2007

MENTORING MATTERS: THE INFLUENCE OF SOCIAL SUPPORT AND RELATIONAL MAINTENANCE STRATEGIES ON CRITICAL OUTCOMES IN DOCTORAL EDUCATION

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ABSTRACT OF DISSERTATION

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The Graduate School

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A dissertation submitted in partial fulfillment of the
requirements for the degree of Doctor of Philosophy in the
College of Communication and Information Studies
at the University of Kentucky

By
Sarah Elizabeth Cavendish

Lexington, Kentucky

Director: Dr. Derek Lane, Associate Professor of Communication

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Utilizing social support as the theoretical foundation for this research, the study proposes and tests the Mentoring Relational Process Model (MRPM). The influence of support sought, relational maintenance strategies, and support obtained on the critical graduate outcomes of relational satisfaction, research self-efficacy, perceived time-to-degree, and relational quality is examined. Data collected from 310 doctoral students through an online survey is used to test the MRPM.   Over 50% of the variance in relational satisfaction and relational quality, respectively, is predicted by the MRPM. Research self-efficacy and perceived time-to-degree were not well-predicted by the current data.

KEYWORDS: Mentoring, Social Support, Relational Maintenance, Doctoral Education, Protégé

Sarah Elizabeth Cavendish

May 1, 2007

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Dedicated to my mom, Brenda, who always encouraged me to follow my dreams and to my little sister, Suzy, who copied words out of the dictionary and pretended like it was fun.

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Enthusiasm, like measles, mumps and the common cold, is highly contagious.

--Emory Ward

The people who have walked with me through the dissertation journey have done so with great enthusiasm and support. First, a heartfelt thank you to Dr. Derek Lane, my dissertation chair and my mentor. Derek's enthusiasm for research and for wanting the best for every student that walks through his door was contagious. He also did a wonderful job keeping me grounded and uttering those famous words when I'd be wound up – "No Worries." Dr. Nancy Harrington, Dr. Michael Arrington, and Dr. Jeff Bieber served on my committee and did so with abounding energy and enthusiasm for the world of the mind and my project. To them, I say thank you.   From the earliest speech competitions and science fair projects to my most recent academic adventures, my mom, Brenda, and my sister, Suzy, have been there for every step. They live life to the fullest and have provided me with an example of how to live, laugh, and love. While my formal academic life is drawing to a close, I go forward with the strength, support, and enthusiasm of the important people in my life.

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Chapter 1: Introduction, Rationale, and Literature Review

In 2005, 1,517,976 students were enrolled in graduate programs in the United States. In the same year, 417,389 students completed a master's degree and 44,424 students completed doctoral degrees (Brown, 2005). At the University of Kentucky, where the dissertation research was conducted, 5,833 students were enrolled in graduate programs at the start of the 2006-2007 academic year—including 2,813 students in master's degree programs and 2,162 students in doctoral programs (Blackwell, 2006).

More than a million students begin graduate education across the United States each year, yet many of these students will never finish their programs. Lovitts (2001) contends that approximately 50% of students who begin doctoral programs will not complete their degrees. She interviewed more than 300 students who did not finish their degrees and concluded that attrition is quite costly—to the students who leave, to the faculty members who invested countless hours working with the students, to the universities who funded them, and to society writ large in lost productivity. Attrition, and the opposite condition of persistence, then, are serious matters within the world of graduate education. Lovitts argues that the causes of graduate student attrition are deeply ingrained within the organizational culture of graduate school, rather than solely within the students themselves – "[i]t is not the background characteristics students bring with them to the university that affect their persistence outcomes; it is what happens to them after they arrive" (p. 2). It is important to note that while Lovitts accurately portrays the great number of PhD students that never complete the degree, this phenomenon is not new in graduate education. In fact, Bowen (1992) suggests that the trend of relatively low completion of the PhD is decades old. The urgency, then, of addressing factors that continue to be largely ignored, such as the faculty-student relationship, that may decrease such high attrition is greater now than ever.

Within the realm of higher education research, much attention has been paid to retention of first-year undergraduate students (e.g., Braxton, 2000; Levitz & Noel, 1989; Myers, 1981; Tinto, 2000). The more integrated students are into the campus environment by connecting with individuals on campus, joining organizations, etc., the more likely they are to return for a second year. Strikingly, Myers (1981), as a result of a three-year study, argues that of the freshmen who have no significant contact with faculty, advisers, or residence life staff in the first three weeks, more than half will not return for their sophomore year.

While not articulated in the same manner in extant research, a similar argument may be imagined for graduate students. As Lovitts (2001) asserts, the retention of graduate

students is influenced heavily by what happens after the students arrive on campus. Graduate students identify a range of needs, both personal and professional, that demand attention to differing extents during the course of graduate school. These needs may be met in a variety of ways and may be more or less pronounced for individual students. The socialization process into a doctoral program begins with admission and orientation and may be influenced by peer groups and other campus officials, in addition to the relational mentoring process currently under investigation.

While the argument in the current dissertation focuses on what occurs during the relational mentoring process itself, it is important to acknowledge that there may be structural issues that affect the process. For example, the size of the university and number of doctoral degree programs would likely influence the experience of mentoring. If a student is one of 100 in a program, the access to and time spent one-on-one with a faculty member would likely be greatly reduced. Therefore, mentoring may also be greatly reduced. Further, structural issues such as full-time versus part-time attendance and continuity of coursework and dissertation writing may also affect one's ultimate success or failure in a doctoral program. Structural issues are very worthy of study, however, the current dissertation does not directly address these issues. Rather, the focus remains on the faculty-student relational mentoring process.

Therefore, as previously suggested, graduate students may also turn to faculty and staff members for support. The relational process through which the support provided addresses the perceived needs of an individual graduate student is called mentoring. Mentoring is defined as "a nurturing process in which a more skilled or more experienced person, serving as a role model, teaches, sponsors, encourages, counsels and befriends a less skilled or less experienced person for the purpose of promoting the latter's professional and/or personal development" (Anderson & Shannon, 1988, p. 40).

Mentoring may occur within a number of relationships—faculty-student, staff-student, and student-student, to name a few. A graduate student's satisfaction with the relational process of mentoring can affect the ultimate decision to persist or to leave and therefore understanding mentoring is useful both theoretically and pragmatically. Extant research treats mentoring as a relationship and a process interchangeably and as a result, the literature can be difficult to interpret. When discussing prior studies in the present dissertation, the original nomenclature used for describing mentoring is employed. For example, if a study categorizes mentoring as a process, then that is how it will be described in the literature review. However, as embodied by Anderson and Shannon (1988) above, the

current study assumes that mentoring is a relational process through which faculty-student interaction provides protégés with support.

Perhaps the most often explored type of interaction that may occur during the relational mentoring process is the faculty-student relationship. While recognizing the value and contributions of other types of mentoring, the focus of this study is the relational, interpersonal communication process between a faculty member and a graduate student that provides the student with career and psychosocial support and influences the outcomes of relational satisfaction, perceived time-to-degree, research self-efficacy, and relational quality through the mentoring process. For clarity's sake, in this dissertation when discussing the "mentoring relationship," the mentor is the faculty member and the protégé is the graduate student. Mentoring is not an "all-or-nothing" proposition. Students engage in mentoring relationships during the relational mentoring process with faculty members to varying degrees—from very little to very much. The most basic requirement for this process is interaction. Mentoring, therefore, can be understood on a continuum.

While mentoring is portrayed as a largely positive, beneficial phenomenon in this dissertation (and in the majority of extant mentoring literature), it is important to acknowledge that there are also contrasting viewpoints within the literature and two such viewpoints are briefly examined here. First, dysfunctional mentoring relationships are discussed. Second, the possibility that mentoring does not occur is explored.

In dysfunctional mentoring relationships, the relationship is not meeting the needs of one or both parties and/or actual distress is occurring as a result of the relationship (Scandura, 1998). Drawing upon Duck's (1994) work on the "dark side" of interpersonal relationships, Scandura (1998) suggests that dysfunctional mentoring may range from negative relations and difficulty between the mentor and protégé to sabotage and spoiling. These challenges may be focused on the career or emotional dimensions of a relationship or in some cases, both. Given the power differential between mentor and protégé, dysfunction between the two parties often positions the mentor as responsible for the dysfunction.

Negative relations between a mentor and a protégé may occur as a result of incompatible goals or differing expectations of what constitutes a mentoring relationship. For example, if a faculty mentor's expressed goal is to "clone" him or herself and force the protégé to only conduct his or her research, negative relations may occur. Bad intent between mentor and protégé characterize interactions in the negative relations category.

By contrast, if the underlying intent of one party in the mentoring relationship is good, rather than expressly negative relations, difficulty in the relationship may instead

occur. This difficulty can take the form of more subtle types of dysfunction. For example, a protégé may feel that his or her ideas are not taken seriously by the mentor and conflict may occur as a result. According to Scandura (1998), binds may also occur as a result of difficulty in the mentoring relationship. A "bind" is an ultimatum—one must either take action X or consequence Y will occur. Both negative relations and difficulty are aligned with the emotional side of the mentoring relationship.

When the problems in a mentoring relationship are more career in nature, sabotage or spoiling may occur. Sabotage is malicious and involves the mentor "taking revenge" on the protégé's career (Scandura, 1998). The mentor may actively work against a protégé getting a specific job, earning a promotion, etc. Spoiling, by contrast, is less vindictive. Rather, a mentor may not give a protégé credit for doing the major work on a research project, for example. This omission can negatively affect a protégé's career progress, but is not generally perceived as done with ill will.

Moving from general mentoring dysfunction to dysfunction in the context of graduate education, Johnson and Huwe (2003) delineate 11 sources of mentorship dysfunction specific to the graduate student-faculty member relationship. The sources of dysfunction are bad matching, mentor technical incompetence, mentor relational incompetence, mentor neglect, conflict, boundary violations, exploitation, attraction, unethical or illegal behavior, abandonment, and dysfunctional protégé traits.

Bad matching involves a mismatch between student and faculty characteristics such as work style or personality. Mentor technical incompetence and mentor relational incompetence refer to a lack of career and emotional skills necessary for a productive mentoring relationship. Mentor neglect occurs when a student perceives a lack of time and attention from a mentor to the relationship. A related source of dysfunction is abandonment—for example, a mentor may change schools and decide not to work with the student anymore. Conflict is a recurring pattern of arguments and negative affect in the relationship, rather than productive conflict management. Boundary violations occur when the line between personal and professional becomes blurry and can include sources of mentoring dysfunction such as exploitation, attraction and unethical or illegal behavior. Exploitation involves a mentor using the power of his or her position to coerce a protégé into doing something he or she does not want to do. Attraction occurs most frequently in cross-sex mentoring pairs and unethical or illegal behavior involves behaviors such as plagiarism and fraud. Finally, although rarely studied in extant mentoring literature, dysfunctional protégé traits such as procrastination or dependency may negatively affect the

mentoring relationship as well. An example of procrastination is provided by the relatively high percentage of students that leave ABD ("All But Dissertation") and stay ABD. When exigencies of the real world occur, protégés are more likely to engage in procrastination behaviors resulting in negative mentoring interactions and negative outcomes.

Dysfunctional mentoring relationships are replete with issues for examination and study; however, as Scandura (1998) states, dysfunctional mentoring has not been very thoroughly explored in extant research. In addition to dysfunctional mentoring relationships, there is utility in investigating mentoring from the faculty mentor's perspective. By exploring mentoring from a "mentor-only" point of view, motivations of faculty members for engaging in mentoring (Allen, Poteet, Russell, & Dobbins, 1997), as well as perceived career and psychosocial benefits to the mentor himself or herself (Allen, 2003) may be examined. While there is merit in determining faculty motives for becoming a mentor, the investigation of such motives fall beyond the scope of the current dissertation.

