

Different Concerns for Different Careers: Doctoral Student Career Trajectories Toward
and Away from the Research Professorship

by

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ABSTRACT

Research has revealed that familial concerns and obligations *do* impact the career decision making of people who shift their career goal away from the research academy and towards careers that are perceived as less intensive in terms of time and productivity demands. However, this same research line does not explain whether or not those who persist in a research professorship career aspiration experience the same familial concerns and obligations as those who shift or compromise on that goal. In line with the theory of circumscription and compromise (TCC), the current study examined specific accessibility concerns, or perceptions of barriers associated with implementing a preferred career, that contribute to doctoral student career decision making. More specifically, two groups including those who shifted their career path away from the research professorship (compromisers) and those whose career paths remain geared towards the research professorship (persisters) were examined by multivariate analysis of variance with a covariate (MANCOVA) to determine how accessibility concerns differ according to group membership. Accessibility concerns were also examined for gender differences. Results from multivariate and between-subjects follow up tests point to significant differences between the two groups on two accessibility concerns, planning for a career and family and some components of work-time flexibility preferences. Compromisers reported significantly higher preferences for work-time flexibility and scored higher on the planning for a career and a family measure when compared to persisters. No gender differences in accessibility concerns were found but female persisters were less likely than male persisters to indicate plans for children/presence of children. This study provides support for the TCC as applied to doctoral student career development and

provides evidence that doctoral student persisters and compromisers do not experience accessibility concerns in the same way.

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CHAPTER 1

INTRODUCTION

In the U.S., it has been well established that there is a gender gap in tenure-track academic positions. In 1980, women made up 10% of full professor positions in the U.S. (Trower & Chait, 2002). In 2013, that percentage was higher, but still troubling, at 30.6% (National Center for Education Statistics, 2014). This percentage is notably low, given that women have earned over half of all doctoral degrees granted in the U.S. since 2008 (Council of Graduate Schools, 2008). The numbers are much starker in the sciences and engineering, with women representing only 18% of full professors (National Science Foundation, 2013). Despite the increase in earned doctorates, an interesting trend in academia has been evident since the 1980s: The number of tenure-track academic positions is steadily declining. As Mason (2009) pointed out, tenure track positions made up 55% of academic jobs in the 1970s and 1980s. However, in 2007, only 31% of faculty members were on the tenure track; the remaining faculty members worked part time (49%), or worked full time (12%) in non-tenure-track positions (i.e., lecturer, instructor; NCES, 2007). Mason and her colleagues' research on doctoral student career decisions has hinted at the idea that these coinciding trends (i.e., the increase in women doctorates and decrease in tenure-track positions) are not unrelated (Mason, Goulden, & Frasch, 2009). Mason maintains that caregiving responsibilities contribute to these trends, given that women with children are twice as likely as men with children to take part-time or non-tenure-track positions (Mason, 2009; Mason & Goulden, 2004a).

It is worth noting that both women and men in doctoral programs make some of their career decisions around a desire for work-family balance. Both male and female

doctoral students endorse the view that faculty careers involve “unrelenting work hours that do not permit a fulfilling family life” (Mason et al., 2009, p.1). Furthermore, in a sample of doctoral students at the University of California (UC), 84% of women and 75% of men revealed that they were “very” or “somewhat” concerned about the family friendliness of possible career paths (Mason & Goulden, 2006). In general, men tended to view research and tenure track careers as significantly more family friendly than did women. Even so, around 10% of both women and men in the sample changed their career goals away from the professorship with a research emphasis to business, government, teaching, or other types of careers. The reasons provided for shifting career goals away from the research professorship included issues related to children, geographical constraints, spousal concerns, the time-consuming nature of the field, and job market and security concerns (Mason & Goulden, 2006). Taken together, these findings highlight the impact that work-family balance concerns have on both female and male doctoral students’ impressions of tenure-track research careers. However, these findings do not provide information regarding differences in concerns between those students who maintain goals towards the research-focused professoriate and those who shift career goals away.

According to Gottfredson’s career development theory of circumscription and compromise (TCC), in the early stages of career development, children and adolescents abandon the idea of pursuing certain careers based on the level of congruence between one’s self-image and various occupations’ gender types, prestige levels, and vocational interest requirements (Ferriman & Lubinski, 2009; Gottfredson, 1981, 1996, 2002, 2005). This process, called circumscription, results in a limited number of acceptable occupation

alternatives for one to consider, termed the zone of acceptable alternatives (Gottfredson, 1996, 2002, 2005). As the developmental process continues through adolescence and early adulthood, people further narrow their aspirations based on their experiences that shape perceptions of ability and lifestyle preferences (Gottfredson, 1981, 1996, 2002). Congruence levels between career requirements in a person's zone of acceptable alternatives and one's hoped-for lifestyle are a determining factor in terms of the career options that are abandoned (Ferriman & Lubinski, 2009). This process refers to Gottfredson's notion of compromise (Gottfredson, 1996, 2002, 2005). The concept of compromise reflects the modification of one's perception of compatibility with a certain occupation due to perceptions of or experiences with reality and the actual barriers that come along with implementing said job, or the "accessibility" of that occupation (Gottfredson, 1996, 2002). TCC asserts that views of accessibility and compatibility, which impact occupational expectations, are dependent upon the information that one has concerning a certain occupation (Gottfredson, 1996, 2002). Accessibility and compatibility perceptions are also based on influences such as job market trends, familial obligations, racial and sexual discrimination, ability or skill concerns, and lifestyle preferences (Blanchard & Lichtenberg, 2003; Gottfredson, 1996, 2002). This information may be actively sought out or relayed to the person; however, people have a tendency to attend to this type of occupational information when they most need it, for example, closer to the time of career decision making or goal implementation (Gottfredson, 1996, 2002). Through this process, career aspirations tend to become more realistic and less idealistic (Gottfredson, 1996, 2002).

In line with the theory of circumscription and compromise, the current study examined the accessibility concerns, or perceptions of opportunities and barriers to career implementation, that contribute to doctoral student career decision making by influencing perceptions of compatibility. More specifically, two groups, those who shift their career path away from the research professorship (compromisers) and those whose career paths remain geared towards the research professorship (persisters), were examined for how accessibility concerns differ between the groups. As noted above, some accessibility concerns are impacted by personal preferences for work and life. In that vein, the current study examined whether or not there are differences between the groups in terms of work preferences, such as time flexibility. Other lifestyle issues that were explored included the expectation that one's current or future romantic partner will contribute to domestic and child care responsibilities. Familial obligations such as the presence of children/plans to have children as well as plans for having a career and a family were examined for group differences. Further, concerns regarding one's ability to perform the tasks necessary for pursuing a research oriented academic position were considered. Finally, the study examined whether or not gender interacts with group membership to influence levels of accessibility concerns, which would add support for Mason's (2009) assertion that the pursuit of research based tenure-track jobs may be in decline due to the influx of women doctorates and the work-family conflict issues that some women experience. For example, if it is found that women compromisers experience higher levels of accessibility concerns than male compromisers and/or persisters, this finding would support the notion that women's career decisions are disproportionately impacted and influenced by accessibility concerns related to the research professorship. If we can increase our

understanding of how accessibility variables differ for each group of talented students, particularly those compromising on their initial goal of a research professorship, whether it be concern for familial obligations, romantic partner expectations, or work preferences, we will better know when and what types of interventions are needed in order to help establish tenure-track research careers as viable options for these talented students, particularly women.

The following chapters detail the relevant literature behind the theory and concepts applied in the study. They also describe the research questions, hypotheses, measures, and methods that were implemented in the study.

CHAPTER 2

LITERATURE REVIEW

This chapter is organized according to the theories and constructs being used to conceptualize the current study. It begins with a review of Gottfredson's career development theory of circumscription and compromise and then describes accessibility concerns that were evaluated in the current study as well as the research that assesses the impact of such concerns. The chapter ends with a section describing the purpose of the current study, as well as the research questions and hypotheses.

The Theory of Circumscription and Compromise

Gottfredson's theory of circumscription and compromise (TCC; 1981, 1996, 2002) is a career development theory that aims to explain the career decision making process as it spans early childhood into early adulthood. The theory primarily deals with childhood career development (i.e. in the circumscription stages); however, the last step, compromise, typically occurs during the career implementation phase when people realize that they may need to modify their choices based on the reality of pursuing a given career (Gottfredson, 1996, 2002). This career implementation stage, and the corresponding compromise process, typically occurs in early adulthood when people are initiating their adult, career oriented lives (Gottfredson, 2002). This dissertation focuses primarily on this last stage of the TCC and a component of it referred to as accessibility concerns, and this chapter substantiates how the compromise period is conceptually suitable with the doctoral years.

The early TCC focused on barriers people face and explained gender and class difference trends in career choice (Gottfredson, 1981, 1996, 2002). Notably, Gottfredson

revised her theory over the years, and it now incorporates an exploration of individual differences in career development that result from genetic, environmental, and cultural influences as well as human agency (Gottfredson, 2002, 2005). That is, the theory has a within-group emphasis and describes why and how people from similar backgrounds can have vastly different career paths (Gottfredson, 2002). More specifically, the TCC now draws from Eysenck's (1998) nature-nurture partnership theory (NNPT) to explain how the circumscription and compromise processes map on to the larger personality development concepts explained in NNPT. Gottfredson's theory incorporates the role of genetics that act as a compass to guide development but not to determine it, allowing for human agency to influence career development as well (Gottfredson 2002, 2005).

Gottfredson (2002, 2005) rejected the notion that we are merely products of our environment and social experiences and emphasized that we have power over our destinies, including our career paths, whether or not we choose to exercise that power.

Important to the entire circumscription process, or the first stages in career development, is the notion of cognitive growth, which refers to the cognitive development necessary to understand and organize increasingly complex and abstract information about oneself and the world (Gottfredson, 1981, 1996, 2002, 2005). This cognitive competence results in a child's ability to create a self-concept and a cognitive map of occupations, or an understanding of the self and of the occupational world (Gottfredson, 2005). The entire process of forming career aspirations is reliant upon one's cognitive capacity to compare one's view of oneself with views of occupations or stereotypes and judge whether or not they match. This matching process is also referred to as congruence and/or person-environment fit (Gottfredson, 2002). Circumscription

itself refers to the method in which people eliminate unacceptable career options to create their own zone of acceptable alternatives (Gottfredson, 1981, 1996, 2002, 2005). The zone of acceptable alternatives represents one's view of where they best fit into society based on career options or aspirations (Gottfredson, 1981, 1996, 2002, 2005). An occupational aspiration is one career, or career related goals or choices, that a person declares as desired at any given time, and it is subject to change often and quickly, depending on perceptions of congruence and the accessibility of or reality of implementing that job (Gottfredson, 1982, 1996, 2002, 2005; Rojewski, 2005).

According to the TCC, the process of circumscription progresses along four stages. These four stages are provided with ages; however, Gottfredson (2002; 2005) noted that the ages are subject to change as people develop cognitively at different rates and to different degrees. Stage 1 is orientation to size and power (ages 3-5), or a concrete stage of thinking wherein children realize that there is an adult world that involves having a job and they are cognizant of observable gender differences (Gottfredson, 1981, 1996, 2002, 2005). Stage 2 is orientation to sex roles and occurs around ages six to eight. During this stage, children think in polar terms, or black and white, and they are more aware of sex roles. They reject cross-sex behavior, and occupational ideas at this stage reflect sex-typed roles. At this point, children dismiss occupations from their zone of acceptable alternatives that do not conform to their gender expectations. Stage 3 transpires around ages nine to thirteen and concerns orientation to social valuation. That is, they develop an adult-like awareness of prestige and hierarchy in the career world. Children and emerging adolescents in this group also become aware of their own skills and abilities. They dismiss career options based on low prestige and level of difficulty.

The fourth and final stage in circumscription is referred to as orientation to the internal, unique self, and it happens around age 14 and beyond. During this time, individuals become more aware of their identity and their internal, or psychologically unique, sense of self. Adolescents and young adults at this stage explore occupations that are within their zone of acceptable alternatives and begin to identify which of those are most preferred given their own personality and values. That is, the fourth stage acts as a catalyst for the next process, compromise. Importantly, jobs that have been eliminated as alternatives during the circumscription process are not typically revisited unless there is some impetus to do so, such as a teacher telling a student that they seem particularly good in X subject and might want to consider a similar career field.

The compromise process refers to a period in which people adjust their most preferred or ideal career aspirations by accepting reality or actual job accessibility issues (Gottfredson, 1981, 1996, 2002, 2005). There are two types of compromise, namely, anticipatory and experiential. Anticipatory compromise represents the modification of one's opinion regarding person-job congruence based on perceptions of a career's accessibility. Perceptions of the "accessibility" or obtainability of a given career are conceptualized as being influenced by the barriers and opportunities that are associated with implementing a career decision. Accessibility concerns in turn impact a person's perceptions of their congruence with that position. The concept of "accessibility concerns" refers to potential or current barriers that one views as impactful, either positively or negatively, to implementing a preferred career choice. Thus, accessibility concerns can also be conceptualized as barriers and/or opportunity concerns for a given occupation. Experiential compromise occurs when individuals actually experience a

barrier or an accessibility problem along the course of implementing their most preferred career choice (Gottfredson, 1996, 2002, 2005). In both types of compromise, career paths move away from ideal aspirations and toward expected aspirations, which are conceptualized as aspirations that have been modified based on awareness of career barriers and opportunities (Gottfredson, 1996, 2002, 2005).

The job accessibility concerns, or perceived barriers and opportunities associated with implementing a career, that influence views of job compatibility are based on influences such as job market trends, the geographical availability of certain types of jobs and the required education, hiring processes and requirements, familial obligations, racial and sexual discrimination, ability or skill concerns, and lifestyle preferences (Gottfredson, 1996, 2002; Blanchard & Lichtenberg, 2003). Job accessibility influences such as these are the focus of this dissertation. There are three principles that guide one's understanding of a career's accessibility, the first of which is selective attention (Gottfredson, 1981, 1996, 2002, 2005). That is, people attend to information that concerns their most preferred career alternatives and tend to ignore accessibility information for other careers. The second principle refers to the propensity to attend to accessibility information when one begins to implement a career choice. Gottfredson (2002) explained, "the closer the time of implementation (say, nearer graduation) or the more serious the commitment (choosing a job versus a college major), the more realistic idealistic aspirations become" (p. 102). One could also argue that career aspirations follow the same trend in becoming more realistic as one gets nearer to doctoral program graduation and implementing a career. This could imply that career aspirations shift away from the perceived-to-be demanding and time consuming research professorship (Mason

et al., 2009) as students get closer to the time of implementing the career. Finally, the third principle involves the ease and proximity of search. That is, people tend to seek out accessibility information from convenient and trusted sources within their networks, such as parents, peers, instructors, classmates, friends, and significant others (Gottfredson, 1981, 1996, 2002, 2005). Therefore, Gottfredson (2002) asserted that people close to us play an important role in our perceptions of accessibility and compatibility. It seems possible then that family obligations and needs including the presence of or plans for children and romantic partners could influence a student's perception of the research tenure track as a viable, family friendly career.

