text box.

3. What is your race?
   Open text box to be coded by the researcher.

4. What is your ethnicity?
   Open text box to be coded by the researcher.

5. What is your marital status?
   1 = Single and never married
   2 = Married
   3 = Living with partner or significant other
   4 = Separated or divorced
   5 = Widowed

6. Do you have any children? (Select all that apply)
   1=Zero, I do not have children.
   2 = Yes, I have children under 18
   3 = Yes, I have children age18 and older

APPENDIX E: SCREENER QUESTIONNAIRE

The following questions share information related to your position.

1. What is the highest degree you have completed? Do not include honorary degrees. (If you have none of the degrees or awards, select "Not applicable.")

1 = Physician scientist (both MD/PhD)
2 = Doctoral degree (PhD)
3 = First-professional degree (MD, DO, DDS)
4 = Master's degree
5 = Bachelor's degree
0 = Not applicable (I do not hold one of the degrees listed)

2. What is your principal scholarly activity? (If you had equal responsibilities, please select one.)

1 = Teaching
2 = Research
3 = Clinical service
4 = Administration (e.g., Dean, Chair, Director, etc.)

3. During the fall 2020 term, were you . . .

1 = Tenured
2 = On tenure track but not tenured
3 = Not on tenure track
4 = Institution had no tenure system

APPENDIX F: INFORMED CONSENT

Career Adaptability and Retention Satisfaction

You are being invited to participate in a research study that aims to enhance the development and retention of non-tenure track faculty in the biomedical sciences by investigating how the career adaptability subscales relate to retention satisfaction factors among non-tenure track faculty in the biomedical sciences. The study will fulfill a doctoral dissertation's research requirement.

The way you can help me answer the question is by answering the questions in this anonymous survey, which should take you about 10 minutes.

Your responses are of great importance as this survey forms part of a study of the aspects mentioned above. I greatly appreciate your participation.

The choice to participate or not is yours; participation is entirely voluntary. On the following pages, you will find several kinds of questions. Different instructions will precede the various sets of statements. Please follow the instructions carefully.

There are no right or wrong answers to any questions. I am only interested in your personal opinions. The "right" answer to any question is your frank and truthful response. You can skip any questions you would like or can quit the survey at any time.

Your answers will be treated in strict confidence and will only be used for research purposes. Although every effort will be made to protect your answers, complete anonymity cannot be guaranteed over the internet. Other potential risks of the study include loss of confidentiality because of a data breach and discomfort with a question.

You might want to participate in this research because your opinions and answers are valued, and you will help scholars and faculty development practitioners better understand career adaptability and retention satisfaction. You might not want to participate in this research because your time is valuable, and this project will not benefit you directly in the immediate short term.

If you have any questions, please contact Tara L. Hobson., Department of Higher Education Leadership, Bayh College of Education, Indiana State University; thobson2@sycamores.indstate.edu. The faculty advisor for this dissertation research is Dr. Amy French, Assistant Professor; amy.french@indstate.edu.

If you have any questions about your rights as a research subject or if you feel you have been placed at risk, you may contact the Indiana State University Institutional Review Board (IRB) by mail at Indiana State University, Office of Sponsored Programs, Terre Haute, IN 47809, by phone at (812) 237-3088 or by email at irb@indstate.edu.

The IRB has certified this research study as exempt.

_____ I agree to participate in this research study (clicking on this response will take participants to the questionnaires)

_____ I do not want to participate in this research study. (clicking on this response will take participants to the Thank you end screen).

APPENDIX G: PERMISSION TO USE CAAS

Tara:
Of course you may use the tool.
See the attachments.
Psychometrics are in the CAAS USA artilce.
I do not know your topic so i also sent the SCCI which may be of use in your study.
The Eisendottir article may be of interest in regard to cooperation.

Mark

APPENDIX G: PERMISSION TO USE RFMS

Hello Tara
Thank you for your email.

You are welcome to use the RFMScale for your doctoral thesis at Indiana State University. I have developed RFMScale in 2002. I used all the original RFMScale's questions and did a factor analysis. I think I drop 2/3 question due to their low correlation. There should be a factor analysis in the dissertation https://repository.up.ac.za/handle/2263/27597

Good luck!

Groete / Kind regards
Marnella & Andreas