Another contrasting viewpoint to the prevailing picture of mentoring relationships as largely positive in nature is that mentoring does not matter or perhaps, even occur. This claim is difficult to substantiate given the literature reviewed for this study. Graduate students matriculate into graduate school with an existing set of ideas about what the academic life, both as students and post-graduation, is like. The most common argument in extant mentoring literature is that engaging in a faculty-graduate student mentoring relationship augments this perception of academic life. However, Bieber and Worley (2006) report that 17 of the 25 participants in their study described not having a graduate mentor at all, but rather relied on undergraduate conceptions of what faculty life is about. They suggest that since such a large subset of students do not report having a mentor in graduate school, mentoring is not a necessary (or perhaps even desirable) condition for success. Given the small sample in this study, however, one must refrain from making generalizations from those data.

Baird's (1990) argument complements this viewpoint. He also argues that while mentoring could potentially be a useful phenomenon, it often does not occur. Further, in Baird's view, "the intensification of graduate faculty-student relationships may not be possible, or even desirable" because it may lead to a dysfunctional pattern where the faculty member's goal is to indoctrinate the graduate student in his or her own orthodox way of thinking (p. 378), rather than providing space for the graduate student to develop his or her own ideas.

Like Bieber and Worley (2006), Austin (2002) reports that students feel that sufficient mentoring and feedback from faculty member to student is largely absent from the graduate school experience. However, by contrast, Austin argues that students desire enriched mentoring relationships and suggests that institutional resources such as faculty time and money be devoted to addressing this critical need. While dysfunctional mentoring occurs and there is merit in entertaining the concern that mentoring rarely occurs or that it may not be important, the current study treats mentoring as a mostly positive, potentially beneficial communication process that results in significant outcomes.

In order to understand the saliency of the present study, it is essential to first consider the contributions and shortcomings of previous research in mentoring. Over the last 25 years, researchers have attempted to concretely and concisely examine mentoring, but the results have been mixed at best. Despite the hundreds of mentoring studies in the fields of business and education, the extant research is largely descriptive and atheoretical. Further, a communication perspective on mentoring is limited (see Buell, 2004; Kalbflesich, 2002; Waldeck, Orrego, and Plax, 1997).

The foundational research in mentoring is attributed to Kram (1985). Kram was the first researcher to conceptualize mentoring into two dimensions – career and psychosocial. Career mentoring emphasizes professional development and requisite skill development, while psychosocial mentoring may be more generally categorized as psychological and emotional support. The career and psychosocial differentiation conceptualized by Kram is still used almost universally when studying mentoring. However, as Kram was attempting to simply describe mentoring, she did not empirically test her dimensions. Rather, that task has fallen to subsequent researchers.

Therefore, the next wave of mentoring researchers attempted to construct a clear, concise measure of career and psychosocial mentoring (e.g. Noe, 1988; Ragins & McFarlin, 1990). Noe (1988) conducted a study of 139 protégés and 43 mentors in a supervisory (i.e., principals and superintendents) education training program with a formal mentoring component. He argued that there was a lack of empirical studies of mentoring and he suggested that "this may be due to the lack of attention devoted to operationalizing the mentoring functions" and that "clearly more research is needed to develop a quantitative measure of the types of functions mentors provide for protégés" (Noe, 1988, p. 459).

Noe (1988) was interested in assessing protégé attitude, gender composition of the mentoring dyad, frequency of interaction, and quality of interaction as it related to career and psychosocial benefits to the protégé. His hypotheses mainly focused on the antecedent

protégé characteristics and attitudes that would predict initiation of mentoring. However, his last hypothesis predicted that the more time a protégé spends with his or her mentor, the greater the career and psychosocial benefits that will be obtained. This hypothesis was supported with respect to psychosocial benefits, but the predictor variables only accounted for 13% of the variance.

The more significant outcome of Noe's (1988) study was the operationalization of Kram's career and psychosocial mentoring dimensions into the Mentoring Functions Scale. Twenty-one items were included on the final scale and addressed issues such as, "My mentor has discussed my questions or concerns regarding feelings of competence, commitment to advancement, relationships with peers and supervisors or work/family conflicts" (psychosocial – counseling) and "My mentor gave me assignments that present opportunities to learn new skills" (career – challenging assignments) (pp. 468-9). While representing a significant step forward, Noe's scale had intercorrelation problems between career and psychosocial items and limited generalizability across contexts. The search for a more accurate mentoring measure was still underway.

The next researchers to address mentoring scale development, Ragins and McFarlin (1990), describe Noe's (1988) Mentoring Functions Scale as "a substantial improvement," but suggest that it still had significant methodological limitations and did not fully assess mentor roles. Therefore, they developed the Mentor Role Instrument (MRI) to address these shortcomings. The conceptual foundation for Ragins and McFarlin's MRI was also Kram's (1985) research on mentor roles. The scale they developed included 59 items to measure the 11 mentor roles that comprise the career (sponsorship, coaching, protection, challenging assignments, and exposure) and psychosocial (friendship, role modeling, counseling, and acceptance) categories, as well as two roles they created (parent and social). The last two roles were added because of Ragins and McFarlin's focus on gender issues and mentoring. They argued that parent and social may differ in cross-gender relationships as opposed to same gender ones. Items such as "My mentor provides support and encouragement (psychosocial – friendship)" and "My mentor suggests specific strategies for achieving career aspirations (career – coach)" were included on Ragins and McFarlin's MRI (p. 328). A shortcoming of the Ragins and McFarlin research is that they did not aggregate the 11 functions into the two larger, established dimensions—career and psychosocial. Most mentoring research continues to use versions of the Noe and Ragins and McFarlin scales in assessing mentoring. While progress was clearly being made in mentoring measurement, adaptation of the measures specifically to the higher education context did not occur well

until Paglis, Green, and Bauer (2006) (more appropriately discussed in the outcome section of this chapter).

The early mentoring research was descriptive with the goal of providing a snapshot of career and psychosocial mentoring as perceived by the protégé. It was successful at providing initial understanding of what mentoring looks like. However, the early research did not generally attempt to predict outcomes of mentoring, but rather simply describe the conditions under which it occurs.

As a companion to the scale development research, scholars were also exploring the prevalence of mentoring in graduate school (e.g., Cronan-Hillix, Gensheimer, Cronan-Hillix, & Davidson, 1986; Dixon-Reeves, 2003; Lyons & Scoggins, 1990). This corpus of research is significant for the current study because it examined mentoring specifically in the graduate school context; however, the research was still largely descriptive (as opposed to predictive) and variable-analytic.

Cronan-Hillix et al. (1986) surveyed 90 psychology graduate students about the prevalence of mentoring (including why some students do not have a mentor) and functions that a mentor serves in graduate school using a 40-item instrument designed specifically for the study. Fifty-three percent of students in the study reported having a mentor. Among those that did not have a mentor, the chief reason given for not having one was that they could not find a suitable faculty member to serve in the capacity of a mentor. The fact that students fail to identify a mentor does not mean that mentoring is non-existent. The psychosocial elements of guidance and support were rated as the most important needs mentors fulfilled. The emphasis on the psychosocial element of support as among the most important needs fulfilled is a justification for examining mentoring as a type of support in the current study. In summary, Cronan-Hillix et al. provide a rationale for studying mentoring in graduate school because while most students in their study reported having a mentor in graduate school, it is still unclear how the relationship functions to affect salient context-specific outcomes (e.g., time-to-degree, satisfaction).

In another study on prevalence, Lyons and Scroggins (1990) created a 110-item survey about the overall graduate student experience that included specific items about mentoring. Two thousand, five hundred and eight students returned the questionnaire and 565 individuals indicated they were in a doctoral program. Lyons and Scroggins advanced two hypotheses: 1) more males than females would report having mentors and 2) there is a positive relationship between having a mentor and a positive overall evaluation of the graduate experience. The first hypothesis was advanced because there is previous research

that suggests women have a more difficult time finding mentors than men and the second because there is evidence that mentoring influences satisfaction. They found no significant difference between males and females with regard to having a mentor, but they did find that students with mentors had a more overall positive evaluation of the graduate school experience. This study provides additional support that mentoring occurs in graduate school, but the study fails to move much beyond simple description. Nevertheless, the conclusions that Lyons and Scroggins about gender and evaluation of the graduate school environment help further develop the corpus of research on mentoring.

Mentoring among traditionally underrepresented groups, such as minorities and women, in graduate school has received little attention. Exploring the prevalence of mentoring among African-American graduate students, Dixon-Reeves (2003) provides a limited sample of perceptions about mentoring among African-Americans. She conducted secondary data analysis on a data set collected for an earlier study about mentoring experiences of African-American graduate students in departments of sociology. In her sample of 34 graduate students, 97% of respondents indicated they currently have or previously had a mentor. Further, the respondents in this study identified both career and psychosocial elements in their mentoring relationships. Again, the contribution of Dixon-Reeves's research is that it provides support for the argument that graduate students report that mentoring occurs in graduate school and therefore is worthy of study in the current dissertation. After constructing a baseline, descriptive understanding of mentoring and exploring the prevalence of mentoring in graduate education, mentoring researchers began to examine outcomes of mentoring itself (e.g., Green & Bauer, 1995; Hill, Bahniuk, & Dobos, 1989; Paglis, Green, & Bauer, 2006).

Within the academic environment, the outcomes that are generally posited to accrue to the protégé are related to academic success. Analogous to the business sector where promotions and financial success are posited as outcomes of the mentoring relationship, general academic success and academic productivity are suggested as outcomes in higher education. For example, Hill et al. (1989) posit that individuals with higher levels of communication support and information adequacy, coupled with lower levels of overall communication apprehension will be more successful (based on perceptual, attitudinal, and performance indicators) as faculty members. The authors argue that mentoring is one way of providing individuals with the requisite support and skills to be successful. Further, gender is examined as a moderating variable for individuals with and without mentors. Two hundred and twenty-four surveys were included in this analysis of full-time, tenure track

professors at two universities (one public, one private) in a large Midwestern study.   Hill et al. conclude that men and women experience differing levels of academic success and that mentors play an especially important role for male faculty members. When controlling for gender, this study supports the first hypothesis that higher levels of communication support and information adequacy, along with lower levels of communication apprehension increase the success of a faculty member. Hill et al. position mentoring as a relationship that leads to more positive organizational outcomes for the individual and the organization

A program of research on mentoring and outcomes for graduate students was conducted by Green and colleagues (1995, 2006). In the first study, Green and Bauer (1995) found that mentoring did not appear to have a significant effect on research productivity at the end of two years after controlling for student potential and commitment at entry. Further, student commitment to the program was best predicted by student commitment at entry, not amount or quality of mentoring received. Green and Bauer suggest that the career and psychosocial dimensions of mentoring appear to often function as a unidimensional concept in graduate student mentoring and need to be explored as such. The study raises questions about the degree to which student potential actually drives academic success and the contribution that mentoring may or may not make to this success. The contribution of the Green and Bauer study is that it explores mentoring in a graduate school context with outcomes specific to the context (i.e., research productivity and student commitment to the program). Unfortunately, the study does not investigate mentoring from a communication focus and is largely variable- analytic. A communication focus emphasizes the messages from protégé to mentor and vice-versa. It also specifically highlights the communication strategies that help facilitate the message process between mentor and protégé.

In a continuation of the original study, Paglis et al. (2006) found that, in a five and a half year longitudinal study, psychosocial mentoring positively affected research productivity and research self-efficacy, while career mentoring positively affected research productivity. While both student productivity and research self-efficacy may be potentially predicted by mentoring, research self-efficacy is a significant outcome for graduate students at all stages (e.g., first semester to candidacy) in a doctoral program and therefore will be explored in the current study. Further, the Paglis et al. study was conducted only with students in the "hard sciences," so the generalizability of the findings is limited. It is possible that academic discipline may affect one's research self-efficacy and will be assessed across disciplines in the present study.