It is worth pausing here to note that experiential compromise occurs when one has matured enough to begin pursuing and implementing a chosen career path and that people attend to accessibility concerns when they are closer to the time of career implementation. For some people, particularly those who have a preferred career that requires doctoral level education, accessibility and compatibility issues might not be experienced or brought into awareness until graduate school when one is closer to implementing a chosen career and has had more exposure to career demands and requirements. Gottfredson (2002) specifically notes that the compromise process applies to the time in which people are "launching their adult lives" (p. 107). Emerging adulthood, or the launching of adulthood, is considered to span the ages from 15 to 30 years (Arnett, 2000). According to the National Science Foundation (Hoffer & Welch, 2006), the average age of doctoral recipients is 33, with an average time to degree of 7.5 years. That implies that beginning doctoral students are around age 25. In the 2007-2008 academic year, the average undergraduate freshman was 18.7 years old, with an average

time to degree of 5 years (Ryu & American Council on Education, 2013). Thus, the average college graduate is between 23 and 24 years of age. It can be assumed that some college graduates will launch their adult lives by obtaining a job, while others will launch their adult lives by obtaining the higher education necessary for their preferred career. Either way, both groups are beginning to implement their career plans, and both will undoubtedly be confronted with perceptions of accessibility for their chosen career via exposure to the barriers and opportunities associated with that job. This new awareness of barriers will perhaps act as a catalyst for compromise. In this light, the doctoral years may be a prime time for the compromise process to occur.

Beyond accessibility concerns, there are four principles that guide the compromise process (Gottfredson 1996, 2002). According to these principles, people make a greater effort to compromise in such a way that protects their social self, or public persona vs. their private, internal self (Gottfredson, 1981, 1996, 2002, 2005).

Furthermore, the degree of compromise is important to consider. That is, compromises can be viewed more as choices when one is deciding between two acceptable alternatives; however, they can be very difficult and painful and can feel forced when one has to decide among options that are not within one's zone of acceptable alternatives (Gottfredson 2002; 2005). According to the first principal, there are conditional priorities in that when one has to make a career aspiration compromise, the sex-type of the new career option is protected while prestige and interest are relinquished. When the compromise is moderate and the sex-type of the alternate occupation is not threatening, job prestige takes priority when deciding on a new occupation. Finally, when compromises are minor in that both sex-type and prestige are protected, interests are

considered priority when modifying one's career aspirations. The second principle speaks to people's tendency to choose a job that is "good enough" vs. the optimal choice due to difficulties involved in assessing and identifying the "best" job. The third principle involves the tendency to avoid making any career choice when the alternatives are not satisfying. Finally, the fourth principle addresses one's ability to accommodate to a compromise. That is, one's career satisfaction ultimately depends on how much the compromise allows someone to "implement a desired social self, either through the work itself or the lifestyle it allows self and family" (Gottfredson, 2002, p. 107).

Gottfredson (2005) readily acknowledges that the empirical research findings concerning the TCC have been murky. She (2005) points to her writings as evidence of support for the theory (e.g. Gottfredson, 1981, 1996, 2002, 2005, Gottfredson & Lapan, 1997). Other researchers have provided evidence, some relatively recently, in support of certain tenants of the theory such as the circumscription process in which youth abandon various occupations based on gender roles, prestige, and abilities (e.g. Cochran, Wang, Stevenson, Johnson, & Crews, 2011; Helwig, 2001; Ivers, Milsom, & Newsome, 2012; Khor, 1994). The vast majority of the research on the TCC has concerned the process of compromise, particularly the order in which people compromise on job sex-type, prestige, and interest, and much of that research was conducted prior to Gottfredson's 1996 and 2002 revisions. In general, researchers have been unable to substantiate the TCC's assumption that jobs that correspond to sex role will be relinquished last, with prestige and interest being first to go depending on the degree of compromise. What has been found are mixed results, with some researchers supporting prestige and interest as being more important than sex-type (Hesketh, Elmslie & Kaldor, 1990; Junk, 2010;

Pryor, 1987; Pryor & Taylor, 1986; 1989; Taylor & Pryor, 1985), some finding differences in importance based on major of study (Holt, 1989), others observing that women interested in nontraditional occupations prefer prestige (Lueng 1993; Leung & Plake, 1990), and yet others observing no significant differences between sex-type and prestige (Blanchard & Lichtenberg, 2003). Despite the mixed findings, most researchers seem to be in agreement that empirically testing the TCC is difficult due to issues regarding operationalizing variables in the theory and a need for longitudinal data for this particular theory (Leung, 2005). Furthermore, the theory continues to be cited for its contributions to the career literature and to be included in career development texts (e.g. Brown, 2002; Lueng, 2008). For example, Lueng (2008) speaks to the notion that Gottfredson's theory is culturally relevant given many cultures' continuing emphasis on gender traditional occupations as well as the importance of occupational prestige in terms of social status. Furthermore, Gottfredson (2005) outlined a career guidance intervention for youth using the theory, and other researchers have also adapted the theory to guide career interventions for Latino youth (Ivers et al., 2012). In sum, there is some support for the TCC, and some findings that are mixed. However, it is important to note that while the tenets of the entire theory are applicable and essential to the current study, the primary focus is on accessibility concerns, or actual barriers, and the existence of these has not been contested in the career development literature.

Accessibility Concerns and Consequences

The current study focused on the types of accessibility concerns, or perceptions of barriers and/or opportunities, that are especially salient to doctoral students who have differing career aspirations, namely those who aspire to enter the research professoriate

(i.e., persists) and those who have shifted away from that aspiration, or compromised. As discussed earlier, accessibility concerns, which influence job compatibility perceptions, are impacted by a variety of factors such as job market trends, geographic concerns, hiring practices, familial obligations, racial and sexual discrimination, ability or skill concerns, and lifestyle preferences (Blanchard & Lichtenberg, 2003; Gottfredson, 1996, 2002). Following from a line of research, some of which was reviewed earlier (Mason & Goulden, 2006), the present study focused on accessibility concerns that revolve around familial concerns and lifestyle preferences and expectations.

Mason and colleagues have greatly contributed to the literature by surveying thousands of doctoral students and faculty members at the University of California and by supporting many of their findings at a national level via the Survey of Earned Doctorates (Mason 2009; Mason & Goulden, 2002, 2004a, 2004b, 2006; Wolfinger, Mason, & Goulden, 2008). The statistics discussed in the previous chapter alluded to the findings that accessibility concerns regarding having a family as well as a career are significant for both male and female doctoral students and that neither gender views the the academic research professorship as a particularly family friendly career (Mason & Goulden, 2006). In fact, about 10% of men and 12% of women reportedly change their original career goal away from the research professorship while in graduate school, and some of the top reasons cited for this shift are the time-consuming nature of the research professorship, issues related to children, geographic location issues, and spouse/partner issues or a desire to marry (Mason & Goulden, 2006). It is notable that some of these cited reasons overlap with accessibility concern categories that have been discussed. Even more disheartening are the findings that these concerns are valid. The consequences

for having a family as a doctoral student and/or as an early career research professor, particularly for women, are reviewed next.

Both women and men (54% and 36%, respectfully) view children and doctoral programs as incompatible in terms of timely degree completion and the lack of family leave available (Mason et al., 2009). Findings from Finkel and Olswang (1996) also highlighted that women faculty consider children, or the time it takes to raise them, as a considerable threat to obtaining tenure. That is, the lifestyle requirements, especially in terms of work flexibility, for obtaining tenure and for raising children can be seen as conflicting. These findings are in line with Van Ander's (2004) research indicating that women, significantly more so than men, self-select away from academic careers due to issues related to children and mobility. Indeed, faculty report that balancing work and family responsibilities considerably contributes to stress levels; academics who are mothers often report that feelings of both guilt and stress are outcomes of these competing obligations (Sorcinelli & Near, 1989; Ward & Wolf-Wendel, 2004). However, almost two thirds of doctoral students reportedly plan to have children, eventually (Mason, et al., 2009).

The postponing of starting a family becomes challenging for those who plan on entering the research professoriate, particularly those who plan to wait until obtaining tenure to start a family, given that the average age of achieving tenure status is 39 while peak fertility years range from 18 to 31 (Hoffer & Welch, 2006; Mason et al., 2009; te Velde & Pearson, 2002). Furthermore, women who decide not to wait are 22% less likely than women without children to obtain a tenure-track job if they have children under the age of six (Wolfinger, et al., 2008). When examining the impacts of children on men in

the academy, those who have children within five years of receiving a doctoral degree are 38% more likely to have tenure than are women who have children during that time (Mason & Goulden, 2002). On a related note, research has pointed out that faculty members who take advantage of policies that stop the tenure clock for family leave incur a salary penalty compared to those who do not use clock-stopping benefits, even while controlling for differences in scholarly productivity (Manchester, Leslie, & Kramer, 2013). It is not hard to imagine that salary penalties are discouraging for those who decide to put family formation off until they obtain their degree and secure a tenure-track position. Further, in a survey of faculty at the University of California, 38% of female faculty vs. 18% of male faculty reported that they had fewer children than they desired (Mason & Goulden, 2004). Only 33% of women in the research professorship who enter without children ever have children, and they are much more likely to remain single or get divorced than men in equal positions (Mason & Goulden, 2004). It would be ignorant to assume that these trends are invisible to doctoral students in the process of making career decisions. When few female faculty have children, and there are less female faculty members in general to begin with, the picture being painted is that research faculty careers are not family friendly, and it is quite possible that this picture contributes to accessibility doubts and concerns for research professorship careers.

In the research professorship, the presence of romantic partners and household responsibilities have been found to create barriers for women as well, and these can be conceptualized as another potential source of accessibility concerns. For example, married women lag 12% behind married men in their chances of obtaining a tenure-track position (Wolfinger, et al., 2008). These statistics are expanded by findings on female

and male associate and full professors of history (Townsend, 2013). Namely, in history departments, married women took approximately two years longer to advance from associate to full professor compared to their male counterparts (Townsend, 2013). These trends may be due in part to the fact that women are more likely than men to have romantic partners who work full time, and therefore may be geographically limited, and that females in the professorship are also more likely than their male counterparts to be partnered with fellow academics (Jacobs & Winslow, 2004; Wolfinger et al., 2008). Women are more likely than men to relocate to the geographical region in which their partner obtains academic employment (Mason, et al., 2009). Furthermore, women in academia report contributing more hours to domestic responsibilities than male faculty do (Suitor, Mecom, & Feld, 2001), with women spending over 100 hours a week on career, home, and childcare duties while men report approximately 85 hours (Mason & Goulden, 2004; Mason, Stacy, & Goulden, 2003). It is conceivable that a doctoral student's expectation for the amount of time a partner will contribute to household/childcare responsibilities, and/or the anticipation that a partner's career will need to be prioritized, could contribute to accessibility concerns for obtaining a career in the research professoriate.

Finally, self-efficacy, or one's belief in their ability to succeed at a specific task, has been found to be a strong predictive factor in terms of career decision making (Lent, Brown, & Hackett, 1994). Self-efficacy mediates the relationship between actual abilities in a given field and interest in that domain as a career option (Lent et al., 1994). Further, there is a direct relationship between self-efficacy and performance, or the quality and persistence of behavior (Lent et al., 1994). Therefore, in terms of career decision making,

self-efficacy regarding components that contribute to pursuing a career in the research professoriate is an important variable to consider. The crucial component that sets the research professorship apart from other academic positions, such as lecturer or instructor, is the emphasis on research engagement and productivity. Research self-efficacy, or one's belief in one's ability to accomplish research related tasks such as disseminating results and/or developing theoretically sound research questions, has been found to be related to interest in conducting research, engaging in scholarly activities, and increased research productivity (Bishop & Bieschke, 1998; Kahn, 2001; Kahn & Scott, 1997; Lambie, Hayes, Griffith, Limberg, & Mullen, 2013). Thus, research self-efficacy appears to be an important component in the preparation and development of future research professors. Given the importance of research self-efficacy to career aspirations, particularly towards the research academy, it seems logical that research self-efficacy could be an important variable to consider and control for when exploring family and lifestyle related accessibility concern differences among doctoral students.

Given the findings just reviewed, it would appear that female doctoral students more so than male students are pressured to choose, or compromise according to the TCC, between a family and the research professorship. However, the fact remains that not all women do choose between the two; some have both. The same statistics reviewed earlier can be used to argue that, for some reason, a third of women who enter the professorship go on to have children (Mason & Goulden, 2004). Further, if 38% of women faculty stated that they did not have as many children as they desired (Mason & Goulden, 2004), that means that 62% of women surveyed were content with the number of children they had. Finally, if 12% of women shift their career aspirations away from

the research oriented professorship during the doctoral years (Mason & Goulden, 2006), then 88% of women with that original goal intend to remain on that path. Given the myriad of barriers to having both a family and a research oriented professorship, how do those who continue to pursue those precise goals differ in terms of their perceptions of such barriers? Do students who compromise their fast track career goals have different, or more salient, barriers that contribute to job accessibility concerns than those who remain on the path to the research professoriate? This study aimed to shed some light on these questions.

The current study examined how certain obligations, preferences, and expectations that influence job accessibility perceptions from the TCC revolving around work-family concerns differ for two different groups of doctoral students - those who aspire to enter the research professoriate and those who have shifted their aspiration away from that goal. More specifically, lifestyle preference accessibility issues in the form of work-time flexibility preferences were examined for how they differ among the two groups. Another lifestyle issue, particularly an expectation for a romantic partner who is willing and able to share domestic duties, was also accounted for. Family obligation concerns, specifically number of children and plans for children, were considered for any differences between groups. Along that same accessibility concern cluster involving issues/preferences related to having a family, intentions to prioritize children and a romantic relationship over one's career were also assessed for group differences. Further, research self-efficacy was included and controlled for when examining differences in lifestyle preferences and family obligations accessibility concerns. Finally, according to Mason's work, women would be more likely than men to experience barriers that

contribute to compromising on a research professorship career goal. Therefore, I examined whether or not gender and group membership interact to influence the aforementioned job accessibility related issues.

Summary and Purpose of This Research

To summarize the issues that influence career accessibility perceptions that inform the current study, in terms of work flexibility concerns, Mason and colleagues (2009) found that most doctoral students view research tenure-track positions as requiring relentless work hours and little flexibility. Further, Finkel and Olswang's (1996) findings revealed that women faculty consider the time taken away from work to raise children to be a potential threat to obtaining tenure. Therefore, it seems possible that work flexibility preferences may differ for students who elect to enter or not enter the research professorship. Perhaps those who are aspiring to the research professoriate do not desire work-time flexibility in the same way as their non-academic seeking counterparts. In the realm of family-related concerns, the reviewed research suggests that women in faculty positions spend more time on domestic responsibilities than male faculty do (Suitor, Mecom, & Feld, 2001). However, it is unclear what expectations women on the fast track have for romantic partners in terms of contribution to domestic and family duties. For example, women faculty reportedly spend over 100 hours per week on work and home life duties combined (Mason & Goulden, 2004; Mason et al., 2003); however, we do not know whether or not women who plan to enter the research professorship expect a partner to contribute more, less, or equally to such duties as compared to women who do not plan to enter the research academy. Perhaps women on the academic fast track expect a higher contribution by partners than do their non-academic counterparts, and that higher

expectation is one of the reasons they persist in their research career aspirations and family ventures. Therefore, I anticipated that expectations regarding a partner's contribution to household duties, including childcare, would be significantly different based on career aspiration group membership. In terms of family concerns that impact those on the research tenure track, nationally, only 6% of Americans between 18 and 40 years of age do not have or do not want children (Gallup, 2013). Given that two thirds of doctoral students (male and female) reportedly desire children (Mason et al., 2009), that only 1/3 of females who enter the research professoriate without children ever have any, and that 70% of males with tenure and 44% of females with tenure are married with children (Mason & Goulden, 2004), it would appear as though those in the research professorship, particularly women, lag behind American averages in terms of childbearing. Therefore, it is possible that family demands in the form of the presence of/desire for children and plans for a career and a family may be rated as significantly different among those who are deciding whether or not to pursue the research professorship. Furthermore, the evidence suggests that in terms of gender differences, more women than men shift their career goals away from research track faculty towards academic occupations that focus on teaching or other careers (Mason & Goulden, 2006). When considering the research reviewed in this chapter surrounding accessibility concern issues, women disproportionally experience barriers to the research academy. Thus, it seemed likely that gender would interact with career aspiration group membership and influence ratings of the issues studied that are believed to impact career accessibility. Finally, given the established findings that point to the importance of research self-efficacy in research interest and productivity, I wanted to control for this variable such

that the effect of group membership (i.e., persisters vs. compromisers) and gender on the lifestyle preferences and family obligation accessibility concerns could be examined while removing the effect of research self-efficacy. These issues informed the purpose and hypotheses in the current study.

This study offers a unique contribution to the literature by conceptualizing doctoral student career development according to the TCC (Gottfredson 1981, 1996, 2002) and examining how ratings of job accessibility concerns differ among members of two career aspiration groups (i.e. doctoral students who compromise on their research faculty career goals [compromisers], and those who persist in aspiring to the research professoriate [persisters]). Mason and colleagues' research, reviewed extensively in this chapter, has demonstrated that familial concerns and obligations *do* impact the decisions of those who shift their career goal away from the research professorship, but this same research line does not explain whether or not those who persist in their aspiration perceive the same barriers and/or opportunities, or job accessibility issues, as those who shift, or compromise on that goal. This study aimed to shed light on how the two groups, compromisers and persisters, differed on measures of accessibility concerns, or barriers. If we know which of the studied accessibility issues are most salient for the two groups, we will better know where interventions are needed in order to help students persist in faculty pursuits. Furthermore, if we can identify which concerns related to job accessibility, if any, set those who persist apart from those who shift their career goals away from the research professorship, we may better understand whether changes are needed at an institutional level, e.g. in terms of family friendly policies and whether interventions and personal supports are needed at the individual level. I also examined

how gender and the interaction of gender and career aspiration groups might contribute to differences in ratings of job accessibility concerns. I used multivariate analysis of covariance (MANCOVA) to assess whether each of the accessibility related issues studied was significantly different based on group membership (persisters vs. compromisers) and gender after controlling for research self-efficacy. The specific hypotheses follow:

H₁) Preferences for work time demands and flexibility preferences will be significantly different based on group membership, such that compromisers will have higher preferences for work flexibility than will persisters after controlling for research self-efficacy.

H₂) Preferences for work time demands and flexibility preferences will be significantly different based on gender, such that women will have higher preferences for work flexibility than will men after controlling for research self-efficacy.

H₃) Expectations that a current or future romantic partner is/will be willing to contribute to domestic responsibilities, including childcare duties, will be significantly different based on group membership, such that persisters will have higher expectations than compromisers that a current or future romantic partner is/will be willing to contribute to domestic responsibilities, including childcare duties, after controlling for research self-efficacy.

H₄) Expectations that a current or future romantic partner is/will be willing to contribute to domestic responsibilities, including childcare duties, will be significantly different based on gender, such that men will have higher expectations than women that a

current or future romantic partner is/will be willing to contribute to domestic responsibilities, including childcare duties, after controlling for research self-efficacy.

H₅) Familial obligations in the form of number of current and/or planned children will be significantly different based on group membership, such that persisters will experience less familial obligations than will compromisers after controlling for research self-efficacy.

H₆) Familial obligations in the form of number of current and/or planned children will not significantly differ based on gender after controlling for research self-efficacy.

H₇) Planning for a career and a family (partner and children) will be significantly different based on group membership, such that these intentions will be higher for compromisers than for persisters after controlling for research self-efficacy.

H₈) Planning for a career and a family (partner and children) will be significantly different based on gender, such that these intentions will be higher for females than for males after controlling for research self-efficacy.

H₉) Gender and group membership (compromisers and persisters) will interact to influence the dependent variables of preferences for work time flexibility, expectations for romantic partners, familial obligations, and plans for a career and a family after controlling for research self-efficacy, such that the effect of group on the dependent variables will differ as a function of gender.

H₁₀) There will be a main effect for group membership (compromisers and persisters) on the composite of the dependent variables, namely, preferences for work time flexibility, expectations for romantic partners, familial obligations, and plans for a

career and a family after controlling for research self-efficacy, such that the composite of the dependent variables will differ as a function of group membership.

H₁₁) There will be a main effect for gender on the composite of the dependent variables, namely, preferences for work time flexibility, expectations for romantic partners, familial obligations, and plans for a career and a family after controlling for research self-efficacy, such that the composite of the dependent variables will differ as a function of gender.

CHAPTER 3

METHODS

Participants

In total, 371 participants were used in the confirmatory factor analysis (CFA) portion of the study. Reported birth years ranged from 1949 to 1995 with an average age of 32. Race/ethnicity self-reports included 256 White/Caucasian, 5 Black/African American, 26 Hispanic or Latino(a), 42 Asian, 9 Other, 30 Multiethnic, and three did not indicate. Regarding hypothesis testing, 152 participants were included and reported birth years ranged from 1968 to 1995 with an average age of 29. Race/ethnicity self-reports included 105 White/Caucasian, 4 Black/African American, 5 Hispanic or Latino(a), 20 Asian, 4 Other, and 14 Multiethnic. Regarding gender, there were 76 females and 75 males. There were 90 persisters and 62 compromisers included in hypothesis testing. For complete demographic information see Tables 1-4.

Table 1

<i>Demographic Characteristics of CFA and Hypothesis Testing Participants</i>		
Characteristic	<i>n</i>	%
CFA Gender		
Female	4	1
Male	5	1
Persisters Gender		
Female	43	48
Male	47	52
Compromisers Gender		
Female	34	55
Male	28	45
CFA Marital Status		
Married	149	40
Committed	77	21
Relationship		
Separated	3	<1
Divorced	10	3
Widowed	2	<1
Never Married	129	35
Persisters Marital Status		
Married	33	37
Committed	20	22
Relationship		
Separated	1	1
Divorced	0	0
Widowed	0	0
Never Married	36	40
Compromisers Marital Status		
Married	20	32
Committed	22	35
Relationship		
Separated	0	0
Divorced	2	3
Widowed	0	0
Never Married	18	29

Note. CFA total percentage is <100 due to 363 participants who did not have the opportunity to indicate gender. Some percentages <100 due to participant non-response. CFA *n* = 371; persisters *n* = 90; compromisers *n* = 62.

Table 2

Reported Race/Ethnicity for CFA and Hypothesis Testing Participants

Ethnicity	<i>n</i>	%
CFA		
White, Caucasian	256	69
Black, African American	5	1
American Indian or Alaska Native	0	0
Native Hawaiian or other Pacific Islander	0	0
Hispanic or Latino(a)	24	7
Asian	42	11
Multiethnic	30	8
Other	9	2
Persisters		
White, Caucasian	61	68
Black, African American	4	4
American Indian or Alaska Native	0	0
Native Hawaiian or other Pacific Islander	0	0
Hispanic or Latino(a)	3	3
Asian	13	14
Multiethnic	8	8
Other	1	1
Compromisers		
White, Caucasian	44	71
Black, African American	0	0
American Indian or Alaska Native	0	0
Native Hawaiian or other Pacific Islander	0	0
Hispanic or Latino(a)	2	3
Asian	7	11
Multiethnic	6	10
Other	3	5

Note. Multiethnic = two or more ethnicities selected. Some percentages <100 due to participant non-response. CFA *n* = 371; persisters *n* = 90; compromisers *n* = 62.

Table 3

<i>Participants' Presence of Children/Plans for Children</i>					
Response	<i>n Total</i>	<i>n Women</i>	<i>n</i> Men	% Women	% Men
CFA					
Have children	85	-	-	-	-
Do not have children	286	4	5	1	1
Plan to have children	236	3	2	<1	<1
Do not plan to have children	135	2	1	<1	<1
Persisters					
Have children	11	3	8	7	17
Do not have children	79	40	39	93	83
Plan to have children	55	26	29	60	62
Do not plan to have children	35	17	18	40	38
Compromisers					
Have children	7	4	3	13	11
Do not have children	55	30	25	94	89
Plan to have children	39	24	15	75	54
Do not plan to have children	23	10	13	31	46

Note. CFA total percentage is <100 due to 363 participants who did not have the opportunity to indicate gender. CFA *n* = 371; persisters *n* = 90; compromisers *n* = 62; female persisters *n* = 43; male persisters *n* = 47; female compromisers *n* = 34; male compromisers *n* = 28.

Table 4

<i>Participant Reported Doctoral Years Completed</i>		
Year	<i>n</i>	%
CFA		
1 year	102	27
2 years	100	27
3 years	79	21
4 years	42	11
5 years	30	8
6 years	11	3
7 years	2	<1
8 years	1	<1
9 years	0	0
10+ years	3	<1
Persisters		
1 year	26	29
2 years	26	29
3 years	10	11
4 years	18	20
5 years	4	4
6 years	6	6
7 years	0	0
8 years	0	0
9 years	0	0
10+ years	0	0
Compromisers		
1 year	8	13
2 years	13	21
3 years	14	23
4 years	12	19
5 years	3	5
6 years	6	10
7 years	2	3
8 years	4	6
9 years	0	0
10+ years	0	0

Note. Some percentages <100 due to participant non-response. CFA *n* = 371; persisters *n* = 90; compromisers *n* = 62.

Procedures

In line with Mason and colleagues' inclusive research, the sample for the CFA and for hypothesis testing was comprised of doctoral students in any field of study and attending a doctoral program in the U.S (Mason & Goulden, 2006). Also in line with Mason and Goulden's (2006) research, I only recruited students who had completed at least two semesters in their doctoral program, in an attempt to capture only those who have had enough time to consider and reconsider their career aspirations given experiences in a doctoral program. I recruited doctoral students by contacting approximately 300 faculty department heads primarily from three universities located in the Southwestern United States and one large research university in the Eastern United States via email. Department heads were affiliated with a broad and diverse range of doctoral level degree programs in fields such as science, technology, engineering, and mathematics as well as history, business, law, and English literature, as some examples. I also recruited participants by reaching out to graduate student program listservs (e.g., an accounting Ph.D. program listserv) and by asking participants to forward recruitment materials to any doctoral student contacts. The recruitment materials consisted of emails that included the details of informed consent. The purpose of the study was described as exploring factors that contribute to the career aspirations of doctoral students. Following participant consent, participants who agreed to participate were instructed to click a link to a web-based questionnaire designed using Qualtrics.

Incentives were provided for participation in the study via a raffle. Participants were given the chance to be entered into a raffle to win one of eighty \$20 Amazon gift

cards upon completion of the survey. The researcher received funding from Arizona State University's Graduate and Professional Student Association to cover incentive costs.

Instrumentation

Demographic information. Data were collected on gender, age, ethnicity, marital status, number of children, plans to have children, whether or not the students had child(ren) at the start of their doctoral program, whether or not the students had child(ren) during their program, semester/year admitted to program, year of study, and whether or not the students had their master's degree at the start of their doctoral program (see Appendix C).

Work time flexibility preferences. Work preferences concerning work time flexibility were measured using items from a 2009 longitudinal study conducted by Ferriman, Lubinski, and Benbow regarding work preferences, life values, and personal views of graduate students in STEM (science, technology, engineering, and mathematics) programs at age 25 and again at age 35. The 37 items used for gauging work preferences were developed by a team of consultants in the psychological sciences and were rated by participants on a scale from 1 (*not important*) to 5 (*extremely important*). Of these 37 items, four were chosen for the current study because of the significant differences from age 25 to 35 examined as a function of gender and parenthood status (Ferriman, et al., 2009). These four items became more important for women than for men from age 25 to age 35, and they were rated as more imperative to women at age 35 than to their male counterparts (Ferriman, et al., 2009). Furthermore, women with children rated these items as more important than did women without children and men with children. Over half of

the women with children at age 35 endorsed items concerning working less than 50 and 60 hours per week as extremely important.