A major contribution of the Paglis et al. (2006) study is that the authors modified the original Noe (1988) scales for use in a graduate education context. The new items target realities specific to graduate school such as "gives me assignments or tasks that prepare me for a research position after I graduate (career)" and "encourages me to try new ways of behaving in my role as a graduate student (psychosocial)." The scales have high reliabilities and measure the important dimensions of mentoring in graduate school; therefore, the Paglis et al. measures will be used in the current dissertation research. Again, this study, while predictive and centered in graduate education, does not have a communication focus and is largely variable-analytic. The outcomes-based studies represent a significant step forward in mentoring research; however, the lack of theoretical frameworks and a clear communication focus leave much work to be done.

The final corpus of extant mentoring research to examine is the research done in communication. While turning the attention to communication messages, behaviors, and processes, the communication research on mentoring still does not adequately address mentoring because of its atheoretical nature and largely descriptive focus. Waldeck, Orrego, Plax, and Kearney (1997) explore graduate student perceptions of mentoring, as well as perceptions of the initiation process. The Waldeck et al. study is similar to the earlier studies of mentoring prevalence because the authors assert that it is unclear the degree to which faculty and students are engaging in mentoring relationships and what the relationships actually look like. To address those concerns, Waldeck et al. examine the initiation process, as well as the career and psychosocial functions provided by faculty members.

Initiation strategies were identified by qualitative analysis in descending frequency of use: ensure contact with mentor, search for similar interests, seek counsel from mentor, appeal to mentor directly, provide work assistance, present a competent self, assume it will "just happen," concede control, venerate the mentor, and disclose personal self. The protégés were then asked to rate the initiation strategy they used with regard to perceived difficulty and effectiveness. Across the board, initiation strategies were regarded by students as more difficult and less effective than they would have been by chance. Waldeck et al. (1997) report that protégés perceived receiving more psychosocial than career functions from their mentors and that the psychosocial functions were most important in determining protégé satisfaction with the overall mentoring relationship. This study provides the most complete examination to date of the communication dimensions of the graduate student/faculty mentoring relationship.

As one of the first exploratory communication studies specifically focused on mentoring in graduate education, Waldeck et al. provide necessary information about the process. However, this information is limited in its usefulness because it does not move much beyond general description.

Kalbfleisch and Davies (1993) also examine mentoring from a relational communication perspective within the context of graduate education. In contrast to other research, however, this study seeks to determine antecedent conditions that predict mentoring. Communication competence, self-esteem, and perceived risk in intimacy are key components of this model. The authors posit that initiation of mentoring relationships can be predicted by higher initial levels of communication competence and self-esteem in individual graduate students. These high initial levels enable students to enter a mentoring relationship that inherently has a perceived risk in intimacy with a faculty member associated with it. In this case, individual student characteristics are used to predict the mentoring relationship, rather than looking at perceptions of the mentoring relationship itself. The student perspective is emphasized by Kalbfleisch and Davies because most academics interested in mentoring suggest that the process is initiated by the student; mentors do not generally seek additional protégés and subsequently, additional work. Kalbfleisch and Davies conclude that their model adequately describes mentoring initiation from a protégé perspective, but admit that their model is not targeted toward the mentor perspective. This conclusion is not surprising given that individual protégé antecedent characteristics are the emphasis of the study.

Continuing this line of research with a special emphasis on the psychosocial dimension of mentoring, Kalbfleisch (2002) argues that nurturance and care are hallmarks of the mentoring relationship and that communication strategies are utilized during initiation, maintenance, and repair of such relationships. She advances propositions about the protégé's tenuous role in initiation—protégés have much more to lose than mentors have to gain by beginning a mentoring relationship. Second, Kalbfleisch suggests that protégés are more likely to use communication strategies than mentors are in order to maintain the relationship; she also argues women use maintenance strategies more than men.

Treating mentoring as a relationship provides a framework for understanding how communication can facilitate supportive outcomes. The propositions advanced in Kalbfleisch's (2002) article are feasible; however, they are not empirically tested so their utility cannot be assessed. In order to test the argument that specific strategies are used to maintain the mentoring relationship, the current study will examine relational maintenance

strategies as discussed in the theoretical framework section. The emphasis on relational maintenance strategies in the relational mentoring process develops an understanding of what transpires during the mentoring process itself, rather than just looking at the perceptions of career and psychosocial support obtained.

Finally, Buell (2004) examines models of mentoring specifically within the field of communication. Four models of mentoring as interpersonal relationship emerged from Buell's study—cloning, nurturing, friendship, and apprentice. These models essentially provide categorizations of interaction strategies between mentor and protégé.

The cloning model is one in which the mentor "seeks not simply to direct, but to control, a mentee" (p. 64). In essence, the mentor attempts to make the protégé a carbon copy of him or herself. In the nurturing model, the mentor serves more of a parent-like role. The mentor's role is to help the protégé find him or herself in a professional sense and to provide a safe environment for experimentation to occur. The friendship model positions the mentor and protégé on a more equal level—working together rather than in a hierarchical fashion. Further, reciprocity is important as both individuals learn from one another in this model. Finally, the apprentice model emerged during Buell's (2004) study. Participants suggested that this model emphasizes the professional aspect of the mentoring relationship and that one is "learning the trade through that person's [mentor] eyes" (p. 70). Implicit within the various models is the idea of power. For example, a hierarchical power difference is inherent in the cloning model. By contrast, one must ask if a true friendship model is even possible because of power. While interesting, Buell's models are not empirically tested and again, not driven by a clear theoretical framework.

In summary, the extant mentoring research has strengths, but also significant shortcomings that need to be addressed. The first strength is that career and psychosocial dimensions of mentoring are examined in almost every study. Therefore, assessing career and psychosocial dimensions in the current study is also appropriate. Secondly, scale development in mentoring has advanced considerably in the last 25 years. The most recent adaptation of the mentoring measures to the graduate school environment by Paglis et al. (2006) appears to provide an adequate measure for the current study. This scale, as well as earlier measures of mentoring, are perception-based self-reports and therefore, assessing perceptions in the current study is also appropriate. Third, outcomes salient to the graduate school environment such as attrition, academic success, job placement, and positive well-being have been posited in the past and will be drawn upon when suggesting outcomes for

the present research (i.e., relational satisfaction, perceived time-to-degree, research self-efficacy, and relational quality).

On the other hand, the extant mentoring research contains significant weaknesses that need to be addressed. First, the mentoring research to date is largely atheoretical. It functions as useful description and program assessment, but it has not been successfully integrated into a clear theoretical model. Second, communication behaviors that influence the mentoring relationship have not been well-developed in past research. Third, examinations of relational maintenance strategies and their ability to produce salient outcomes are largely missing in the existing mentoring research. In order to capitalize on the strengths and address the shortcomings of prior mentoring research, this dissertation will draw upon communication theories to frame the study, propose a predictive model of mentoring, and argue for a functional approach to the faculty-student relationship with an emphasis on relational maintenance strategies that help facilitate the relational mentoring process.

Theoretical Framework

To develop a more functional predictive, theoretical model of mentoring, it is crucial that the relational mentoring process be conceptualized by drawing upon existing communication theories. The communication perspective highlights communication strategies that facilitate the process in general, and specifically, may affect the salient graduate school outcomes. Jacobi (1991) and McManus and Russell (1997) assert that examining mentoring as a form of social support may provide clarity to the nature and importance of the mentoring relationship. Cawyer, Simonds, and Davis (2002) found that social support was perceived as a benefit of mentoring by new faculty members during the socialization process. As a result of reflective inquiry and qualitative interviews, Cawyer et al. conclude that social support is essential to address the task and social concerns that new faculty members feel in their first year as professors and that faculty mentoring is one way to provide this support. The connection between social support and mentoring, then, has been explored for new faculty socialization, but requires testing with respect to graduate student socialization.

Social support

Social support, like mentoring, is an umbrella term for a number of related constructs. Its roots began in sociology and psychology with an emphasis on social networks and cognitive processes, respectively. Social support may be generally defined as "a flow of emotional concern, instrumental aid, information, and/or appraisal (information relevant to

self-evaluation) between people" (House, 1981, p. 26). Scholars have both added and subtracted elements from the definition of social support; however, House (1981) is considered one of the leading scholars in the field and his definition is frequently referenced when discussing social support. Further, House's definition maps nicely onto the mentoring definition consisting of career (instrumental and information support) and psychosocial (emotional concern and appraisal) dimensions. O'Neill (1997) proposes an integrative model of mentoring and social support by examining the fit between career and psychosocial mentoring and related social support dimensions. She concludes that the conceptualization of mentoring can be enhanced by drawing from social support because the similarities between psychosocial mentoring and emotional support, as well as career mentoring and instrumental support provide a justification for considering the constructs as essentially the same. This conclusion provides further support for the current dissertation study by specifically investigating mentoring as social support.

Social support, like mentoring, is also inherently relational (Duck & Silver, 1999). Social support does not occur outside of the context of a relationship; similarly, the mentoring process does not occur outside the context of a relationship. Support may be conceptualized as perceived or enacted. Perceived social support is derived from the psychological tradition and the emphasis is on the cognitive perceptions of support availability if one would need it (Goldsmith, 2004; Wethington & Kessler, 1986). By contrast, enacted support focuses on the perceptions of the support received in an actual situation (Barrera, 1986). There are varying degrees of support and certain relationships may provide more social support than others. Further, social support is heavily influenced by the context in which it takes place (Sarason & Duck, 2001). For example, a faculty member and a student in a mentoring relationship would be more likely to engage in higher degrees of social support than a faculty member and a student who only interact in the classroom.

Further, the initial conceptualization of social support was largely focused on support in crisis situations. The support process for individuals who were facing serious health problems, dire financial straits, or loss of a loved one was examined. However, support can also be examined in a day-to-day capacity, as an everyday process (Sarason & Duck, 2001). Clearly, examining mentoring as a type of social support falls into the latter category. While there may be occasional crises for a student during one's graduate program, more often, the experience of support will be in day-to-day matters such as research assistance and funding issues.

Over the last twenty years, communication scholars have become actively involved in social support research (e.g., Burleson & MacGeorge, 2002; Goldsmith, 2004). The focus for communication scholars is on supportive communication: "verbal (and nonverbal) behaviors intended to provide or seek help" (Burleson & MacGeorge, 2002, p. 384). To take the definition of supportive communication one step further, scholars have defined supportive messages as "specific lines of communicative behavior enacted by one party with the intent of benefiting or helping another" (Burleson & MacGeorge, 2002, p. 386).

As opposed to earlier psychological and sociological social support investigations, communication scholars focus on the message creation, transmission, and perception of support messages (e.g., Burleson & Samter, 1985; Goldsmith & MacGeorge, 2000). For example, in a stressful situation such as a discussion about loss of a job, the perception of the degree of comforting messages provided by one partner to the other will determine the evaluation of the situation, as well as relational outcomes. Further, the perception of advice given by the same partner can also affect how the message is received (Goldsmith, 1992). Even if support is provided by an individual, if it is not perceived well, the other relational partner may perceive that support did not occur at all. As will be described later in this chapter, the mentoring support that students receive via messages from their faculty mentor is a focus of this dissertation. Graduate students will be asked to identify their own career and psychosocial support needs and then assess the career and psychosocial support provided by their faculty mentor.

The communicative perspective on supportive communication has two other distinctive features of relevance to this dissertation. First, the communicative perspective assumes that there is a direct connection between supportive communication and well-being, which in the current study is operationalized as satisfaction. Second, supportive communication focuses on interaction and relationship outcomes (Burleson & MacGeorge, 2002). The primary concern is that the outcomes associated with the relationship itself are largely untested. The outcomes hypothesized in the current study (relational satisfaction, perceived time-to-degree, research self-efficacy, and relational quality) encompass both of the distinctive features of supportive communication. Relational satisfaction and relational quality address the first issue, while perceived time-to-degree and research self-efficacy, the second. Consistent with previous research, the first set of outcomes examine a positive evaluation of the graduate school experience, while the second set are related to student productivity.