Due to the significant findings, these four work preferences items in addition to two other relevant work preference questions adapted from the Society of Human Resource Management (SHRM; 2011) work were used in the current study to capture doctoral students' work-flexibility desires (see Appendix D). Standardized mean differences for each item were calculated, and Cartesian coordinates were plotted in the Ferriman et al. (2009) study, thus internal reliability alphas and other psychometric properties were not reported and a factor analysis was not completed. Therefore, in an attempt to establish the measure's psychometric properties and identify a factor structure, the 6 items used in the current study were examined via confirmatory factor analysis (CFA), prior to being used for hypothesis testing. Post CFA and prior to hypothesis testing, participant average scores were computed, with higher scores indicating greater preferences for flexibility.

The items were rated according to degree of importance on a scale from 1 (not important) to 5 (extremely important). The items that were used from the Ferriman et al. (2009) study included: 1) Working Monday through Friday and having my weekends free, 2) flexibility in my work schedule, 3) working no more than 50 hours per week, and 4) working no more than 60 hours per week. Two items were created based upon the Society of Human Resource Management "Focus Group Summary on Workplace Flexibility" (2011). The summary details definitions and examples of flexible work practices that were used to create the items used in the current study. The two items rated

on degree of importance are as follows: “Ability to adjust working hours to take care of personal or family matters,” and “ability to work from home on a regular basis.”

Romantic partner expectations. Expectations for a partner who shares domestic and childcare responsibilities were measured with two items developed for the purposes of the current study (see Appendix E). In line with research assessing hours spent on household or domestic labor, I structured the items by providing examples for both household and childcare duties (Suitor et al., 2001). Items were rated on a 5-point scale from 1 (much less than I do/will do) to 5 (much more than I do/will do), with 3 representing an equal sharing of responsibilities (about as much as I do/will do). The items read as follows, “I expect my romantic partner (current or future) to contribute to household duties (e.g. cooking, cleaning, yard work, etc.),” and “I expect my romantic partner (current or future) to contribute to care of children (e.g. supervision, transportation, homework, etc.).” Higher score averages indicated that the participant expected a partner to contribute to household and childcare duties much more often, middle range scores (3) indicated a preference for equal partner contribution, and lower scores indicated a doctoral student who expected a partner to handle much less of the childcare and household responsibilities. The Cronbach’s reliability alpha for the measure was $\alpha = .67$.

Family obligations. Concerns regarding family obligations that influence job accessibility perceptions, specifically number of children and plans for children, were also considered. Within the same accessibility concern cluster, plans for a career and a family were also assessed.

Presence of children, plans to have children. The presence of children was assessed with one question administered in the demographic questionnaire (see Appendix C). Participants answered the question, “how many children do you currently have?” According to the U.S. Census Bureau (2015), the average number of children in US families in 2015 was between one and two. Thus, the following responses were provided, and participants were only allowed to choose one: 0, 1, 2, 3, or more. Plans to have children were assessed in the demographic questionnaire in a similar way to the presence of children item. Participants were asked, “how many children, or if you already have children, how many more, do you hope to have in the future?” The following response options were provided, and participants were only allowed to choose one: 0, 1, 2, 3 or more. Responses to the two items were combined to achieve a normal distribution.

Planning for a career and a family. A 24 item, two factor measure, termed the PLAN scale, was used to assess the degree to which participants considered future children and significant others when planning for their future career (Ganginis Del Pino, O’Brien, Mereish, & Miller, 2013). The two factors that combine to create a general factor, termed considering future family when making career plans, consist of 1) considering children, and 2) prioritizing and compromising for a romantic partner (Ganginis Del Pino et al., 2013). The 24 items were rated on a scale from 1 (strongly disagree) to 4 (strongly agree). In a study assessing the psychometric properties of the scale, internal consistency coefficient alphas ranged from .86 to .92 for the general factor (total scale) as well as the considering children and compromising for a romantic partner factors, and the two-factor model exhibited adequate to good fit (Ganginis Del Pino et al., 2013). Example items from the considering children scales are, “I will select a career that

can be put on hold when my children are young,” and “when choosing a career, I will think about whether the work load will hinder my ability to care for my children” (Ganginis Del Pino et al., 2013). I modified the wording of the items slightly to account for respondents who did not intend to have children (see Appendix F). For example, the first example item listed above instead read, “I will select a career that can be put on hold if I have young children.” Two sample items from the prioritizing and compromising for partner scale are as follows: “I will give up some of my career goals for my relationship,” and “I will take a job that I find less satisfying if it means having more time for my partner” (Ganginis Del Pino et al., 2013). Average scores on the total scale were computed, with higher scores indicating greater consideration of family when making career plans. The internal consistency coefficient alpha for the PLAN scale in the current study was strong, $\alpha = .91$.

Research self-efficacy. Research self-efficacy was examined as a covariate. The 51 item Research Self-Efficacy Scale (RSES; Greeley et al., 1989; see Appendix G) was used to capture self-efficacy regarding one’s ability to engage in and complete various research related activities. The four-factor scale, including conceptualization, implementation, early tasks, and presenting the results, measures belief in one’s ability to perform research tasks (Bieschke, Bishop, & Herbert, 1995). Previous studies with doctoral students have reported high internal consistencies of .96, and .98 for the scale (Bieschke et al., 1995; Lambie & Vaccaro, 2011; Lambie, Hayes, Griffith, Limberg, & Mullen, 2014). Furthermore, Bieschke et al. (1995) conducted a confirmatory factor analysis and established psychometric validity of the measure. Items were rated on a scale from 0 (not confident) to 100 (totally confident) and mean scores for the total scale

were calculated, with higher scores indicating higher self-efficacy. According to Bandura (2006) in reference to measuring self-efficacy, a “simpler response format retains the same scale structure and descriptors but uses single unit intervals ranging from 0 to 10” (p. 310). Therefore, the current study employed a 0 to 10 rating scale and calculated mean scores accordingly. Sample items included, “write a manuscript for publication,” and “defend results to a critical audience.” Items that were identified as not applicable to the current sample were excluded from the study. More specifically, not all research professorships require one to complete experimental or quantitative analyses, such as in the field of English. Therefore, only general research tasks that apply to the larger doctoral seeking population were included in the study. More specifically, most of the items that fall into the implementation factor were excluded based on the lack of applicability to the general doctoral student population. Examples of the excluded items are, “perform experimental procedures,” “develop computer programs to analyze data,” and “interpret and understand statistical printouts.” Further, two additional items were eliminated based on lack of applicability, namely, “Identify and seek funding to run a study,” and “Utilize criticism from reviews of your data.” Therefore, only 35 of the original 51 items were included in the current study. The internal consistency coefficient alpha for the RSES in the current study was strong, $\alpha = .97$.

Gender. Gender was examined as an independent variable that influences dependent outcomes. An item regarding gender identification was included in the demographic questionnaire. Three response options were provided, namely male, female, and other with a request for the participant to specify. Responses were coded as 1 (male),

2 (female), 3 (other). These response options are in accordance with the Human Right's Campaign (2016) guidelines for less restrictive gender identity information gathering.

Career aspirations. In the current study, one independent variable was group membership in terms of career aspirations. As discussed in previous sections, career aspirations are one career, or career related goals or choices, that a person proclaims as desired and they are influenced by perceptions of job accessibility and congruence levels (Gottfredson, 1982, 1996, 2002, 2005; Rojewski, 2005). In this study, doctoral students were categorized as either those who shifted their career path away from the research professorship (compromisers), or those who remain, or persist, on the research professoriate career path (persisters). Participants were categorized based on their response to two questions (see Appendix H), which were included in the demographic questionnaire, worded according to the University of California Doctoral Student Career Life Survey (Mason & Goulden, 2006). The first question asked participants to choose from a list of provided alternatives what their primary career goal was at the outset of their doctoral program, after completion of their doctoral degree and any additional training, e.g., postdoctoral appointment. The second question asked them to choose among the same alternatives regarding what their current career goal is after completion of their doctoral degree and any additional training, e.g., postdoctoral appointment. The alternatives from which participants chose were in line with the career areas that Mason and Goulden (2006) identified in their study with doctoral students and that Sauermann and Roach (2016) used in their Science & Engineering PhD and Postdoc Survey, i.e., professorship/university faculty with research emphasis, professorship/university faculty with teaching emphasis, other academic position (e.g. lecturer/instructor), and other. For

the current study, I also included the options business/industry, entrepreneur, government, and nonprofit (Gibbs & Griffin, 2013; Stanford University, 2013; Turk-Bicakci & Berger, 2014). To determine group membership, I compared original career goals to current career goals and assigned group membership accordingly.

Study Design and Data Analysis

Prior to hypothesis testing, participants were sorted into one of two categorical groups based on responses to the original and current career goal questions. The groups were: Those who shift their career path away from research professorship (compromisers) and those who remain on the research professoriate career path (persisters). To determine group membership, I compared original career goals to current career goals and assigned group membership accordingly. More specifically, those who indicated that their original and current career goals involved the research professorship, that is, those who have persisted in their goal were categorized into group 1, persisters (N = 90). Those who indicated that their original goal was to enter the research professoriate, but specified that their current career goal was any other career area besides the research professorship, were categorized into group 2, compromisers (N = 62).

I used the following values for an a priori power analysis for MANCOVA in the G*Power program: effect size $f^2(V) = .0625$, $\alpha = .05$, power $(1-\beta) = .80$, number of groups = 4, number of predictors = 2, and response variables = 6. The G*Power analysis revealed that a minimum sample size of 145 was needed in order to have an 80% chance of obtaining a significant finding. In total, 810 participants completed all study measures, with the exception of a few missing at random data points. Due to an error in data collection procedures, gender was not assessed for the first 363 participants; therefore, it

was decided that these participants would be used for the CFA portion of the study. Furthermore, ten participants did not meet hypothesis testing requirements due to not having been enrolled in their doctoral program for at least two semesters at the time of data collection. Therefore, these participants were also included in the CFA analysis. Two CFA participants were removed from the analysis for not completing the Work-Time Flexibility Preferences measure.

Before hypothesis testing, a CFA was run on the 6-item Work-Time Flexibility Preferences scale using 371 study sample participants. Confirmatory factor analysis (CFA) was chosen because of the flexible framework's ability to evaluate whether factors hypothesized a priori can explain the relationships among the measured variables. Although previous research has not postulated a theory about the measure of work-time flexibility, an examination of the short, six-item measure suggests a two-factor structure. Three items focus on a pure time component of work flexibility (i.e., the number of hours and days worked per week), and three other items revolve around flexibility in work scheduling (i.e., the ability to work from home or adjust one's schedule due to personal/family matters). It is possible that two correlated dimensions underlie the work-time flexibility items. Work-hour flexibility may underlie items 1, 3, and 4, and scheduling flexibility could underlie items 2, 5, and 6 (see Figure 1). Via CFA, model fit was compared between a one-factor and a two-factor model in order to determine the factor structure that underlies the six items. Following the CFA, scores for each factor were computed and used in hypothesis testing.

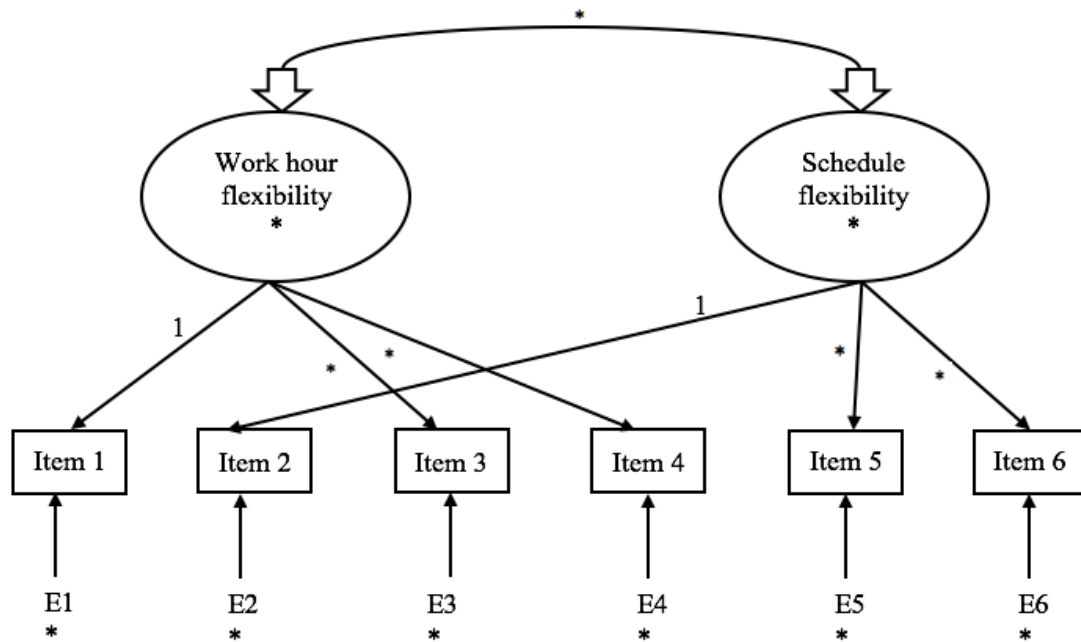


Figure 1. Hypothesized two-factor model; * = parameters to estimate.

After the CFA and group categorization, group differences in accessibility concerns (i.e., the dependent variables) were examined via a 2x2 MANCOVA for differences by group membership (persisters and compromisers) and gender (male and female) while controlling for research self-efficacy. Due to the fact that there were only three participants who indicated that their gender was “other” in the hypothesis testing sample, this gender group was eliminated from hypothesis testing as there were not as many cases as there were dependent variables (Laerd Statistics, 2013). All statistical tests were conducted in SPSS software version 24 (IBM Corp, 2016) except for the CFA analysis which was completed using Mplus software version 7.4 Demo (Muthén & Muthén, 1998-2015).