Social support and supportive communication are established areas of communication research. By drawing upon social support as a guide for mentoring research, the current study extends the exploration of mentoring beyond a checklist of behaviors. Rather than using existing social support measures to assess career and psychosocial support, existing mentoring measures will be adjusted to address support sought and support obtained. The focus of this dissertation is framed by a causal process model that conceptualizes mentoring as a relational process largely reliant on social support. The process begins with an initial investigation of support sought, followed by the relational maintenance behaviors that occur to develop and maintain the relationship and the career/psychosocial messages (operationalized as support obtained) provided by the faculty mentor in order to predict relational satisfaction, perceived time-to-degree, research self-efficacy, and relational quality.

Theory Development

After describing the state of the extant mentoring research and the underlying theoretical framework used to guide the current study, it is appropriate to propose a new Mentoring Relational Process Model (MRPM) based on extant research to address the shortcomings previously discussed and contribute to the mentoring research. The needs that doctoral students express during graduate school, the strategies used by students to meet their needs, the perceptions of the career and psychosocial support provided by the faculty mentor, and the subsequent outcomes are key elements of the model. This new model frames mentoring from a communication perspective and suggests that important outcomes can be predicted from the relational perspective.

Support sought

Graduate school requires students to quickly develop a set of pragmatic and personal skills in order to survive. From dealing with overwhelming amounts of reading or time in a laboratory, to expectations of being simultaneously a student and a teacher or researcher, to having very little time for activities or individuals outside of the graduate school setting, socialization into graduate school forces a student to learn to adapt and balance these exigencies in a timely fashion. The needs that graduate students seek to get met may be defined as support sought.

A glaring omission in previous mentoring research is that it fails to ask students what kind(s) of support they think they need. Is there a perceived need for specific skill development in areas such as statistics or writing? Is there a perceived need for help in balancing school and the "rest of life?" Is there a perceived need in understanding

departmental politics and procedures? Without understanding the support sought, it is very difficult to contextualize the behaviors that occur within the relationship and the perceptions of support obtained. It is difficult to determine if the mentoring relationship is helpful if the needs of the student are not first addressed.

Therefore, one significant contribution of the current dissertation is the creation of a new Mentoring Relational Process Model (MRPM) that includes student perceptions about their individual support needs (support sought). Since there is no existing scale of mentoring support sought, measures will be derived from the existing support obtained mentoring scales. To be consistent and clear, support sought will be discussed separately in terms of career and psychosocial support needs. Career support sought includes skill development in particular areas, information about conferences and publishing, course of study guidance, and education in department politics. Psychosocial support sought includes affirmation, interest in one's life outside of school, and a safe place to vent concerns and frustrations. These new scales address the omission in prior research described above by asking students what needs they believe they have and also further enhancing the measurement of the mentoring process.   After considering the support needs that a student expresses, it is critical to determine the extent to which graduate students use communication to achieve their career and psychosocial needs within the context of a relationship. One potential solution afforded by a communication perspective, and proposed within the MRPM, is that graduate students employ relational maintenance strategies (i.e., assurances, openness, conflict management, positivity, advice, and mediated communication) to obtain the support they desire. While the current proposed model is predominantly a protégé-centered model, the interaction and relational maintenance strategies must be considered from both a protégé and a mentor perspective. These relational maintenance strategies, in turn, increase the likelihood of obtaining necessary support and improving critical graduate school outcomes.

Relational maintenance strategies

After a student has identified support needs, he or she must indicate to the faculty member that support is desired by using support-seeking strategies (e.g., Dunkel-Schetter & Skokan, 1990, Waldeck et al., 1997). Additionally, a student must simultaneously assess his/her faculty mentor's relational maintenance behaviors in order to gauge the level of mentoring support he/she perceives is occurring. Assuming that a relational mentoring process occurs at the level of interaction and is ongoing, relational maintenance provides a useful way to assess the communication strategies utilized to develop and maintain a

mentoring relationship. To date, relational maintenance strategies have not been explored in conjunction with mentoring relationships. Rather, extant mentoring research generally focuses either on the initiation of the relationship or the checklist of behaviors that may indicate one is engaged in a mentoring relationship, without considering the nature of the interactions that occur within the relationship itself. The power difference inherent in mentoring relationships provides a challenge in assessing student self-reported relational maintenance strategies. Rather than just asking about perceptions of the other, protégés will be asked to report on both the strategies they use and the strategies they perceive their mentor using to maintain the mentoring relationship.

Relational maintenance strategies are "associated with the maintenance, management, or repair of a relationship. These tasks focus on defining the relationship, establishing its parameters, managing its tensions, and dealing with threats to its integrity and endurance" (Burleson, Metts, & Kirch, 2000, p. 245). Dindia and Canary (1993) assert that relational maintenance serves four primary purposes: 1) to keep a relationship in existence, 2) to keep a relationship in a specified state or condition, 3) to keep a relationship in a satisfactory condition, and 4) to keep a relationship in repair (p. 163).

Relational maintenance strategies were originally (and are still most frequently) studied within the context of romantic relationships (e.g., Ayres, 1983; Canary & Stafford, 1992; Stafford, Dainton, & Haas, 2000). In recent years, other studies have looked at relational maintenance in non-romantic relationship contexts such as sibling relationships (Myers and colleagues, 2001). In a comparative study, Canary, Stafford, Hause, and Wallace (1993) examined relational maintenance strategies between lovers, relatives, friends, and others to describe the character of these strategies in both romantic and non-romantic relationships. The authors argue that different relational maintenance strategies are used depending on relationship type. They found support for their hypothesis—strategies vary depending on relationship type. It may be argued, then, that studying relational maintenance within the mentoring relationship will extend the breadth of relationships examined with regard to this set of behaviors. One relationship that Canary et al. concluded needs further research is the co-worker relationship because their sample only included 1.9% co-workers. The mentoring relationship is an especially important context for examining relational maintenance strategies because the mentor-protégé relationship can be best treated as an ongoing interpersonal relationship that is part co-worker and part teacher-student. The most fundamental, unifying characteristics of previous research in relational maintenance

strategies are that the relationship is ongoing and dyadic. The mentoring relationship fits both of these conditions.

Relationship maintenance behaviors can be both routine and strategic (Dainton & Stafford, 1993). Routine behaviors occur at a lower level of consciousness, without the express purpose of affecting the relationship. By contrast, strategic behaviors are those that are performed with the express purpose of maintaining the relationship in some manner. For example, a routine behavior in a mentoring relationship may involve the student saying hello to the faculty mentor in the hallway. This behavior influences the relationship, but not in an intentional manner. A strategic behavior, by contrast, may be a student stopping by to talk with the faculty mentor about a new idea he or she encountered in class with the express purpose of advancing and maintaining the relationship. While both routine and strategic maintenance behaviors are assessed in this study, the emphasis is on the strategic communication behaviors that a graduate student uses to get his or her support needs met and the behaviors that he or she perceives his or her faculty mentor as enacting in the relationship.

Stafford and Canary (1991) originally delineated five dimensions of relational maintenance behaviors: positivity, openness, assurances, network, and tasks. In the last fifteen years, these researchers have built a program of research on relational maintenance behaviors; the most recent revision of the dimensions added the category of conflict management, and the descriptors "social" to networks and "shared" to tasks (Stafford et al., 2000). Additionally, when assessing relational maintenance strategies among lovers, relatives, friends, and others, mediated communication emerged (i.e., calls, cards, and letters) as a strategy used to maintain the relationship (Canary et al, 1993).

With respect to the mentoring relationship, assurances, openness, conflict management, positivity, advice, and mediated communication are appropriate to study. Shared tasks and social networks are less salient. Before defining each of the necessary dimensions to study, it is important to first note why shared tasks and social networks are not relevant.

The *shared tasks* dimension emphasizes day-to-day behaviors such as housework, paying bills, etc. that keep the relationship moving smoothly. The tasks are focused on the responsibility to make sure that daily functioning is being split evenly between partners. In the mentoring relationship, the day-to-day task dimension largely lies with the student and does not constitute shared responsibility. The student must complete tasks, but he or she is

not dependent on the faculty member to function daily. Therefore, this dimension will not be examined in the current dissertation.

Likewise, the *social networks* dimension emphasizes the shared social relationships between relationship partners. The power differential in the faculty-student mentoring relationship makes shared social networks unlikely, and in some cases, even unethical. The social networks dimension is not included in this study given the faculty-student focus. However, future research interested in studying mentoring from a faculty perspective may find this power dimension worthy of investigation.

Six relational maintenance strategies are included in the current study because of their saliency to mentoring. Participants in the current study were asked to reflect both on their own relational maintenance strategies, as well as their perceptions of the strategies used by their faculty mentors. The *assurances* dimension includes affirmations of the relational partner, both now and for the future. In romantic relationships, assurances describe how much one feels that he or she is loved and cared for and the commitment to a relationship in the future. Given the emphasis in mentoring on psychosocial support, this dimension reflects many of the same concepts, but is assessed based both on student behaviors and student perceptions of faculty assurance behaviors. Assurances may include affirmations of the student's commitment to work together throughout the socialization processes in graduate school and respect of the mentor or vice versa. Respect is the key element that assurances measure within the mentoring context. While mentor and protégé assurances may influence the mentoring process, the lack of prior research prevents a specific claim about directionality.

Openness emphasizes the self-disclosure aspect of close relationships. This dimension provides information about the general comfort with talking about the relationship and the comfort with voicing fears and doubts about both the relationship and the process. Further, openness assumes honesty between mentor and protégé. Honesty is of utmost importance in the relational mentoring process. Openness is assessed both based on student behavior and student perception of faculty mentor behavior in the present study. The degree to which graduate students feel comfortable being open with their faculty mentors is an interesting question to consider because the structure of graduate school (i.e., funding issues, qualifying exams, dissertation defenses) inherently places distance between students and faculty. What is largely unanswered, however, is whether this distance influences the degree of openness between the two parties. In the mentoring relationship, openness between a student and the faculty mentor may lead to students perceiving that their

support needs have been met and ultimately to satisfaction with the relationship. Further, because openness affects how support needs are met, it may also affect the degree to which students feel confident about their ability to succeed at specific graduate school outcomes such as conducting research.

Although most of the relational maintenance behaviors have a positive valence, *conflict management* assesses what happens when problems occur. Even the most productive mentoring relationships are likely to contain some degree of conflict—about issues such as writing styles, timelines, and courses of study. The challenge is how to deal with these conflicts and maintain the integrity of the relationship. The student may perceive the faculty mentor as performing limited conflict management behaviors; rather, he or she may feel that the onus of responsibility for conflict management lies on him or herself. Therefore, students were asked about both their own and their faculty mentor's conflict management behaviors. As previously described, limited mentoring research has examined dysfunctional mentoring relationships in the past (e.g., Scandura, 1998), but conflict management can be part of a functional relationship as well. The more productively that conflict is managed in a mentoring relationship, the more satisfied a student will be with the mentoring relationship.

As a relational maintenance behavior, *positivity* involves portraying a positive attitude to the relational partner. In mentoring relationships, then, positivity would have the student protégé providing an upbeat and cheerful countenance to his or her faculty mentor and vice-versa. As evidenced by previous relational maintenance research, this dimension suggests that the attitude of one relational partner is an important influence on the attitudes and behaviors of the other relational partner (e.g., Stafford & Canary, 1991).

The *advice* dimension highlights the transmission of advice between relational partners. Specifically, in the current study the emphasis is on protégé advice-seeking behaviors that a student engages in during the mentoring process. If a student perceives that he or she has a specific support need, one may argue that he or she will seek the advice of the mentor to determine how the need may best be addressed. Therefore, the agreement between the support sought by a student protégé and the perception of support obtained may be influenced by advice. Further, the perception of the advice received may influence the confidence a student feels in specific aspects of graduate school such as conducting research.

Finally, while the other relational maintenance behaviors address specific relational qualities that may or may not be present in a given relationship, *mediated communication*

focuses on the channels through which and frequency with which interaction occurs as initiated by the protégé. This behavior highlights the interaction frequency in various channels between the student and faculty member to provide an overall picture of interaction. The phone calls and emails that a student and faculty member exchange are essential to understanding the overall relationship. Mediated communication serves as a way for students to not only seek the support that they need, but also may ultimately affect the time it takes one to complete a degree. Maintaining regular communication with a faculty mentor encourages a student to report on the progress he or she is making in the degree program.

Further, the impact of relational maintenance strategies on relationship outcomes has also been studied and provides additional justification for including them in the current mentoring study. Most frequently, relational maintenance strategies have been shown to influence relational satisfaction (Dindia & Baxter, 1987; Stafford & Canary, 1991). Stafford and Canary (1991) found that over half of the variance in husbands' relational satisfaction was predicted by perceptions of wives' relational maintenance strategies of assurances and positivity. By contrast, about half of the variance in wives' satisfaction was predicted by positivity, sharing tasks, assurances, social networks, and openness. In both cases, relational satisfaction was influenced by the perceptions of relational maintenance behaviors of the other. This finding provides support for looking at the influence of relational maintenance behaviors on relational satisfaction in the current dissertation, as well as examining both mentor and protégé relational maintenance behaviors.

In the same study, Stafford and Canary (1991) examined the influence of relational maintenance behaviors on mutuality, commitment, and liking. Positivity was found to be the primary predictor of mutuality and liking, while the assurances dimension was found to be the primary predictor of commitment. Myers et al. (2000) found that sibling liking was predicted by the positivity, networks, and sharing tasks dimensions of relational maintenance. Further, Myers et al. reported that openness accounted for the smallest amount of variance. While it is clear that certain relational maintenance strategies more strongly influence relational outcomes in romantic relationships than others, the lack of extant research in the influence of relational maintenance strategies within the context of mentoring prevents the identification of specific strategies that may be most salient in this process. Therefore, the current study provides an initial exploration of these potential connections.

To reiterate, the power differential inherent in mentoring relationships makes assessing the relational maintenance strategies and their associated outcomes substantially different than those in most romantic relationships. Dindia (2000) provides support for assessing both mentor and protégé relational maintenance strategies when she argues "an individual's relational satisfaction might depend more on the person's perceptions of his or her partner's maintenance strategies than on the person's perceptions of his or her own maintenance strategies" (p. 293). Arguably, protégés are seeking certain career and psychosocial support and are attempting to employ strategies that will likely accomplish certain goals through the mentoring process. Appropriate use of relational maintenance facilitates this process and allows for both the protégé's own actions and his/her evaluations of a mentor's relational maintenance behaviors, as well as career and psychosocial support.

In sum, relational maintenance is an appropriate concept to apply to the mentoring relationship because it addresses a shortcoming of previous mentoring research by investigating the strategic communication behaviors, from both the mentor and the protégé, that are used to develop and maintain the relationship itself. Relational maintenance provides the link between the student expectations of support and what the student perceives he or she receives from the relationship by examining how communication facilitates this process. Further, the examination of relational maintenance in a mentoring context contributes to the relational maintenance literature by studying the behaviors in a common interpersonal relationship that has not yet been explored. After considering the support sought and the communication strategies used in the relationship, it is necessary to explore the support obtained.

Support obtained

Over the course of a mentoring relationship, a protégé (in this case, a doctoral student) perceives career and psychosocial support from a mentor; this perception is *support obtained*. Support obtained is related to the support sought (perceived needs) by the graduate student and facilitated by the relational maintenance behaviors within the context of the mentoring relationship. Again, this support is not dichotomous; rather, it is best conceptualized as a continuum of support provided to varying degrees by different mentors and to different students. The unit of analysis in the current dissertation is individual student perceptions of faculty behavior. For example, the protégé is asked to report on whether he or she believes that the faculty mentor reduces unnecessary risks that would negatively affect his or her progress in the doctoral program.

Studies of mentoring traditionally ask participants to reflect on the mentoring functions that they believe their mentors are providing (e.g., Waldeck et al., 1997). These functions are generally split into two categories: career and psychosocial. Career support emphasizes both skill development and promotion within the department as it relates to career. For example, a mentor may provide his or her protégé with information about conference and publishing opportunities that are not readily accessible to all students.

Psychosocial support is the emotional support provided to a protégé by a mentor. Psychosocial support provides the protégé with an open door, a listening ear, and at times, a cheerleader (Noe, 1988; Ragins & McFarlin, 1990). In a pilot study for the current dissertation, psychosocial support was further tailored to include relevant constructs specific to graduate education such as advice about to how to balance school and the rest of life and conversations about topics unrelated to school. Mentoring in the academic environment shares many of the characteristics in the non-academic world; however, some of the exigencies are different and therefore, warrant different responses.

Support obtained, then, is the perceived support that a mentor provides to a protégé. In this study, support obtained is modeled on the extant mentoring constructs and allows the further refinement and clarification of these constructs. This clarification is a significant contribution to the mentoring literature, while being situated within the context of interpersonal communication. The perceptions of support obtained, as well as the degree to which the original support needs are met by the support obtained, will ultimately affect a student's satisfaction with the mentoring relationship.

Outcomes of the mentoring relationship

Returning to the idea that interpersonal relationships are functional in nature, that is, they are strategic and goal-focused, it is imperative to consider specific, measurable outcomes that may occur as a result of the relational mentoring process. Hunt and Michael (1983) argue that outcomes are context-specific and should be examined accordingly. Extant mentoring research in communication often positions mentoring as the end-state outcome (e.g., Buell, 2004; Waldeck et al., 1997). Descriptive measures are used to assess whether mentoring takes place and if so, with whom and which checklist functions are being fulfilled.

Within the larger body of mentoring literature that includes research from other sectors such as business, an argument is made that employees engaged in mentoring relationships receive more compensation and promotions than those who are not engaged in such relationships (Chao, Walz & Gardner, 1992; Dresher & Ash, 1990; Ragins & Cotton,

1999; Scandura, 1992). Further, in an examination of the impact of mentoring on new faculty socialization, Schrodt, Cawyer, and Sanders (2003) found that individuals who engaged in mentoring relationships were more satisfied with the socialization process than those who did not.

In a handful of studies about mentoring in graduate education, outcomes beyond simply the degree to which career and psychosocial functions are provided have been examined. There are mixed results about the outcomes that students receive as part of a mentoring relationship. Cronan-Hillix et al. (1986) found that students with mentors showed higher levels of predoctoral productivity in research, publications, and conference submissions than those without. By contrast, Green and Bauer (1995) assert that, after controlling for student potential at entry, mentoring is not related to student productivity or commitment. In an extension of their earlier research, however, Paglis, et al. (2006) found that mentoring in doctoral education does in fact positively influence research productivity and research self-efficacy. Anecdotally, Johnson and Huwe (2003) argue that the mentoring relationship can provide students with benefits both prior to obtaining the doctorate and after graduation such as professional skill development, dissertation success, satisfaction with the doctoral program, career eminence, and creative achievement. These outcomes were not empirically tested.

Additional outcomes suggested in previous research include attrition, evaluation of the graduate school experience, academic success, student productivity (as evidence by conference presentations and publications), student commitment to program, well-being, job placement, satisfaction with program, and access to insider information. Given the inconsistency and relative shortage of findings with regard to outcomes of mentoring in graduate education, four outcomes are proposed for this study—relational satisfaction, perceived time-to-degree, research self-efficacy, and relational quality. The outcomes address both the affective component of the relational mentoring process and the more cognitive/behavioral elements of perceived degree length and research competence.

Relational satisfaction

Satisfaction is a global affective outcome that asks respondents to determine how pleased they are with a given process or relationship. Satisfaction measures may tap job satisfaction (Burke, Bristor, & Rothstein, 1995; Ensher, Thomas, & Murphy, 2001), career satisfaction (Burke et al., 1995), communication satisfaction (Downs & Hazen, 1977), interpersonal communication satisfaction (Hecht, 1978) or relational satisfaction (Dindia, 2000; Dindia & Baxter, 1987; Stafford & Canary, 1991). A direct relationship has been

demonstrated in the relational maintenance literature between the use of relational maintenance strategies and relational satisfaction (Dindia & Baxter, 1987; Stafford & Canary, 1991). Given that an express purpose of this dissertation is to explore the perceived support obtained in a relational mentoring process as influenced by relational maintenance behaviors, relational satisfaction will be tested in this study.

Relational satisfaction assesses the degree to which a relationship partner is satisfied with the interactions that comprise the relationship. Dindia and Baxter (1987) and Stafford and Canary (1991) assert that relational maintenance strategies are positively correlated with relational satisfaction in marital relationships. Positivity and openness are most strongly correlated with relational satisfaction in the Stafford and Canary (1991) research. Dainton, Stafford, and Canary (1994) found that the original five relational maintenance strategies (positivity, assurances, social networks, sharing tasks, and openness) were positively correlated with relational satisfaction. This association should also hold true with faculty-student mentoring relationships.

Graduate students perceive certain support needs, enact (and perceive) certain relational maintenance behaviors with their mentor, and perceive certain support needs being met. The degree to which relational maintenance behaviors are utilized and/or support needs are perceived as met may influence the relational satisfaction of the graduate student about the mentoring relationship. This outcome addresses how communication strategies influence the satisfaction with the relationship overall. Relational satisfaction is an especially salient outcome of a successful mentoring process because it may influence both overall satisfaction with graduate school, as well as attrition and persistence. In addition to considering relational satisfaction, it is also important to consider applied outcomes that are salient in a graduate education context.

Perceived time-to-degree

As mentioned in the rationale for this study, persistence and attrition are significant issues within the world of graduate education. Time, money, and energy are invested in a mentoring relationship by both the student and the faculty member. The ultimate outcome of a doctoral program is graduation and landing the first job. While the ideal way to assess student efficiency in a program would be to measure actual time-to-degree, this method is not feasible in the current study because of sample constraints. Gaining access to a sufficient number of recent doctoral graduates to provide the needed power in this survey would be difficult to do. Therefore, the efficiency and timeliness with which a graduate student perceives he or she may finish a graduate degree was instead assessed.

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Completing a graduate degree, especially at the doctoral level, is dependent on a number of factors not found in undergraduate education. A student must complete coursework, successfully pass exams, and in the case of a doctoral program, write a dissertation. Unlike undergraduate education, there is not a prescribed time frame or lock-step course of study that applies to all students. Rather, the time frame depends on the student's success in navigating the system of graduate school, as well as acquiring the requisite skills necessary for the degree. Schlosser, Knox, Moskovitz, and Hill (2002) suggest that an important direction for future research into the faculty-student relationship is to examine critical student outcomes such as completion of the doctoral degree. If a student has learned about the skills, procedures, and personal characteristics that are necessary to complete the graduate degree as part of the mentoring process, completion of the degree is more likely to occur in a timely manner. Further, the degree to which a student engages in communication with a mentor may influence the perceived time-to-degree. Rather than being "out of sight, out of mind," if students talk with their faculty mentors on a regular basis, they may be more likely to work diligently on their course of study. Simply completing a degree, however, is not a sufficient measure of a graduate program. Rather, the question becomes what skills students believe they gain from graduate school.

Research self-efficacy

An explicit goal of most doctoral programs at research-intensive universities is to provide students with the skills necessary to conduct research and create new knowledge. Simply measuring research productivity among graduate students may be an insufficient way to address the research influence because a) it does not take into account the varying ways that research is conducted in different programs, the length of time it takes to conduct different types of research projects, etc. and b) it does not account for the influence of the faculty-student relationship on research.

One way of conceptualizing the outcome of research is by examining research self-efficacy. Bandura (1982) describes self-efficacy as one's perception of his or her ability to be successful in a certain domain. Within the world of education, scholars have examined general academic self-efficacy (Bong & Hocevar, 2002; Gore, 2006) and career search self-efficacy (Bacanli, 2006). General academic self-efficacy asks students to describe the level of confidence they feel with respect to specific subjects and school in general, while career search self-efficacy measures the confidence that one could achieve a certain career. Neither of these self-efficacy measures fully capture the explicit goals of the doctoral

experience (i.e., research); therefore, research self-efficacy is the most appropriate outcome for this study.