CHAPTER 4

RESULTS

Confirmatory Factor Analysis

A CFA on the work-time flexibility measure was conducted prior to hypothesis testing in order to determine the factorial structure of the measure. Analyses were conducted using mean- and variance-adjusted weighted least squares (WLSMV) estimation due to the ordered nature of the data. Prior to CFA, descriptive statistics including correlations, means, and standard deviations for the six items were examined. Model fit was assessed using goodness of fit indices provided by the WLSMV estimator: Satorra Bentler scaled chi-square (SB χ^2), root mean square error of approximation (RMSEA) 90% confidence interval, weighted root mean square residual (SRMR), Tucker-Lewis index (TLI), and the comparative fit index (CFI). The SB χ^2 comparison tests were calculated by the Mplus DIFFTEST program with WLSMV (Muthén & Muthén, 1998–2015).

Descriptive statistics including means, standard deviations, and correlations for the sample are provided in Table 5 below. A two-factor model was compared to a one-factor model on indices of fit. Model misspecification was detected by a statistically significant p value less than .05 on the SB χ^2 test, RMSEA values greater than .06, WRMR values greater than .90, and CFI and TLI values lower than .95, in line with Muthén & Muthén (1998–2015) and Hu & Bentler's (1999) suggestions. Two of the five goodness of fit criteria were met (i.e., CFI and TLI) in the two-factor model providing some support for the model (see Table 6); SB $\chi^2(8) = 53.697, p < .01$, CFI = .993, TLI = .987, WRMR = .904, RMSEA = .124, 90% CI [.094, .157]. The one-factor, nested model

was expected to have worse fit than the two-factor model. None of the five fit criteria were met in the one-factor model, providing no support for the model (see Table 6 in Appendix N); SB $\chi^2(9) = 343.556, p < .01$, CFI = .949, TLI = .915, WRMR = 2.918, RMSEA = .317, 90% CI [.288, .346]. Per the Mplus SB χ^2 difference test for nested models, the fit of the one-factor model was significantly worse than that of the two-factor model (SB χ^2 of difference = 121.560, df difference = 1, $p < .01$).

Given that some support was found for the two-factor model, modification indices were examined to assess potential areas that may increase fit, if conceptually applicable. The LM $\chi^2(1)$ for V5 (“Ability to adjust working hours to take care of personal or family matters”) loading on F1 (Work-Hour Flexibility) was 40.474, $p < .001$. Additionally, V5 has the highest correlation residual with V1 (“Working Monday through Friday and having my weekends free”), which is loaded on F1. Finally, it seems conceptually plausible that V5 could cross-load onto both F1 (Work-Hour Flexibility) and F2 (Scheduling Flexibility) and therefore a third model was run to evaluate this respecification. In the third model, five of the five goodness of fit criteria were met with a two-factor model allowing V5 to cross-load onto factor 1 and 2 and all of the fit indices improved providing support for this two-factor structure (see Table 2); SB $\chi^2(7) = 13.892, p = .053$, CFI = .999, TLI = .998, WRMR = .421, RMSEA = .052, 90% CI [.000, .091]. Per the Mplus SB χ^2 difference test for nested models, the fit of the original two-factor model was significantly worse than that of the modified two-factor model (SB χ^2 of difference = 29.260, df difference = 1, $p < .01$).

Table 5

Correlations, Means, and Standard Deviations for Doctoral Student Sample on Work Time Flexibility Preferences

Measure	V1	V2	V3	V4	V5	V6	<i>M</i>	<i>SD</i>
V1	1						3.11	1.299
V2	.158**	1					3.65	1.065
V3	.608**	.362**	1				3.17	1.353
V4	.595**	.283**	.916**	1			3.77	1.351
V5	.379**	.684**	.506**	.432**	1		3.66	1.094
V6	.106	.621**	.309**	.206**	.511**	1	2.57	1.214

Note. *M*=mean; *SD*=standard deviation; V1= working Monday through Friday and having my weekends free; V2= flexibility in my work schedule; V3= working no more than 50 hours per week; V4= working no more than 60 hours per week; V5= ability to adjust working hours to take care of personal or family matters; V6= ability to work from home on a regular basis. ** $p < .01$.

Table 6

Fit Indices for Analysis of Measurement Invariance of the Work-Time Flexibility Preferences Two-Factor and One-Factor Models

Model	S-B Scaled χ^2 (<i>df</i>)	RMSEA [90% CI]	CFI	TLI	WRMR	Models Compared	S-B Scaled $\Delta\chi^2$ (Δdf)
1	53.697 (8)*	.124 [.094, .157]	.993	.987	.904	-	-
2	343.556 (9)*	.317 [.288, .346]	.949	.915	2.918	1 vs. 2	124.560 (1)*
3	13.892 (7)	.052 [.000, .091]	.999	.998	.421	1 vs. 3	29.260 (1)*
4	258.327 (5)*	.370 [.332, .409]	.961	.921	2.443	-	-

Note. Model 1 = two-factor model; Model 2 = one-factor model; Model 3 = two-factor modified model; Model 4 = one-factor model without V5 included; *df*= degrees of freedom; RMSEA = Root Mean Square Error of Approximation; CFI = Comparative Fit Index; WRMR = Weighted Root Mean Residual; CI = Confidence Interval; * $p < .05$.

Conceptually speaking, for the purpose of the current study hypotheses, the presence of a measure that includes an item that cross loads on two factors is not ideal. Therefore, a one-factor model without the inclusion of V5 was evaluated. Only one of the five fit criteria was met (i.e., CFI) in the modified, five-item, one-factor model, providing very little support for the model (see Table); SB $\chi^2(9) = 258.327$, $p < .01$, CFI = .961, TLI

= .921, WRMR = 2.443, RMSEA = .370, 90% CI [.332, .409]. Therefore, the factor structure of the retained two-factor model allowing V5 to cross-load onto factor one and two is presented in Figure 2. A two-factor model of Work-Time Flexibility Preferences with V5 present on both factors was used in all subsequent study analyses. That is, responses on V5 were included in the scoring for both factors. Cronbach reliability alphas were acceptable for both factor one ($\alpha = .79$) and factor two ($\alpha = .75$).

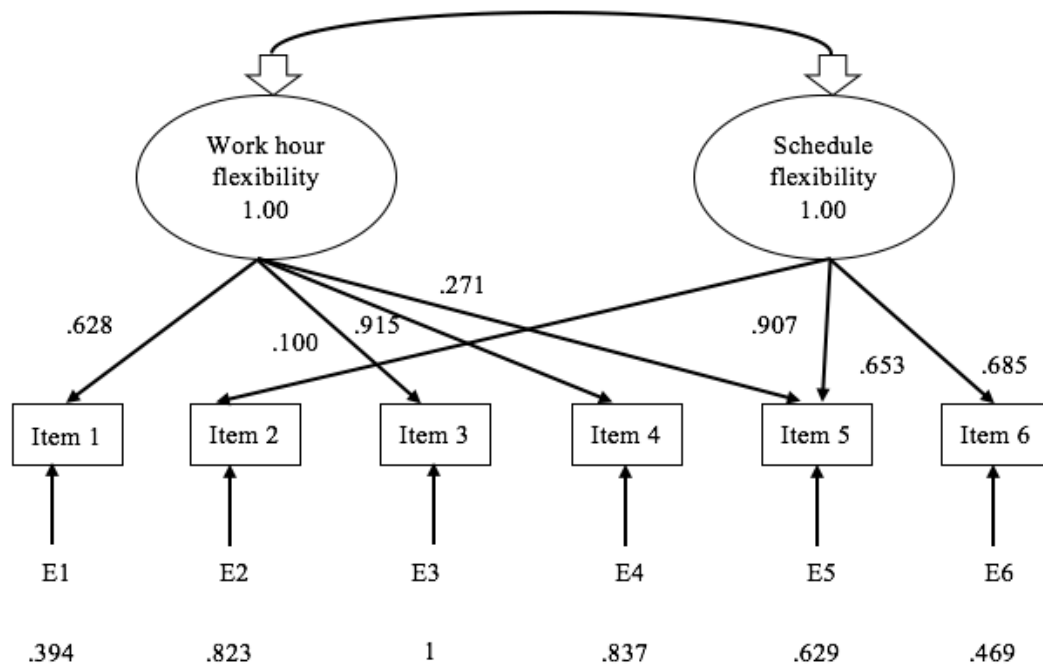


Figure 2. Final two-factor model, with standardized loadings for 6 items from the Work-Time Flexibility Preferences measure. All parameters were statistically significant at the $\alpha=.05$ level.

Pre-Hypothesis Testing

In the sample data used for hypothesis testing, I conducted an Expectation-Maximization (EM) imputation to handle missing data due to its superiority to mean imputation methods. EM uses other variables to impute a value and then checks whether

that is the most likely value and imputes again as needed (Graham, 2009). EM preserves relationships with other variables; however, similar to mean imputation, it underestimates standard error and is only recommended when the amount of missing data is very small (i.e., < 5%) and when individual items are combined in reaching a total score, as was the case in the hypothesis testing sample data (Graham, 2009). Little's MCAR test was not significant, meaning data were missing completely at random and there were no variables with 5% or more missing data, providing support for the use of EM methods.

Prior to hypothesis testing, assumptions for MANCOVA were examined, more specifically, linearity, multicollinearity, univariate and multivariate outliers, normality, and homogeneity of variance, and the relationship between the covariate and the independent and dependent variables (Laerd Statistics, 2013). In order to examine assumptions for each cell of the design, the data file was split on the two independent variables. Regarding linearity, it was not possible to examine visually the scatterplot given the large number of data points present on each plot. There was no evidence of multicollinearity, as assessed by Pearson correlations ($|r| < 0.9$). There were some univariate outliers present in the data, as assessed by inspection of boxplots. More specifically, two univariate outliers were present on the schedule flexibility factor of the Work-Time Flexibility Preferences Scale, three were present on the PLAN scale, and one was present on the Presence of Children/Plans for Children scale; however, no outliers on these scales were labeled as "extreme," and thus were not cause for concern (Laerd Statistics, 2013). The Research Self-Efficacy Scale had nine outliers that were labeled as "extreme." Upon closer examination of each outlier, it was clear that they were not products of measurement and/or data entry errors. Therefore, in line with research ethics,

the univariate outliers were not removed from the analysis. There were no multivariate outliers in the data, as assessed via Mahalanobis distance ($p < .001$). The assumption of normality for all dependent variables was satisfied for all group combinations of gender and group, as assessed by visual inspection of Normal Q-Q Plots. Given that the career aspiration group sizes were not equal, homogeneity of covariance matrices was assessed using Box's M test ($p = .589$). The insignificant p value indicated that there was no evidence that the covariance matrices were significantly unequal; therefore, adjustments for unequal sample sizes (i.e., using Pillai's Trace vs. Wilks' Lambda) were not warranted. Finally, the relationship between the covariate (i.e., research self-efficacy) and the independent and dependent variables was examined. Research self-efficacy was positively, albeit not significantly, correlated with the dependent variables work-hour flexibility, schedule flexibility, PLAN, and presence of children/plans for children. Research self-efficacy was significantly correlated with the dependent variable romantic partner expectations ($|r| < 0.16$). Further, research self-efficacy was not significantly correlated with the independent variables group ($|r| < 0.03$) and gender ($|r| < 0.07$), providing support for its examination as a covariate.

Hypothesis Testing

Regarding hypothesis testing, a two-way MANCOVA was run with two independent variables, gender and group, and five dependent variables, romantic partner expectations, presence of children/plans for children, work-hour flexibility preferences, work schedule flexibility preferences, and planning for a career and family after controlling for research self-efficacy. Means and standard deviations of the dependent variables split by gender and the two groups of career aspirations are reported in Tables 7

and 8. Correlation coefficients for relations between the dependent variables are presented in Table 9. The main effects and interaction terms were examined using Wilks' Lambda multivariate statistic, and post hoc univariate tests were conducted as needed for significant findings. Simple main effects post hoc analyses displayed group mean differences as well as which group mean differences differed significantly for a given variable. Table 10 presents results from multivariate and univariate analyses of covariances for the dependent variables.

Table 7

Unadjusted Mean Scores and Standard Deviations for Accessibility Concern Measures as a Function of Gender and Group Membership

	PLAN		RPE		CHIL		WHF		SF		COV	
Group	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Women												
Persisters	2.3	0.5	3.1	0.6	1.2	1.1	2.9	0.9	3.4	1.0	7.6	1.3
Compromisers	2.7	0.5	3.2	0.5	1.1	1.2	3.5	0.9	3.1	0.8	7.8	1.1
Men												
Persisters	2.5	0.5	3.2	0.5	1.5	1.1	2.7	0.9	3.2	0.9	7.6	1.4
Compromisers	2.6	0.5	3.2	0.5	1.1	1.2	3.4	1.0	3.2	0.8	7.5	1.5

Note. PLAN = Planning for a Career and a Family Scale rated 1 (strongly agree to) 4 (strongly disagree); RPE = Romantic Partner Expectations rated 1 (much less than I do/will do) to 5 (much more than I do/will do), with 3 representing an equal sharing of responsibilities (about as much as I do/will do); CHIL = Presence of Children/Plans for Children rated on a scale of 0, 1, 2, 3, or more; WHF = Work-hour flexibility rated from 1 (not important) to 5 (extremely important); SF = Schedule flexibility rated from 1 (not important) to 5 (extremely important); COV = Research Self-Efficacy rated from 0 (not confident) to 10 (totally confident).

Table 8

Adjusted Mean Scores for Accessibility Concern Measures as a Function of Gender and Group Membership

	PLAN	RPE	CHIL	WHF	SF
Group	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>
Men	2.6	3.2	1.3	3.1	3.2
Women	2.5	3.1	1.4	3.2	3.3
Persisters	2.4	3.2	1.4	2.9	3.3
Compromisers	2.6	3.1	1.4	3.5	3.2

Note. PLAN = Planning for a Career and a Family Scale rated 1 (strongly agree to) 4 (strongly disagree); RPE = Romantic Partner Expectations rated 1 (much less than I do/will do) to 5 (much more than I do/will do), with 3 representing an equal sharing of responsibilities (about as much as I do/will do); CHIL = Presence of Children/Plans for Children rated on a scale of 0, 1, 2, 3, or more; WHF = Work-hour flexibility rated from 1 (not important) to 5 (extremely important); SF = Schedule flexibility rated from 1 (not important) to 5 (extremely important); COV = Research Self-Efficacy rated from 0 (not confident) to 10 (totally confident).