Examinations of research self-efficacy are often situated within the research training environment where forces in graduate education influence student attitudes to do research and improve science (Gelso, Mallinckrodt, & Judge, 1996). Research self-efficacy, then, is one's confidence in designing, conducting, and analyzing research. At the end of any doctoral program, the intended outcome is that most students would possess a high degree of research self-efficacy. Research self-efficacy measures students' confidence in applying research related skills such as research design, practical research skills, quantitative and computer skills, writing skills, discipline and intrinsic motivation, analytic skills, ethics, and contribution and utilization of resources (Hollingsworth & Fassinger, 2002; Schlosser & Gelso, 2001). A student's willingness to be open with a faculty member about his or her support needs, as well as willingness to seek advice from the faculty member may affect the degree of research self-efficacy that he or she possesses. A limitation of existing research self-efficacy studies is that they have been conducted in very limited disciplines—mainly the hard sciences and counseling psychology. The current dissertation research will extend the literature on research self-efficacy by examining its applicability in a cross-disciplinary sample.

Paglis et al. (2006) argue, by drawing upon Bandura's work, that research self-efficacy may be influenced by mentoring relationships because one's perception of self-efficacy is grounded in vicarious learning, personal mastery experiences, and verbal persuasion; a mentoring relationship may provide all three. In their longitudinal study of doctoral student mentoring and related outcomes, Paglis et al. found that psychosocial mentoring positively influenced perceptions of research self-efficacy. Schlosser and Gelso (2001) also assert that faculty behaviors within a mentoring relationship may influence research self-efficacy. If the communication and relational constructs that constitute mentoring significantly predict research self-efficacy, the implication for the importance of mentoring within graduate education will be established. Learning to be a researcher is a key component to the socialization of doctoral students into graduate school and life as a scholar; positioning mentoring as a way to support this process would be significant. However, it is important to note that while mentoring may affect research self-efficacy, it is also undoubtedly related to several conditions that go beyond a mentoring relationship (e.g., number of courses taken, mastery orientation, research experience, etc.).

Relational Quality

   The outcome of relational quality is conceptually related to relational satisfaction. What do students currently engaged in the relational mentoring process believe about the quality of their mentoring process? Is the process functional and helpful or dysfunctional and unhelpful? If a student reports being in a mentoring relationship, but describes the quality as very low, the utility of that relationship is suspect. Extant research has not specifically examined quality, so this study will provide an initial exploration of this outcome when testing the complete Mentoring Relational Process Model (MRPM).

   Relational satisfaction, perceived time-to-degree, research self-efficacy, relational quality are four distinct and critical outcomes in graduate education. By keeping students satisfied, efficient and confident, mentoring can be a very positive force in the graduate school experience.

<div align="center">Contributions</div>

   This dissertation research makes several potential important contributions to existing mentoring research from a communication perspective. First, the research draws upon the established communication theory of social support as an underlying framework for the current study. A criticism of extant research is that it is atheoretical, so utilizing social support as a framework begins to address this shortcoming.

   Second, the relational maintenance behaviors used by both the student and the faculty member to facilitate the mentoring process are assessed. Mentoring is an inherently interactional process, so considering both protégé and mentor behaviors provides a snapshot of the interaction proper.

   Third, the mentoring process is explored as more than simply a checklist of behaviors. Mentoring is not positioned as the outcome in the present study, but rather a process of which the faculty-student interaction is an integral part. The outcomes, then, specifically address both the relationship itself (i.e., relational satisfaction and relational quality) and outcomes that are especially salient within graduate education (i.e., perceived time-to-degree and research self-efficacy).

   Finally, this study examines cognitive, behavioral, and affective dimensions of the mentoring process. The support sought and support obtained tap into the cognitive dimensions of the mentoring process, the relational maintenance behaviors address the behavioral component, and the relational satisfaction and relational quality dimensions provide an examination of the affective component of the mentoring process. A graphical

<div align="center">30</div>

representation of the Mentoring Relational Process Model (MRPM) is provided below (see Figure 1.1).

Figure 1.1: Conceptual Model of the Mentoring Relational Process Model (MRPM)
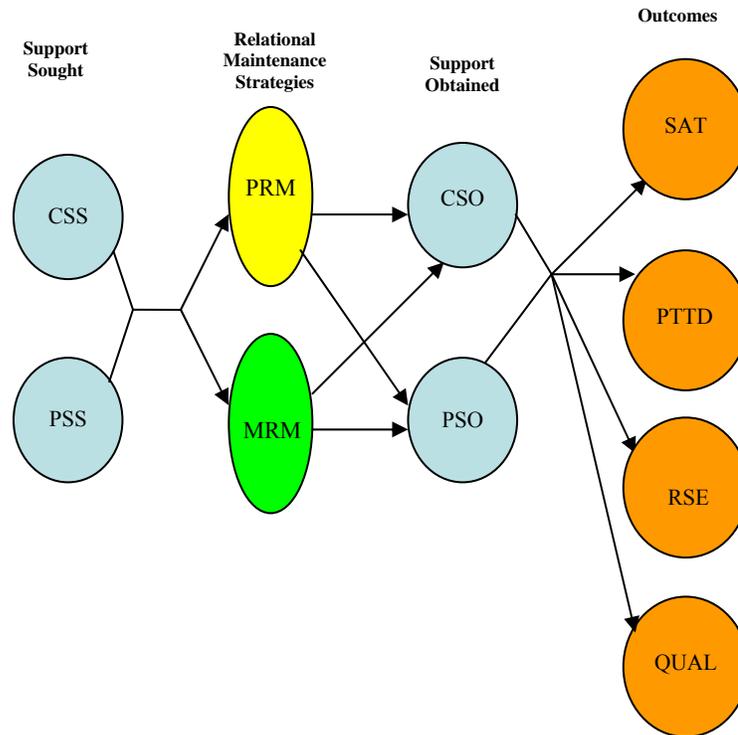
Key:

CSS – Career support sought   CSO – Career support obtained

PSS – Psychosocial support sought   PSO – Psychosocial support obtained

PRM – Protégé relational maintenance   RSE – Research self-efficacy

MRM – Mentor relational maintenance   PTTD – Perceived time-to-degree

SAT – Relational satisfaction   QUAL – Relational quality

Hypotheses and Research Question

While much of the extant mentoring literature seeks simply to describe the types and amount of career and psychosocial support provided by a mentor, the current dissertation reframes mentoring as inherently a communicative process, where mentoring is a causal, relational process initiated by the protégé and enhanced through strategic communication (relational maintenance strategies) to help achieve perceived career and psychosocial support needs (support sought). The primary emphasis of this process is protégé behaviors; however, both mentor and protégé relational maintenance strategies are assessed because of the power differential inherent in the faculty member-student relationship. The new functional Mentoring Relational Process Model (MRPM) suggests that the resulting career and psychosocial support obtained is a direct result of the protégé-mentor interaction and

can significantly predict four critical graduate education outcomes: relational satisfaction, perceived time-to-degree, research self-efficacy, and relational quality.

Three sets of hypotheses are generated to test the propositions contained in the new MRPM (see Model 1). The first set of hypotheses predict ***protégé career and psychosocial support obtained*** as a function of initial protégé support sought and influenced by the protégé and mentor relational maintenance strategies. Past interpersonal communication research on relational maintenance behaviors in romantic relationships is clear about how specific strategies predict salient outcomes. However, such prediction is not possible in the current study for two reasons. First, the power dimension inherent in the mentoring process is substantially different from typical romantic relationships and therefore limits the ability to make a prediction about protégé outcomes. To address this challenge, both protégé and mentor relational maintenance behaviors must be assessed. Second, given the lack of previous research about the influence of relational maintenance strategies within the mentoring process, predicting the influence of specific relational maintenance strategies on career and psychosocial support is inappropriate. Therefore, all six relational maintenance strategies will be explored to determine both their unique effects and their combined effect on support obtained. More formally stated, then,

H_{1a}: Perceived career support sought predicts perceptions of career support obtained, when influenced by protégé and mentor ***relational maintenance strategies***.

A similar hypothesis is possible for psychosocial support sought. Therefore,

H_{1b}: Perceived psychosocial support sought predicts perceptions of psychosocial support obtained, when influenced by protégé and mentor ***relational maintenance strategies.***

The second set of hypotheses tests the theoretical tenets of the model without the inclusion of support sought. Specifically, these hypotheses predict ***critical graduate education outcomes*** (i.e., research self-efficacy, perceived time-to-degree, and relational satisfaction) as a function of relational maintenance strategies employed during protégé-mentor interaction and perceptions of support obtained. As Kablflesich (2002) argues, maintenance strategies are used by protégés during the mentoring process in order to facilitate the faculty-student relationship and by extension, influence critical outcomes in graduate education. What extant research does not clearly address, however, is which strategies impact which outcomes. The current study provides an exploration of this question.

The relational maintenance literature has demonstrated that the use of relational maintenance strategies within romantic relationships leads to self-report of relational

satisfaction. One may expect, then, that a similar phenomenon will be found in mentoring relationships. If a protégé perceives that his or her relational maintenance strategies are helping him or her obtain mentoring support (career and psychosocial), relational satisfaction can be expected to occur. Therefore,

H_{2a}: Protégé and mentor relational maintenance strategies, as influenced by career and psychosocial support obtained, will significantly predict protégé perceived *relational satisfaction*.

In addition, the more frequent the interaction between a protégé and mentor, the greater the likelihood that degree progress will be a topic of conversation. This interaction may be assessed through relational maintenance strategies. Students in a mentoring relationship will have greater confidence in their ability to complete a doctoral education than students not in such relationships. Further, accountability from a mentor may lead students to work at a steadier pace on these requirements. Therefore,

H_{2b}: Protégé and mentor relational maintenance strategies, as influenced by career and psychosocial support obtained, will significantly predict protégé perceived *time-to-degree*.

Third, research self-efficacy may be influenced by the relational maintenance strategies and perceptions of support obtained as well. Research self-efficacy positions the protégé as confident in his or her ability to conduct research and the degree to which a protégé feels that the strategies employed to obtain career and psychosocial support may influence one's perception of self-efficacy. Specifically,

H_{2c}: A protégé's use of relational maintenance strategies and perceptions of support obtained will significantly predict the protégé's perceived *research self-efficacy.*

The third set of hypotheses tests the complete Mentoring Relational Process Model as a causal process that predicts each of the four *critical graduate education outcomes* (i.e., relational satisfaction, perceived time-to-degree, research self-efficacy, and relational quality) as a function of 1) protégé support sought, 2) relational maintenance strategies employed during protégé-mentor interactions, and 3) perceived protégé support obtained:

H_{3a}: Perceived career and psychosocial support sought, relational maintenance behaviors, as well as career and psychosocial support obtained will significantly predict perceived *relational satisfaction*.

H_{3b}: Perceived career and psychosocial support sought, relational maintenance behaviors, as well as career and psychosocial support obtained will significantly predict perceived *time-to-degree.*

H_{3c}: Perceived career and psychosocial support sought, relational maintenance behaviors, as well as career and psychosocial support obtained will significantly predict perceived ***research self-efficacy.***

H_{3d}: Perceived career and psychosocial support sought, relational maintenance behaviors, as well as career and psychosocial support obtained will significantly predict perceived ***relational quality.***

Finally, the goodness of fit of the data to the complete MRPM (including all of the components and the four critical graduate education outcomes) will be explored using Structural Equation Modeling (SEM). The following research question is proposed:

RQ1: To what extent do the data collected to test the new theory of mentoring fit the structural model?

Summary

This chapter reviewed the extant research in mentoring and identified strengths and shortcomings of the prior studies. Drawing upon the literature review, the new Mentoring Relational Process Model (MRPM) was created to address some of the shortcomings that emerged. Appropriate hypotheses and research questions to test the propositions of the model were proposed. The next chapter will provide the methods used to test this model.

Chapter 2: Methods

A cross-sectional, online survey was conducted in order to test the research hypotheses and answer the research question. This chapter provides detail about the participants, measures, and procedures used to test the relational Mentoring Relational Process Model.

Participants

The single criterion for inclusion in the study was that one was enrolled as a doctoral student at the large Midwestern university at the time of data collection during the 2006-2007 academic year. All undergraduate students, non-doctoral graduate students, faculty, and staff were excluded from this study.

Participants voluntarily visited the online survey and as such, the final sample was self-selected. Given that graduate students do not enroll in large lecture classes that include a large, diverse group of graduate students, recruitment could not be conducted through individual classes. Therefore, electronic recruitment via campus-wide graduate student listservs, as well as department specific listservs was utilized. Permission was obtained from the Dean of the Graduate School to utilize the campus-wide listserv, as well as utilization of the campus wide graduate student association listserv. Finally, student leaders from individual departments were asked to circulate the survey website to their respective lists. Further details on this process are provided in the procedures section.

The sample included 310 graduate students (4 were excluded as multivariate outliers as determined by the Mahalanobis distance from an original $n = 314$) from among 16 different colleges or centers at the large Midwestern university where the dissertation research took place. A post-hoc power analysis revealed that the power coefficient for this sample was 0.999 [*Critical F* (14, 295) = 1.725, $\lambda = 46.50$].

Females comprised 66% of the sample ($n = 204$), while males were 34% ($n = 106$). International students made up 20% ($n = 62$) of the sample and participants were 67% Euroamerican ($n = 209$), 3% Latino, African-American, and Asian American respectively ($n = 8, 10, 10$), 9% other foreign born citizen ($n = 29$), and 14% other ($n = 44$). The sample is statistically different from the doctoral student population with respect to gender, international student status, and ethnicity [χ^2 (1) = 22.81, p<.001], [χ^2 (1) = 14.76, p<.001], [χ^2 (5) = 76.49, p<.001]. In the current sample, the observed values were greater than the expected values for females than males, domestic students than international students, and Caucasian students than other ethnic groups. Therefore, any results from this sample should be interpreted with caution.

The participants in this survey were from 16 colleges or centers. In descending order, students from the arts and sciences comprised 26% ($n = 79$) of the sample, education comprised 14% ($n = 46$), medicine accounted for 10% ($n = 30$), nursing represented 9% ($n = 29$), agriculture contained 8% ($n = 26$), communication and information studies comprised 7% ($n = 23$), public health represented 5% ($n = 14$), engineering accounted for 4% ($n = 13$), pharmacy and health sciences each comprised 3% ($n = 10$ and 9, respectively), business and economics, fine arts, graduate center for nutritional sciences, social work, and public policy were each 2% of the sample ($n = 7, 6, 6, 5, 5$), and the graduate center for biomedical engineering was 1% ($n = 2$). In the current sample, 76% ($n = 236$) of the graduate students identified a faculty member they considered a mentor.

Given that both attendance status and length of time in a graduate program can vary drastically, participants were asked to report on these demographics as well. Eighty-two percent of the participants in the sample ($n = 254$) were full-time students, while 18% ($n = 56$) were part-time students. With regard to funding status, 79% ($n = 246$) currently are or have previously been teaching, research, or graduate assistants during their time in their respective doctoral programs. Length of time in the program was also assessed, with 14% ($n = 43$) of the sample being 1st year students, 22% were 2nd year students ($n = 69$), 19% were 3rd year students ($n = 58$), 21% ($n = 66$) were 4th year students, and 24% ($n = 74$) had been in their programs for more than 4 years. Since some doctoral programs admit students directly from undergraduate programs, while others require a master's degree, participants were also asked if this was their first experience as a graduate student. Thirty-four percent ($n = 106$) of the sample reported that this was their first time in graduate school.

Finally, participants were asked to report on their degree progress. The sample was split evenly among the 50% ($n = 156$) of students who reported having already completed qualifying exams and the 50% of students who had not ($n = 154$). Only 26% ($n= 79$) of the sample had defended a dissertation proposal and 21% ($n = 66$) expect to graduate at the end of the current academic year.

Predictor Variables

Both the predictor variables and the criterion variables were measured using interval level self-report scale measures which constitute graduate student perceptions of mentoring. Frey, Botan, and Kreps (2000) suggest that self-reports can be an "efficient way to ascertain respondents beliefs, attitudes, and values" (p. 96). The mentoring relationship is based heavily on perceptions by a graduate student that his or her mentor is providing support that

leads to perceived outcomes. Therefore, using self-report interval level scales to operationalize each of the constructs in the model in order to test the model is appropriate.

Support Sought

Support sought is based on the perceived career and psychosocial needs of a student in graduate school. Support sought is the support that students perceive they need to be successful in graduate school. New measures were derived from the Paglis et al. (2006) mentoring measures to assess career and psychosocial support sought, respectively.

Career support sought was measured using a new 5-item scale that asks students to denote to what extent they believe they have certain needs such as "help completing tasks in a timely manner" and "specific skill training in statistics, writing, analysis, etc" (see items 16-20 on the survey in Appendix A). The career support sought scale was measured on a 5-point Likert scale (1= To a very slight extent and 5= To a very large extent). The new measure has a composite Cronbach's coefficient alpha of .759 and the scale items account for 51.58% of the variance. The factor structure for the Career Support Sought scale can be found in Table 2.1.

Table 2.1: Factor structure for new Career Support Sought scale

	Component
	1
Guidance determining an appropriate course of study.	.767
Networking with other scholars in my chosen area of study.	.764
Specific skill training in statistics, writing, analysis, etc.	.742
Information about post-graduation career options.	.680
Help completing tasks in a timely manner.	.629

Psychosocial support sought was also measured using a new 5-item, 5-point Likert scale (1= To a very slight extent and 5= To a very large extent). The items in this measure ask students to what extent they believe they have certain psychosocial needs such as "guidance regarding balance between school and the 'rest of life'" and "encouragement that I am becoming a competent student/scholar" (see items 21-25 on the survey in Appendix A). For the current study, composite reliability was .837 using Cronbach's coefficient alpha and the scale items accounted for 60.92% of the variance explained. The factor structure for this scale can be found in Table 2.2.

Table 2.2: Factor structure for new Psychosocial Support Sought scale

	Component
	1
Someone who listens to me when I have questions and/or concerns about school.	.819
A space to voice my concerns/fears about graduate school.	.801
Encouragement that I am becoming a competent student/scholar.	.787
Guidance regarding balance between school and/or work and the "rest of life."	.770
A role model to pattern my behavior after.	.721

Relational Maintenance Behaviors

Relational maintenance behaviors are those behaviors that a graduate student enacts in a mentoring relationship with the dual goals of obtaining career and psychosocial support and maintaining the integrity of the mentoring relationship, as well as the parallel behaviors that the student perceives a mentor as using. Relational maintenance behaviors are assessed with a 31-item scale modified from the original romantic relationship measures (Canary et al., 1993; Stafford et al., 2000). Five dimensions (assurances, openness, conflict management, positivity, and advice) are drawn from the Stafford et al. (2000) scale, while the remaining category (mediated communication) is derived from Canary et al. (1993). Additionally, parallel items assessing mentor behavior were created for this study.

Participants were asked to reflect on their mentoring relationship and then note which communication strategies both they and their mentor used to facilitate the relationship. Relational maintenance behaviors were measured on a 7-point Likert scale (1= Strongly Disagree and 7= Strongly Agree).

Assurances are communication messages and behaviors that implicitly or explicitly provide reassurance from the student to the mentor about the future of the mentoring relationship. The original assurance factor from Stafford et al. (2000) consists of 8 items (α = .92). The current measure was adapted to focus on the mentoring relationship specifically and consists of 6 items such as "I stress my commitment to him/her (the mentor)" and "I imply that our relationship has a future" (see items 26-31 on the survey in Appendix A). The 7th item on the original dissertation survey (see item 32 in Appendix A) was dropped from the current analysis because it did not meet the .60/.40 factor loading criteria employed in this study (McCroskey & Young, 1979). For the current study, composite reliability was

.800 using Cronbach's coefficient alpha for the protégé assurances and accounted for 50.66% of the variance explained.

Table 2.3: *Factor structure for Relational Maintenance – Protégé Assurances*

	Component
	1
I show my mentor how much he/she means to me.	.836
I tell my mentor how much s/he means to me.	.823
I imply to my mentor that our relationship has a future.	.726
I stress my commitment to work with my mentor.	.665
I talk with my mentor about plans for the future.	.636
I show my respect for my mentor.	.537

Four parallel items measuring mentor behavior were also assessed (see items 33-36 on the survey in Appendix A) and the factor structure for the mentor assurances scale can be found in Table 2.4. The scale items explained 63.35% of the variance and had a composite reliability of .801.

Table 2.4: *Factor structure for Relational Maintenance – Mentor Assurances*

	Component
	1
My mentor implies that our relationship has a future.	.843
My mentor tells me how much I mean to him/her.	.829
My mentor talks about plans for the future with me.	.800
My mentor shows respect for me.	.704

Openness may be defined as "direct discussions about one's own feelings and about the relationship" (Stafford et al., 2000, p. 307). The measure was adapted directly from the original romantic relationships measure. No items were added or deleted; rather, the wording of the 7 items in this factor was simply adjusted to measure the mentoring relationship. Examples of items in this dimension include "I encourage my mentor to be honest with me" and "I talk about where we stand" (see items 37-43 on the survey in Appendix A). The alpha reliability for the original measure is .87. For the current study, composite reliability was .879 using Cronbach's coefficient alpha for the protégé openness

and the scale items accounted for 57.98% of the variance explained. The factor structure for this scale can be found in Table 2.5.

Table 2.5: Factor structure for Relational Maintenance – Protégé Openness

	Component
	1
I simply tell my mentor how I feel about the relationship.	.851
I talk about where we stand with my mentor.	.805
I am open about my feelings with my mentor.	.789
I like to have periodic talks about our relationship with my mentor.	.773
I disclose what I need or want from the relationship to the mentor.	.754
I talk about my concerns/fears with my mentor.	.746
I encourage my mentor to be honest with me.	.584

Two parallel items measuring mentor behavior were also assessed (see items 44 – 45 on the survey in Appendix A). The mentor openness composite is not possible because the items were enough different ($r = .381$) and there was a significant reliability problem ($\alpha = .517$). Therefore, they are treated independently in the current dissertation.

Relational maintenance messages that address disagreements are included in the *conflict management* dimension of this scale. Five items were slightly modified from the romantic relationship scale (Stafford et al., 2000) to accurately fit the mentoring relationship. The alpha reliability for the conflict management scale in the original measure was .81 and .860 in the current study. Further, the scale items accounted for 65.42% of the variance explained. Examples of conflict management items include "I cooperate in how I handle disagreements" and "I listen to my mentor and try not to judge" (see items 46-50 on the survey in Appendix A). The factor structure for protégé conflict management can be found in Table 2.6.

Table 2.6: Factor structure for Relational Maintenance – Protégé Conflict Management

	Component
	1
I am understanding with my mentor.	.899
I am patient with my mentor.	.827
I cooperate in how I handle disagreements.	.814
I listen to my mentor and try not to judge.	.750
I apologize to my mentor when I am wrong.	.744

Five parallel items measuring mentor behavior were also assessed in this study (see items 51-55 on the survey in Appendix A). The scale items accounted for 75.81% of the variance explained in mentor conflict management and had a reliability of .915.

Table 2.7: Factor structure for Relational Maintenance – Mentor Conflict Management

	Component
	1
My mentor is understanding with me.	.911
My mentor listens and tries not to judge.	.874
My mentor cooperates in how he/she handles disagreements with me.	.864
My mentor is patient with me.	.859
My mentor apologizes to me when he/she is wrong.	.845

Positivity involves making interactions with the mentor pleasant and cheerful. This 2-item measure (α = .76) is the same as in the original romantic relationship scale and is comprised of the items "I act cheerful and positive when around him/her" and "I try to be upbeat when we are together" (see items 56-57 on the survey in Appendix A). For the current study, composite reliability was .889 using Cronbach's coefficient alpha for protégé positivity and the scale items explained 90.04% of the variance. The factor structure for protégé positivity may be found in Table 2.8.