Table 9

Correlation Coefficients for Relations Between Accessibility Concern Measures

Variable	1	2	3	4	5	6
1 PLAN	1					
2 CHIL	.47**	1				
3 RPE	-.14	.05	1			
4 WHF	.37**	.08	-.02	1		
5 SF	.40**	.10	-.15	.46**	1	
6 Covariate	.02	.09	.16*	.02	.05	1

Note. PLAN = Planning for a Career and a Family Scale; RPE = Romantic Partner Expectations; CHIL = Presence of Children/Plans for Children; WHF = Work-hour flexibility; SF = Schedule flexibility; Covariate = Research Self-Efficacy. * $p < .05$. ** $p < .01$.

Table 10

Multivariate and Univariate Analyses of Covariance for Accessibility Concerns Controlling for Research Self-Efficacy

Source	Multivariate						Univariate					
	PLAN			CHIL			RPE			WHF		
	F^a	p	η^2	F^b	p	η^2	F^b	p	η^2	F^b	p	η^2
Group	7.32	<.001	.20	7.36	.007	.05	.00	.974	.00	.58	.449	.00
Gender	1.21	.307	.04	1.03	.311	.01	.16	.688	.00	.78	.379	.01
Covariate	1.24	.292	.04	.03	.862	.00	1.07	.303	.01	4.25	.041	.03
G X G	1.55	.177	.05	1.83	.178	.01	3.95	.049	.03	.07	.793	.00

Note. Multivariate F ratios were generated from Wilks' Lambda statistic. ^aMultivariate $df = 5, 143$. ^bUnivariate $df = 1, 147$.

Covariate = Research Self-Efficacy; PLAN = Planning for a Career and a Family Scale; RPE = Romantic Partner Expectations;

CHIL = Presence of Children/Plans for Children; WHF = Work hour flexibility; SF = Schedule flexibility.

The interaction effect between gender and group on the composite of the dependent variables while controlling for research self-efficacy did not achieve acceptable levels of statistical significance, $F(5, 143) = 1.553, p = .177$, Wilks' $\Lambda = .948$, partial $\eta^2 = .055$. This finding was not in support of hypothesis 9. That is, the effect of group on the dependent variables did not differ as a function of gender. The main effect of gender on the composite of the dependent variables while controlling for research self-efficacy was not statistically significant, $F(5, 143) = 1.211, p = .307$, Wilks' $\Lambda = .959$, partial $\eta^2 = .041$. This finding was not in support of study hypotheses 2, 4, 8, and 11. In other words, the dependent variables do not differ significantly as a function of gender. This finding did support hypothesis 6, in that presence of children/plans for children did not differ as a function of gender.

There *was* a statistically significant effect of group on the composite of the dependent variables while controlling for research self-efficacy, $F(5, 143) = 7.322, p < .001$, Wilks' $\Lambda = .796$, partial $\eta^2 = .204$, indicating a large effect size. Power to detect the effect was .999. This finding is in support of hypothesis 10, in that the composite of the dependent variables differed significantly as a function of group membership (i.e., persisters vs. compromisers) while controlling for research self-efficacy. Post-hoc tests were conducted to examine which specific dependent variables differed significantly as a function of group membership (i.e., persisters vs. compromisers). Tests of between-subjects effects revealed that there was a statistically significant main effect of group for PLAN scores (i.e., planning for a career and family), $F(1, 141) = 7.359, p = .007$, partial $\eta^2 = .048$ indicating a small effect size, and an observed power of .769. There was also a statistically significant main effect for the work-hour flexibility factor of the Work-Time

Flexibility Preferences scale, $F(1, 147) = 15.218, p < .001$, partial $\eta^2 = .094$ indicating a medium effect size, and an observed power of .972. More specifically, scores on the PLAN measure were significantly higher for group 2, compromisers, $M = 2.659$, 95% CI [2.537, 2.781] than for group 1, persisters, $M = 2.440$, 95% CI [2.339, 2.541]. This finding provided support for hypothesis 7, in that planning for a career and a family was significantly different based on group membership after controlling for research self-efficacy, such that these intentions were higher for compromisers than for persisters. Further, scores on the work-hour flexibility factor of the Work-Time Flexibility Preferences scale were significantly higher for group 2, compromisers, $M = 3.468$, 95% CI [3.235, 3.701] than for group 1, persisters, $M = 2.869$, 95% CI [2.677, 3.062]. This finding provides some support for hypothesis 1 such that preferences for one factor (i.e., work-hour flexibility) of work time-flexibility were significantly different based on group membership after controlling for research self-efficacy in that compromisers had higher preferences for work-hour flexibility than persisters. There were no statistically significant main effects of group membership for romantic partner expectations, $F(1, 147) = .577, p = .449$, partial $\eta^2 = .004$, presence of children/plans for children, $F(1, 147) = .001, p = .974$, partial $\eta^2 = .000$, and the schedule flexibility factor of the Work-Time Flexibility Scale, $F(1, 147) = .807, p = .370$, partial $\eta^2 = .005$. Thus, hypotheses 3 and 5 were rejected. One factor of the Work-Time Flexibility Preferences scale, schedule flexibility, was not significantly different based on group membership; this finding did not support hypothesis 1.

In summary, schedule flexibility, romantic partner expectations, and presence of children/plans for children did not significantly differ based on career aspiration group

membership. Further, the accessibility concern dependent variables did not differ as a function of gender nor was there a significant interaction effect between gender and group. Planning for a career and a family as well as work-hour flexibility did significantly differ as a function of group, such that compromisers had greater plans for a career and a family and stronger preferences for work-hour flexibility than did persisters after controlling for research self-efficacy.

CHAPTER 5

DISCUSSION

Prior research has established that lifestyle preferences and familial concerns are among the reasons cited why doctoral students shift their career goal away from the research academy and towards careers that are perceived as less intensive in terms of time and productivity demands. However, this research line does not explain whether or not those who persist in their research professorship aspiration perceive the same barriers, or job accessibility issues, as those who shift or compromise on that goal. This study aimed to shed light on how two groups, compromisers and persisters, differed on measures of lifestyle and family accessibility concerns, or perceptions of barriers associated with implementing a preferred career, as conceptualized according to the TCC (Gottfredson 1981, 1996, 2002). More specifically, the current study examined how specific lifestyle and family accessibility concerns, namely plans for a career and a family, romantic partner expectations, work-time flexibility preferences, and the presence of children/plans for children differ among persisters and compromisers after controlling for research self-efficacy.

Results indicated that there were significant differences between persisters and compromisers on the composite of the accessibility concern variables after controlling for research self-efficacy. This finding was in support of study hypothesis 10 in that there was a main effect for group membership (compromisers and persisters) on the composite of the dependent variables after controlling for research self-efficacy. Two accessibility concerns, namely, planning for a career and a family, and work-hour flexibility, differed significantly as a function of career aspiration group (i.e., persisters vs. compromisers).

These findings added support for hypothesis 7 in that planning for a career and a family (partner and children) was significantly different based on group membership, such that these intentions were higher for compromisers than for persisters after controlling for research self-efficacy. There was some support for the first hypothesis as well, that preferences for work-hour flexibility would be significantly different based on group membership, such that compromisers reported higher preferences for work-hour flexibility than did persisters after controlling for research self-efficacy. More specifically, participants who had compromised on their original career goal to pursue a research professorship occupation in favor of another job were more likely to indicate that they had plans to pursue a family friendly career (i.e., a consideration of future children and significant others when planning for a future career) and that they desired more flexibility than persisters in terms of work hours (i.e. the number of hours and/or which days one is required to work per week). These significant findings add to the literature by providing evidence that persisters and compromisers currently enrolled in doctoral programs do not experience all accessibility concerns in the same way. The findings support Mason and Goulden's (2006) report that issues related to having a family and the time-consuming nature of the academy are among the top reasons that both male and female doctoral students cite for switching their career goals away from the research professoriate. The findings also provide the first support for components of the TCC as applied to the examination of doctoral student career decision making. Importantly, this is the first study to examine and distinguish differences between doctoral student accessibility concerns when considered in the context of career decision making, specifically career goal compromise and persistence.

It is necessary to point out that plans for a career and a family (partner and children) were significantly different among compromisers and persisters, but *intentions* to have children, or the *presence* of children at home, were not. Sixty-two percent of the hypothesis testing sample reported having a desire for children; however, only 12 percent already had children. It seems, then, that even though many persisters and compromisers desire children, compromisers are significantly more likely than persisters to plan on having a career that will allow for a family and provide work-hour flexibility. It is important to note that the effect sizes, or the strength of the findings, for these significant results are small and medium, respectively. Put more simply, doctoral students in the sample who indicated that their current career goal is to enter the research professorship were more likely to report that they are not planning for a career and a family, despite the fact that they hope to have a family. These findings may be corroborating Mason and colleagues' (2009) study in which doctoral students rated tenure-track careers at research heavy institutions to be the least family friendly when compared with tenure-track careers at teaching intensive universities, non-tenure track academic positions, policy and managerial positions in academia and outside, and research careers inside and outside the academy. Further, many doctoral students have a perception of the tenure-track research professorship as consisting of "unrelenting work hours that do not permit a fulfilling family life" (Mason et al., 2009, p.1). It seems, then, that an issue related to career goal compromise lies in the research academy's reputation for not being a family-friendly career that provides work-hour flexibility. Furthermore, despite the fact that some persisters are persevering in their goal to pursue the research professorship and not planning for a flexible, family friendly career despite their intentions to have a family, is

this optimal? The implementation of family friendly policies at universities that are applicable to both graduate students and faculty at all levels may help to change the perception of the research academy and in turn prevent career goal compromise and provide persisters with the hope that their dream career is also one that will allow them to have the family that they desire.

Statistically significant findings between compromisers and persisters were not observed for three accessibility concerns, namely, romantic partner expectations, the schedule flexibility factor of the Work-Time Flexibility Preferences measure, and presence of children/plans for children after controlling for research self-efficacy. Further, statistically significant differences between women and men were not found on any of the accessibility concern measures after controlling for self-efficacy, nor was there a significant interaction between gender and group (i.e., persisters vs. compromisers). There are various factors that can help explain these findings.

Regarding romantic partner expectations, or expectations that a romantic partner will contribute to household and childcare duties, there were no significant differences between compromisers and persisters nor between males and females. Mean scores on the measure of romantic partner expectations were 3.1 and 3.2 for male and female compromisers and persisters (see Table 7). That is, both male and female compromisers and persisters expected to have an approximately equal sharing of household and childcare responsibilities in their romantic relationships. Prior research has pointed to an unequal sharing of domestic responsibilities in academia with women faculty reportedly spending over 100 hours a week on career, home, and childcare duties while male academics reported approximately 85 hours (Mason & Goulden, 2004; Mason, Stacy, &

Goulden, 2003). However, a more recent study of time spent on domestic responsibilities among physician-researchers awarded National Institutes of Health (NIH) research grants revealed that women self-reported spending 8.5 more hours per week on domestic responsibilities than their male counterparts (Jolly et al., 2014). Although this report still speaks to disparities between male and female researchers in terms of time spent on domestic duties, it does suggest a shrinking hourly difference; 8.5 hours is a noticeably smaller gap than the 15-hour difference reported in Mason and colleagues' reports. However, it is important to acknowledge that the two study samples were different (i.e., physician-researchers vs. faculty members). In a 2015 study by the Pew Research Center, parents in dual-employed households reported that they equally shared household chores, child discipline responsibilities, and playing/participating in activities with their children. Taken together, more recent research points to the possibility that the egalitarian romantic partner expectations of the participants in the current study are reflective of cultural shifts in which shared domestic and childcare duties are becoming more frequent, especially among dual-employed partners.

Regarding findings for the Work-Time Flexibility Preferences measure, significant differences were not observed among male and female compromisers and persisters on the schedule flexibility factor; however, as previously mentioned, significant differences between compromisers and persisters *were* observed for the work-hour factor of the measure. That is, male and female compromisers and persisters endorsed similar levels of preferences for schedule flexibility (e.g., the ability to adjust a work schedule as needed and/or work from home on a regular basis); mean scores on the factor ranged from 3.1 to 3.4 on a scale from 1 (not important) to 5 (extremely important). It was

originally hypothesized that compromisers would prefer all types of work-time flexibility, including schedule flexibility, significantly more than persisters. Despite this expectation, the current findings actually support trends in academia in which schedule flexibility is typically present such that work can be completed at home during the evenings and on weekends (O’Laughlin & Bischoff, 2005). That is, research faculty members typically do have some flexibility to adjust their schedule and to work from home. Regarding work-hour flexibility preferences (e.g., working no more than 50 or 60 hours per week on Mondays through Fridays and having weekends free), compromisers were significantly more likely to endorse a desire for this flexibility when compared to persisters, as expected. Put another way, when compared with compromisers, those with a career goal of entering the research academy did not frequently endorse preferences for a 60-hour or less work week and a strict Monday through Friday schedule. Estimates of work hours for faculty members range from 53 to 58 hours per week, with some reports of a 55-hour work week on average (Mason & Goulden, 2002; O’Laughlin & Bischoff, 2005). Thus, the trends in work-time flexibility preferences observed in the current sample align well with actual work time trends in academia.

Significant differences between male and female compromisers and persisters were not observed on measures of a presence of children/plans for children. I hypothesized that compromisers would have more children and/or plans to have more children than persisters. However, 73% of persisters and 74% of compromisers either already had children or planned to have them. This finding helps to clarify previous reports that issues related to having a family are among the top reasons that both male and female doctoral students cite for switching their career goals away from the research

professoriate (Mason & Goulden, 2006). It seems that it is not the presence of or desire for a family itself that is significantly different among persisters and compromisers. Rather, this study provides evidence that one's intention to pursue a career that is family friendly (partner and children) is what sets doctoral student persisters and compromisers apart, as discussed above. I also hypothesized that men and women would not differ significantly in the number of children that they had/planned to have. This hypothesis was supported as 10% of women in the sample reported currently having children while 65% of women reported that they planned to have children; 15% of men in the sample reported that they had children and 59% expressed that they planned to have children in the future. Further, 67% of female persisters and 82% of female compromisers already had children or planned to have children; 79% of male persisters and 64% of male compromisers had and/or planned to have children. The observed trends are reminiscent of previous findings that two thirds of doctoral students (male and female) reportedly desire children (Mason et al., 2009).

As mentioned and discussed in previous sections, significant gender differences were not found for the lifestyle and family accessibility concern measures nor was there a significant interaction between gender and group (i.e., compromisers vs. persisters) for any of the variables after controlling for research self-efficacy. There are a number of reasons that I expected to observe significant differences in accessibility concerns as a function of gender. For example, there is a dearth of women in the research professorship with women holding only 37.5% of tenured positions (NCES, 2014). Further, women, especially those with children, compromise on their research professorship career goals at higher rates than men (Mason et al., 2009), and once in a tenure-track position women

experience negative consequences for having children while men are rewarded (Mason, 2011). Finally, 75% of unmarried women with a graduate or professional degree never have children (U.S. Census Bureau, 2016), and only 33% of women in the research professorship who enter without children ever end up having any (Mason & Goulden, 2004). The expectation that there would be a significant gender by group interaction assumed that these disparate trends are visible to doctoral students, particularly women, and impact perceptions of accessibility concerns related to entering the research professorship. It is quite possible that the lifestyle and family accessibility concerns studied become more salient to doctoral students when they are closer to the time of career decision making, as suggested by the TCC (Gottfredson, 1996, 2002), or when they begin to experience accessibility barriers first hand, such as after having children. It is also conceivable that gender disparity trends in academia are unknown to some doctoral students in the process of career decision making and that they are unable to imagine potential barriers they might face. Alternatively, it is possible that doctoral students' current expectations regarding work and family are not reflective of the research professorship reality. As discussed previously, in the current study persisters were just as likely as compromisers to report a desire for children despite the fact that they were not planning for a family friendly career. It is interesting to consider the possibility that this observed trend may precede potential career compromise among some persisters in the future, but that it might also or alternatively be an antecedent to some persisters compromising on their *family* goals instead of their career goals. Post-hoc analyses were conducted to explore the possibility that time spent in program or that the presence of children/plans for children might have an impact on accessibility concerns.

While examining participant demographics, a trend was discovered that persisters were more likely to have completed only one or two years in their current doctoral program whereas compromisers were more likely to have completed three or more years (see Table 4). In an exploratory, post-hoc regression doctoral years completed explained significant variance in group membership in that those who had completed more years in their program were more likely to be compromisers, $F(1, 150) = 11.102$, $R^2 = .069$ ($p = .001$).

Given this finding, a two-way MANCOVA was conducted with two independent variables, gender and group (i.e., persisters vs. compromisers), and five dependent variables, romantic partner expectations, presence of children/plans for children, work-hour flexibility preferences, work schedule flexibility preferences, and planning for a career and family while controlling for research self-efficacy. This exploratory analysis was conducted only with persisters and compromisers who reported having completed *three or more years* in their doctoral program ($N = 79$). The findings of significance were similar to the findings in the hypothesis testing MANCOVA and follow up tests of between-subjects effects. The interaction effect between gender and group on the dependent variables did not achieve acceptable levels of statistical significance, $F(5, 70) = 1.749$, $p = .135$, Wilks' $\Lambda = .889$. The main effect of gender on the dependent variables was not statistically significant, $F(5, 70) = 1.059$, $p = .391$, Wilks' $\Lambda = .930$. There was a statistically significant effect of group on the dependent variables, $F(5, 70) = 4.971$, $p = .001$, Wilks' $\Lambda = .738$, partial $\eta^2 = .262$ indicating a large effect size, and an observed power of .976. Post-hoc tests examined which specific dependent variables significantly differed as a function of group membership (i.e., persisters vs. compromisers). Tests of

between-subjects effects revealed that there was a statistically significant main effect of group for PLAN scores (i.e., planning for a career and family), $F(1, 74) = 5.019, p = .028$, partial $\eta^2 = .064$ indicating a medium effect size, and an observed power of .599. Tests of between-subjects effects also revealed that there was a statistically significant main effect of group for the work-hour flexibility factor of the Work-Time Flexibility Preferences scale, $F(1, 74) = 19.147, p < .001$, partial $\eta^2 = .206$ indicating a large effect size, and an observed power of .999. These findings replicated those from the hypothesis testing MANCOVA that used the whole sample of persisters and compromisers; however, this analysis had slightly larger effect sizes. The observed power levels were reduced compared to hypothesis testing, but the sample for this post-hoc analysis was much smaller. It seems that by eliminating the artifact of time (i.e., years completed in program), the differences between persisters and compromisers on the PLAN scale and work-hour flexibility factor become more pronounced. This finding provides some support for the notion that accessibility concerns become more salient closer to the time of career decision making (i.e., the more advanced one becomes in a doctoral program), which aligns with the conceptualization of accessibility concerns according to the TCC.

In an effort to further explore the relationship between the presence of children/plans for children and other accessibility concern variables, a post-hoc, exploratory, two-way MANCOVA was conducted with two independent variables, gender and group (i.e., children vs. no children), and four dependent variables, romantic partner expectations, work-hour flexibility preferences, work schedule flexibility preferences, and planning for a career and family while controlling for research self-efficacy. The children vs. no children grouping variable was developed using the

presence of children/plans for children items. Participants who indicated that they had no children and had no plans to have children in the future made up group 1 ($N = 48$). Group 2 included participants who indicated that they either already had children and/or planned to have at least one child in the future ($N = 104$). The interaction effect between gender and group on the dependent variables did not achieve acceptable levels of statistical significance, $F(4, 144) = 2.490, p = .056$, Wilks' $\Lambda = .935$, partial $\eta^2 = .065$. That is, the effect of group (children vs. no children) on the dependent variables did not differ as a function of gender after controlling for research self-efficacy. The main effect of gender on the dependent variables was statistically significant, $F(4, 144) = 3.146, p = .016$, Wilks' $\Lambda = .920$, partial $\eta^2 = .080$ indicating a medium effect size, and an observed powered of .809. In other words, the dependent variables did differ significantly as a function of gender after controlling for research self-efficacy. Further, there was a statistically significant effect of group (i.e., children vs. no children) on the dependent variables, $F(4, 144) = 10.619, p < .001$, Wilks' $\Lambda = .772$, partial $\eta^2 = .232$ indicating a large effect size, and an observed power of .698. That is, the accessibility concern variables did differ significantly as a function of children vs. no children group membership after controlling for research self-efficacy.

Post-hoc tests were conducted to examine which specific dependent variables significantly differed as a function of group membership (i.e., children vs. no children) and gender. Tests of between-subjects effects revealed that there was a statistically significant main effect of group for PLAN scores (i.e., planning for a career and family), $F(1, 147) = 36.3139, p < .001$, partial $\eta^2 = .197$ indicating a large effect size, and an observed power of 1.00. More specifically, scores on the PLAN measure were

significantly higher for group 2 (i.e., presence of/plans for children group), $M = 2.679$, 95% CI [2.592, 2.765] than for group 1 (i.e., no children/no plans for children group) $M = 2.208$, 95% CI [2.080, 2.336]. That is, participants who either had children or planned to have children also had greater plans for a career that allowed for a family than those without children/plans for children. This result was expected as the two scales are highly correlated and seem to measure very similar concepts. Tests of between-subjects effects also revealed that there was a marginally significant main effect of gender for PLAN scores (i.e., planning for a career and family), $F(1, 147) = 3.913$, $p = .050$, partial $\eta^2 = .026$ indicating a small effect size, and a small observed power of .502. That is, scores on the PLAN measure (i.e., planning for a career and a family) were higher for males $M = 2.520$, 95% CI [2.414, 2.627] than for females $M = 2.366$, 95% CI [2.255, 2.477]. Specifically, males were more likely to indicate plans for a career that allowed for a family than women were after controlling for research self-efficacy.

This exploratory finding and the observed differences in means among males and females on the PLAN scale, although of a small effect size and power level and not replicated in hypothesis testing, support trends in academia in which men tend to have more children than do women and that men more often than women describe the research professorship as a family friendly career (Mason & Goulden, 2006). One reason for this may be that male academics are married to women who do not have advanced degrees nor work in the academy and thus may have more time to take care of domestic responsibilities, while female academics are more likely to be married to men with advanced degrees with possibly similar demanding careers (Mason & Goulden, 2002). When examining simple mean differences among male and female persisters and

compromisers (see Table 7), male persisters had a higher average score on the PLAN scale (i.e., planning for a career and a family [partner and children]) than did female persisters. Further, when examining sample trends in presence of children/plans for children, 67% of female persisters vs. 79% of male persisters had and/or planned to have children. Given this sizeable difference, I conducted a chi-square test for association to further examine male and female persisters on presence of children/plans for children categorical groups. The children vs. no children grouping variable was developed via the presence of children/plans for children items. Participants who indicated that they had no children and had no plans to have children in the future made up group 1 (N = 28). Group 2 included participants who indicated that they either already had children and/or planned to have at least one child in the future (N = 62). I then created two categorical groups, female persisters and male persisters and conducted the chi-square test. All expected cell frequencies were greater than five. There was a statistically significant association between male and female persisters and presence of children/plans for children, $\chi^2(1) = 4.439, p = .035$ and the size of association was small $\phi = 0.222, p = .035$ with female persisters reporting less children/plans for children than male persisters.

These significant findings could be reflective of trends in academia such as the fact that men with children are hired and continue to advance on the research tenure-track ladder successfully, while women with children are much more likely to take positions as part time and adjunct faculty (Mason, 2011). Further, family friendly policies such as guaranteed paid maternity leave are often not available to graduate students and postdoctoral scholars; 43% of U.S. universities only offer ad hoc paid leave or no leave at all (Mason, Goulden & Frasch, 2009). This corroborates findings that women in

postdoctoral positions with children are twice as likely as men with children to change their career goal away from the research professorship. It seems quite likely then that male doctoral student persisters would perceive the research academy as being more family friendly than female persisters, as it is a reflection of their reality.

Before concluding the exploration of the impact of children and doctoral years completed on lifestyle preference and family related accessibility concerns, it is important to point out that only 14 of the 152 hypothesis testing participants reported currently having children age 6 or under. It is also worth noting that of the 14 participants with children aged six and under, 11 reported having completed three or more years in their current doctoral program. Women with children, particularly under the age of six, are less likely to obtain a tenure-track job upon doctorate completion when compared to women without children (Morrison, Rudd, & Nerad, 2011; Wolfinger, Mason, & Goulden, 2008). Women with children age six or older do not experience these same negative impacts and have a higher probability of obtaining a tenure-track position and/or a promotion to associate or full professor (Wolfinger et al., 2008). Further, married women with children are 35% less likely to obtain a tenure-track job upon completion of a Ph.D. compared to men with children (Mason, Goulden, & Frasch, 2011). As evidenced by participant demographics, most of the students in the current sample have not yet had children even though the majority reportedly want children; further, those few who have had children tend to be more advanced in their doctoral studies. Given the dearth of participants with young children in the sample, it is quite possible that a main contributor to the disparity of women in the research academy (i.e., the presence of young children) was simply not captured in the present study. The biggest leak in the pipeline to the research

professorship, particularly for some STEM fields, appears to occur sometime before doctoral recipients enter a tenure-track position (Mason et al., 2011). It is still unknown exactly when most decisions to compromise on one's career goal of entering the research professorship occur, although some research does reveal that considerable compromise occurs during postdoctoral positions (Mason et al., 2009, 2011). It seems possible then that some job accessibility concerns may not be significantly impacted until late in the doctoral process, the postdoctoral year, and/or not until childbearing occurs which, at least for this study sample, might happen later in the doctoral program and/or after the receipt of a doctoral degree.

A final contribution of the study worthy of discussion relates to the development and validation of the Work-Time Flexibility Preferences measure. The measure was created and validated for the purposes of the current study due to a lack of valid and reliable measures in this area. A two-factor structure was identified and used in the study. With one-item allowed to cross-load, all five of the goodness of fit criteria were met providing strong support for a modified two-factor structure. Further, reliability coefficients for both factors pointed to adequate reliability. Finally, during hypothesis testing, it was found that compromisers and persisters significantly differed on one factor of the measure, work-hour flexibility, but not on schedule flexibility. Conceptually, this makes sense given that research professorship positions tend to require long work hours (i.e., 50 to 60 hour weeks) and that positions in the research academy often allow for scheduling flexibility to work from home and on weekends. This observed difference between the two groups provides further support for the two-factor structure of the measure.

Limitations and Future Directions

As with all research, there were limitations to the current study. Almost half of the hypothesis testing sample (48%) was comprised of doctoral students who reported completing one or two years in their current program and only 12% had children. Indeed, as reported on extensively in Chapter 1 and in the previous section, doctoral students, particularly women, often report issues related to children and the time it takes to raise them as reasons for their career goal shift away from the research academy. Further, according to the TCC that was used to develop the current study, people have a tendency to attend to occupational information related to accessibility concerns when they most need it, for example, closer to the time of career decision making or goal implementation (Gottfredson, 1996, 2002). It is possible that despite efforts to recruit doctoral students who have had enough time to consider and reconsider their career goals, perhaps career-related accessibility concerns become more salient closer to the time of career implementation (e.g., when applying for jobs) and/or when childbearing occurs. Future studies should aim to examine the accessibility concerns of more advanced doctoral student populations and recent doctoral graduates who have young children.

An obvious limitation lies in the data collection error that caused 363 participants to be unable to indicate their gender. Due to this error, these participants could not be included in hypothesis testing and instead were used in CFA analyses. Participants in the CFA sample reported having children at almost twice the rate of the hypothesis testing sample (i.e., 23% vs. 12%, respectively). It is unknown how the results might have differed with a larger, more representative sample of doctoral students. Additional methodological issues include the lack of longitudinal data, especially given the emphasis

on using longitudinal methods for studying concepts of the TCC (Leung, 2005). Given the cross-sectional nature of the current data, it is impossible to know when exactly career compromise decisions were made for students in the sample. Another limitation lies in measures used, particularly the two-item Romantic Partner Expectations measure. This scale was created for the purposes of the current study without prior validation, which calls into question the validity of the measure. Further, it may have been meaningful to measure research productivity along with research self-efficacy, as productivity is a necessary requirement to obtain a research faculty position as well as to advancing on the tenure ladder.

Finally, it is possible that accessibility concerns assessed in this study do not adequately capture the reasons for doctoral students' career compromise. Research has shown that students who compromise on their career goal to enter the research professorship not only rank a lack of family friendliness as a primary reason for shifting their career goals, but they also often report a sense of isolation as a top reason for the shift (Mason et. al, 2009). For example, women in doctoral programs, particularly in the STEM fields, report experiencing a "chilly climate," or an environment of isolation, discrimination, and feeling uncomfortable and unwelcomed in the male-dominated academic environment (DeWelde & Laursen, 2011; Fabert, Cabay, Rivers, Smith, & Bernstein, 2011; Fox, 2000; Herzig, 2004; Ong, Wright, Espinosa, & Orfield, 2011). The current study did not take these potentially meaningful climate issues into consideration, nor alternative viable reasons behind career compromise such as decreases in interest (Metcalf, 2010) and commitment (Glass, Sassler, Levitte, & Michelmores, 2014), and partner issues, particularly when one's partner is also in academia (Wolf-Wendel,

Twombly, & Rice, 2003). Future studies should include examinations of climate and other doctoral student experiences given the established importance of these factors in the career decision making literature.

Conclusions

This dissertation aimed to shed light on how two groups of doctoral students differed on measures of lifestyle and family accessibility concerns as conceptualized according to the TCC (Gottfredson 1981, 1996, 2002). More specifically, the study sought to examine differences in lifestyle preferences and family formation-related accessibility concerns between compromisers, or those who have shifted their career goal away from the research professorship, and doctoral students who persist in pursuing their research academy career goals (i.e., persisters).

Taken together, the non-significant and significant findings of the current study add to the literature by providing information regarding differences and similarities in accessibility concerns between those students who maintain goals towards the research professoriate and those who shift career goals away from the research academy.

Importantly, the two career aspiration groups did differ in terms of planning for a family friendly career and work-hour flexibility preferences. Compromisers were more likely to have plans for a family friendly career and to prefer work-hour flexibility when compared with persisters after controlling for research self-efficacy. Importantly, the majority of both compromisers and persisters reported plans to have children; however, despite these plans to have children, persisters were significantly less likely to report plans to have family friendly careers when compared to compromisers. Further, descriptive data pointed to a trend in which male persisters reported plans to have a family friendly career

more so than female persisters. This provides support for previous research pointing to the reputation that research academy positions have for *not* being family friendly, particularly for women. It seems important that institutional efforts be made to establish family friendly policies for graduate students, post-docs, and faculty so as to change the reputation of the research professorship and retain the interest of gifted and talented students.

Persisters and compromisers in the sample had similar levels of romantic partner expectations, potentially pointing to recent trends in more shared domestic responsibilities. Further, persisters and compromisers had comparable schedule flexibility preferences, which supports the notion that the research professorship does offer flexibility in the sense that faculty often can work from home and on weekends. The majority of participants in both career aspiration groups reportedly want to have children; however, given the fact that very few participants actually had children, it is possible that the full effects of family obligations on job accessibility concerns were not realized. Further, in post-hoc examinations there appeared to be some effect of years completed on the salience of accessibility concerns, and group membership was actually predicted by years completed. It seems possible that decisions to compromise are made later in the doctoral process and/or after completion of the program.

The study also contributes to the literature via the development and validation of the Work-Time Flexibility Preferences scale. A fruitful area for future research is to explore accessibility concerns longitudinally within a population of doctoral students who are more advanced in their programs or have recently graduated and have children in order to continue the quest of understanding when and if accessibility concerns become

salient and impactful to career decision making. Further, future research should examine a broader range of barriers that could impact decisions to compromise on research professorship career goals.

Regarding implications for the field of counseling psychology, it seems important that counselors, particularly career counselors and those in university settings who work with doctoral students, increase awareness of accessibility issues related to various careers, including the research professorship. These counselors should have the competency to explore accessibility concerns that are currently or could eventually impact decisions to persist or compromise on career goals so as to increase awareness and prevent negative consequences such as the abandonment of a career path after years of training. Finally, counseling psychologists have a responsibility to be aware of the current literature and use research findings to advocate for family friendly legislation and university policies.

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APPENDIX A
IRB APPROVAL

EXEMPTION GRANTED

Bianca Bernstein
CISA: Counseling and Counseling Psychology
480/965-2920
bbernstein@asu.edu

Dear Bianca Bernstein:

On 2/13/2017 the ASU IRB reviewed the following protocol:

Type of Review:	Modification
Title:	Different Concerns for Different Careers: Discerning the Barriers and Opportunities that Characterize Doctoral Student Career Trajectories
Investigator:	Bianca Bernstein
IRB ID:	STUDY00004522
Funding:	Name: Graduate College (GRAD)
Grant Title:	None
Grant ID:	None
Documents Reviewed:	<ul style="list-style-type: none"> • Study Survey Questions, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions); • Participant Recruitment, Category: Recruitment Materials; • GRSP Application_Dawson.pdf, Category: Sponsor Attachment; • Study Flyer, Category: Recruitment Materials; • Cover Letter, Category: Recruitment Materials; • HRP-502c_Dawson, Category: Consent Form; • HRP-503a_Dawson, Category: IRB Protocol;

The IRB determined that the protocol is considered exempt pursuant to Federal Regulations 45CFR46 (2) Tests, surveys, interviews, or observation on 2/13/2017.

In conducting this protocol you are required to follow the requirements listed in the INVESTIGATOR MANUAL (HRP-103).

APPENDIX B
CONSENT FORM

I am a graduate student under the direction of Dr. Bianca Bernstein in the Counseling Psychology doctoral program at Arizona State University. I am conducting a research study to explore the career aspirations of doctoral students in their second year and beyond.

I am inviting your participation, which will involve a brief online questionnaire that will take approximately 10 minutes to complete. You have the right not to answer any question, and to stop participation at any time.

Your participation in this study is voluntary. If you choose not to participate or to withdraw from the study at any time, there will be no penalty, for example, it will not affect your academic standing in any way. You must be 18 or older to participate in the study.

There are no foreseeable risks or discomforts to your participation. You will have the chance to be entered into a raffle to win one of eighty \$50 Amazon gift cards upon completion of the survey. Any identifying information you provide (email address) in order to receive either incentive will be completely independent from, and unable to be linked to, your survey responses.

Your responses will be anonymous and confidential. The results of this study may be used in future reports, presentations, or publications but your name will not be used. Any results that are used will only be shared in the aggregate form.

The following disclosure applies to all participants using online survey tools: This server may collect information and your IP address indirectly and automatically via “cookies”.

If you have any questions concerning the research study, please contact the researchers, Amy Dawson, at: aedawso2@asu.edu or Bianca Bernstein, Ph.D. If you have any questions about your rights as a subject/participant in this research, or if you feel you have been placed at risk, you can contact the Chair of the Human Subjects Institutional Review Board, through the ASU Office of Research Integrity and Assurance, at (480) 965-6788.

By continuing with the survey, you are confirming that you are at least 18 years of age, currently a doctoral student in your second year or beyond, and agree to be part of the study. If you wish to decline, you may do so by exiting this page on your web browser.

APPENDIX C

DEMOGRAPHIC INFORMATION

1. Date of Birth: Month_____ Day_____ Year_____
2. Gender: _____ Male _____ Female _____ Other (please specify)
3. What is your current marital status?
- _____ Married
- _____ Committed Relationship
- _____ Separated
- _____ Divorced
- _____ Widowed
- _____ Never married
4. How would you describe your ethnicity/race? [Mark one or more]
- _____ White, Caucasian
- _____ Black, African American
- _____ American Indian or Alaska native
- _____ Native Hawaiian or other Pacific Islander
- _____ Hispanic or Latino(a)
- _____ Asian
- _____ Other (please specify) _____
6. How many children do you currently have?
- _____ 0
- _____ 1
- _____ 2
- _____ 3 or more

7. How many children, or if you already have children, how many more, do you hope to have in the future?

_____ 0

_____ 1

_____ 2

_____ 3 or more

8. Did you already have children/a child before you began your current doctoral program?

_____ Yes

_____ No

9. Did you have (i.e., give birth/adopt/acquire through a partner, etc.) children/a child while enrolled in your current doctoral program?

_____ Yes

_____ No

10. How many years of study have you completed in your doctoral program?

_____ 1 year

_____ 2 years

_____ 3 years

_____ 4 years

_____ 5 years

_____ 6 years

_____ 7 years

_____ 8 years

_____ 9 years

_____ 10 years or more

11. When did you enter your doctoral program? (Semester/Year, i.e. Spring 2012)

12. Did you earn a master's degree before you entered your doctoral program?

_____ Yes

_____ No

APPENDIX D

WORK-TIME FLEXIBILITY PREFERENCES

Please rate the following items on the following scale: 1 (*not important*), 2 (*somewhat important*), 3 (*important*), 4 (*very important*), 5 (*extremely important*)

1. Working Monday through Friday and having my weekends free
2. Flexibility in my work schedule
3. Working no more than 50 hours per week
4. Working no more than 60 hours per week
5. Ability to adjust working hours to take care of personal or family matters
6. Ability to work from home on a regular basis

APPENDIX E

ROMANTIC PARTNER EXPECTATIONS

Please rate the following items according to the following scale: 1 (*much less than I do/will do*), 2 (*less than I do/will*), 3 (*equal to the amount I do/will do*), 4 (*more than I do/will do*), or 5 (*much more than I do/will do*).

1. I expect my romantic partner (current or future) to contribute to household duties (e.g. cooking, cleaning, yard work, etc.)
2. I expect my romantic partner (current or future) to contribute to the care of children (e.g. supervision, transportation, homework, etc.)

APPENDIX F

PLAN SCALE

Please rate the following items according to the following scale: 1 (*strongly disagree*), 2 (*somewhat disagree*), 3 (*somewhat agree*), 4 (*strongly agree*).

Factor 2: Prioritizing and Compromising for Partner Scale

1. Any relationship that I am in will need to realize that my career plans come first.*
2. I will make my career plans independently of what my partner might need.*
3. I will give up some of my career goals for a relationship.
4. I will never change my career plans for a relationship.*
5. I will take a job that I find less satisfying if it means having more time for a partner.
6. When selecting a career, I will take a lesser paying job if it means I am able to prioritize my relationship.
7. Taking a less demanding job to have more energy for a partner will not be an option.*
8. My career choice will be based on my goals, not my ability to balance work and love.*
9. The wishes of my partner will not figure into my career plans.*
10. Having a fulfilling career will be very important to me, even at the expense of future responsibilities to a partner.*
11. When selecting a career, I will consider the needs of my partner.*
12. Having a satisfying relationship is not as important as picking a career I love.*

Factor 1: Considering Children Scale

13. Any career that I will select must enable me to be home after school if I have children.

14. I will have a career with flexible hours so that I can be home if I have children.
15. Having quality time for raising children will be the most important consideration in my career choice.
16. I will select a career that can be put on hold if I have young children.
17. When considering a future career, I will look for a job that will allow me the flexibility of being able to stay at home if I have sick or out of school children.
18. When planning my career, I will think about how much energy I will have for children, if I have them.
19. Future/current parenting responsibilities will be an important factor in making my career plans.
20. My future career will allow me to have time off in the summer so I can be with children if I have them.
21. I will select a career that allows me to slow down after/if I have children.
22. I will not plan my career around future parenting responsibilities.*
23. I will find a career where I do not have to work full time after/if I have children.
24. When choosing a career, I will think about whether the work load will hinder my ability to care for children.

Note. Asterisks represent items that are reverse scored.

APPENDIX G

RESEARCH SELF-EFFICACY SCALE

Please rate the degree to which you feel confident in your ability to accomplish each item according to a scale from 0 (*not confident*) to 10 (*totally confident*).

0	1	2	3	4	5	6	7	8	9	10	
not						moderately				totally	
confident						confident				confident	

1. Identify areas of needed research, based on reading the literature.
2. Generate researchable questions.
3. Organize your proposed research ideas in writing.
4. Develop a logical rationale for your particular research idea.
5. Synthesize current literature.
6. Present your research idea orally or in written or to an advisor or group.
7. Discuss research ideas with peers.
8. Choose an appropriate research design.
9. Evaluate journal articles in terms of the theoretical approach, experimental design, and data analysis techniques.
10. Effectively edit your writing to make it logical and succinct.
11. Be flexible in developing alternative research strategies.
12. Decide when to quit generating ideas based on your literature review.
13. Decide when to quit searching for related research/writing.
14. Consult senior researchers for ideas.
15. Participate in generating collaborative research ideas.
16. Keep an organized filing system of ideas and references.
17. Design visual presentations (posters, slides, graphs, pictures).

18. Choose methods of data collection.
19. Obtain approval to pursue research (e.g. approval from Human Subjects' committee, Animal Subjects' committee, special approval for fieldwork, etc.)
20. Use computer software to prepare texts (word processing).
21. Work interdependently in a research group.
22. Follow ethical principles of research.
23. Brainstorm areas in the literature to read about.
24. Conduct a computer search of the literature in a particular area.
25. Find needed articles which are not available by your library.
26. Locate references by manual search.
27. Orally present results at a regional/national meeting.
28. Orally present results to your research group or department.
29. Write manuscript for publication.
30. Defend results to a critical audience.
31. Identify implications for future research.
32. Identify and report limitations of study.
33. Synthesize results with regard to current literature.
34. Organize manuscript according to appropriate professional format and standards
35. Choose appropriate data analysis techniques

APPENDIX H
CAREER ASPIRATIONS

1. Please choose from the following options the category that most closely matches what your primary career goal was (after completion of doctoral degree and any additional training, e.g. postdoctoral appointment) at the outset of your current doctoral program.

[Dropdown menu]

Research outside of the academy

Business/Industry

Entrepreneur

Government

Nonprofit

Professorship with research emphasis

Professorship with teaching emphasis

Other academic position (e.g., lecturer/instructor, non-tenure track research)

Other (Please specify): _____

2. Please choose from the following options the category that most closely matches what your primary career goal is now (after completion of doctoral degree and any additional training, e.g. postdoctoral appointment).

[Dropdown menu]

Research outside of the academy

Business/Industry

Entrepreneur

Government

Nonprofit

Professorship with research emphasis

Professorship with teaching emphasis

Other academic position (e.g., lecturer/instructor, non-tenure track
research)

Other (Please specify): _____