Table 2.8: Factor structure for Relational Maintenance – Protégé Positivity

	Component
	1
I try to be upbeat when my mentor and I together.	.949
I act cheerful and positive when around my mentor.	.949

Two parallel items tapping mentor behavior were also assessed (see items 58-59 on the survey in Appendix A). The scale items accounted for 92.92% of the variance explained in mentor positivity and the alpha reliability is .924. Table 2.9 contains the factor structure for mentor positivity.

Table 2.9: Factor structure for Relational Maintenance – Mentor Positivity

	Component
	1
My mentor is cheerful and positive when around me.	.964
My mentor is upbeat when he/she and I are together.	.964

The next category, *advice,* was modified from the original Stafford et al. (2000) 2-item measure. In Canary et al. (1993), advice is divided into two factors – advice giving and advice seeking. Advice giving involves providing suggestions about what the other relational partner should do when faced with problems or challenges. Advice seeking involves asking for suggestions about what to do when faced with problems. Advice giving is assessed in the Stafford et al. (2000) study; however, advice seeking is the more appropriate measure for the current study because the student is assessing his or her own maintenance behaviors and advice seeking is more plausible in this case. Therefore, the 2-item measure for advice giving was modified to reflect advice seeking instead. The items are "I ask my mentor what he/she thinks I should do about my academic and/or career problems" and "I ask my mentor's opinion on things going on in my life" (see items 60-61 on the survey in Appendix A). However, the advice-seeking items cannot be summed as a composite scale. Both reliability and factor structure problems prevent treating these constructs as a scale. Instead, item 60 may be treated as "career advice," while item 61 is "psychosocial advice." No mentor advice behaviors were assessed since the focus in the present study was on advice-seeking.

Finally, *mediated communication* was derived from the Canary et al. (1993) inductive analysis of relational maintenance activities. Canary et al. found that contact by telephone and written communication was a commonly used (35.4%) relational maintenance strategy. While this category was not included in the Stafford et al. (2000) scale, it is appropriate to the present study because interaction frequency may play a role in defining the mentoring relationship. Two items were created for the present study to assess the

frequency of mediated communication initiated by the student with their faculty mentor (see items 62-63 on the survey in Appendix A) and will also be treated as individual constructs.

Support Obtained

Extant mentoring literature relies heavily on mentoring functions that a protégé believes he or she has received to determine whether or not one is in a mentoring relationship; this variable is support obtained. Support obtained is the career and psychosocial support that a graduate student believes that he or she receives from the faculty mentor.

One of the challenges of existing mentoring measures is that they generally do not specifically assess behaviors and measures salient in graduate education. However, Paglis et al. (2006) recently adapted Noe's (1988) mentoring functions scale to the academic environment. While they argue for using the term "adviser" in place of "mentor" in the items, the term "mentor" is more consistent with the present research and the spirit of the original research. Paglis et al.'s 20-item measure was modified for use in the current study to assess career and psychosocial support obtained. Participants were asked to indicate on a Likert scale (1= To a very slight extent and 5= To a very large extent) to what extent they thought their faculty member fulfilled each of these functions.

Career support obtained emphasizes the career support that a graduate student believes he or she receives from a mentor. This 6-item scale ($\alpha = .80$) includes items such as "My mentor reduces unnecessary risks that could threaten the possibility of my advancing in my program" and "My mentor gives me assignments or tasks that prepare me for my desired position (teaching, research, or industry) after I graduate" (see items 64-69 on the survey in Appendix A). For the current study, composite reliability was .858 using Cronbach's coefficient alpha and the scale items explained 59.02% of the variance. The factor structure for this scale can be found in Table 2.10.

Table 2.10: Factor structure for the Modified Career Support Obtained scale (Paglis et al., 2006)

	Component
	1
My mentor gives me assignments that increase my written and personal contact with influential faculty in the school.	.854
My mentor gives me assignments or tasks that prepare me for my desired position (teaching, research, or industry) after I graduate.	.819
My mentor gives me assignments that present opportunities to learn new skills.	.817
My mentor helps me to meet new colleagues.	.759
My mentor reduces unnecessary risks that could threaten the possibility of my advancing in my program.	.673
My mentor helps me finish assignments/tasks or meet deadlines that otherwise would have been difficult to complete.	.666

Psychosocial support obtained emphasizes the emotional and psychological support that a graduate student believes he or she receives from a faculty mentor. The original 14-item scale (alpha = .92) includes items such as "My mentor shares history of his/her career with me," "My mentor encourages me to talk openly about anxieties and fears that detract from my work," and "I will try to be like my mentor when I reach a similar position in my career" (see items 70-83 on the survey in Appendix A). For the current study, composite reliability was .910 using Cronbach's coefficient alpha.

However, when factor analysis was performed on this scale, three subscales emerged. The scale items were different enough that they may be treated as three separate psychosocial support obtained scales. Items 70, 72, and 73 (see Appendix A) were eliminated because they did not load using a .60-.40 factor loading criterion (McCroskey & Young, 1979) on any of the psychosocial support obtained scales.

The first psychosocial support obtained scale that emerged was perceived mentor respect (α = .812). The items included on this scale (71, 77, 82, 83 in Appendix A) assessed the respect and encouragement that the protégé perceived that the mentor showed for him/her as a form of psychosocial support (see Table 2.11). These items explained 64.19% of the variance in the scale.

Table 2.11: Factor structure for Psychosocial Support Obtained – Mentor Respect scale

	Component
	1
My mentor conveys feelings of respect for me as an individual.	.832
My mentor displays good listening skills in our conversations.	.831
My mentor keeps feelings/doubts that I share with him/her in strict confidence.	.789
My mentor encourages me to prepare for advancement in this program.	.749

The second psychosocial support obtained scale measured relational openness (α = .874) between the mentor and the protégé as a form of psychosocial support. Items 78-81 (see Appendix A) were included on this scale and explained 72.62% of the variance (see Table 2.12).

Table 2.12: Factor structure for Psychosocial Support Obtained – Openness scale

	Component
	1
My mentor encourages me to talk openly about anxieties and fears that detract from my work.	.884
My mentor conveys empathy for the concerns and feelings I have discussed with him or her.	.860
My mentor discusses questions or concerns regarding feelings of competence, commitment to advancement, relationships with peers and faculty or school/family conflicts.	.841
My mentor shares personal experiences as an alternative perspective to my problems.	.823

Finally, items 74-76 (see Appendix A) comprised the third psychosocial support obtained scale (α = .838) and emphasized perceived protégé respect of the mentor (see Table 2.13). These items explained 76.99% of the variance in the scale.

Table 2.13: Factor structure for Psychosocial Support Obtained – Protégé Respect scale

	Component
	1
I will try to be like my mentor when I reach a similar place in my career.	.895
I respect and admire my mentor.	.886
I agree with my mentor's attitude and values regarding education.	.851

The identification of three subscales within the existing psychosocial support scale represents an important clarification of mentoring measurement. However, in the regression analyses for the current dissertation, the composite scale will be used in order to make consistent comparisons with extant research.

Criterion Variables

Relational Satisfaction

The degree to which a graduate student is satisfied with the mentoring relationship itself is relational satisfaction. In prior studies on relational maintenance, relational satisfaction is posited as an outcome (e.g., Dindia & Baxter, 1987; Stafford & Canary, 1991). Therefore, given the emphasis on relational maintenance behaviors in the current study, relational satisfaction is posited as an outcome. Hendrick's (1988) 7-item Relationship Assessment Scale (RAS) was modified to measure mentoring relational satisfaction in the present study. Hendrick argues that her scale has applicability beyond romantic relationships; however, the application to a different context has not yet occurred. The current study attempts to determine the appropriateness of this scale in the mentoring context. The original RAS has an alpha reliability of .86. Where romantic relationships are referenced in the original scale, the emphasis was modified to mentoring relationships in the current 7-item scale. Participants were asked to indicate satisfaction with the relationship on a 5-point Likert scale (1= Strongly Disagree and 5 = Strongly Agree).

Examples of items on the present scale are "My mentor meets my academic needs" and "My current mentoring relationship meets my expectations" (see items 84-90 on the survey in Appendix A). Only statements worded in the positive direction were included in the final scale because the responses to the negative items were not consistent; therefore, items 87 and 90 were excluded from the final analysis. For the current study, composite reliability was .903 and the scale accounted for 73.38% of the variance explained. The factor structure for the revised scale may be found in Table 2.14.

Table 2.14: Factor structure for Relational Satisfaction – Mentoring

	Component
	1
I am satisfied with my mentoring relationship.	.901
My current mentoring relationship meets my expectations.	.897
I have a positive relationship with my mentor.	.871
My mentor meets my academic needs.	.815
I respect my mentor.	.794

Perceived Time-to-Degree

Perceived time-to-degree is the perception of a graduate student as to the progress he or she is making toward a degree in the graduate program. This 3-item scale was created specifically for the current study and asks participants to rate their degree of confidence (1= Not at all confident to 5= Very confident) toward on-time degree completion. It also provides for assessment of milestones along the way to a degree (i.e., finishing coursework). Items on this measure include "will finish your coursework on schedule" and "will finish your dissertation on schedule" (see items 91-93 on the survey in Appendix A).   For the current study, composite reliability was .867 using Cronbach's coefficient alpha and 79.13% of the variance was explained by the scale items. The factor structure for this scale can be found in Table 2.15.

Table 2.15: Factor structure for the new Perceived Time-to-Degree measure

	Component
	1
Will finish all degree requirements in the "average" time for your program.	.914
Will finish your dissertation on schedule.	.909
Will (or did) finish your coursework on schedule.	.844

Research Self-Efficacy

Research self-efficacy is the degree of confidence that a student has in his or her ability to effectively conduct research. Paglis et al.'s (2006) 10-item scale (alpha = .95 at Time 1 and .93 at Time 2) asked participants to indicate their confidence on a 5-point Likert scale (1= Not at All Confident and 5= Very Confident) with such research tasks as "be an

effective contributor to a research project" and "effectively conduct data analysis" (see items 94-103 on the survey in Appendix A). The original Paglis et al. measure asked respondents to indicate confidence on a 10-point scale, but did not provide any further information about it. For consistency with other measures in this study, a 5-point Likert scale was utilized instead.   For the current study, composite reliability was .929 and explained 61.52% of the variance. The factor structure for this scale can be found in Table 2.16.

Table 2.16: Factor structure for Research Self-Efficacy

	Component
	1
Design and conduct effective research.	.880
Successfully conduct a research project by yourself.	.825
Be an effective and successful scholar.	.804
Submit a paper to a journal that will be accepted.	.804
Be an effective co-author on a paper.	.804
Submit a paper to a convention that will be accepted.	.799
Be an effective contributor to a research project.	.759
Identify and pose research questions that are worthy of study.	.744
Effectively conduct data analyses.	.738
Complete a literature review and summarize the important issues.	.666

Relational Quality

A new 5-item relationship quality semantic differential scale was created for the current study. Participants are asked to reflect on the overall quality of their mentoring relationship and indicate the degree to which the relationship is "functional/dysfunctional," "unsatisfying/satisfying," "effective/ineffective," "unhelpful/helpful," and "pleasant/unpleasant" on a 1-5 scale (see question 107 on the survey in Appendix A). The second and fourth word pairs are reverse coded so that the scale measures increased quality. For the current study, composite reliability was .909 and explained 73.08% of the variance. The factor structure for the relationship quality scale items can be found in Table 2.17.

Table 2.17: Factor structure for new Relational Quality scale

	Component
	1
Effective/Ineffective	.903
Unhelpful/Helpful	.887
Unsatisfying/Satisfying	.853
Functional/Dysfunctional	.852
Pleasant/Unpleasant	.801

Finally, a correlation matrix between each of the components of the mentoring process is provided in Table 2.18 below.

Table 2.18: *Correlation Matrix of all Mentoring Process components*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1 Career Support Sought	1																				
2 Psychosocial Support Sought	.573**	1																			
3 RM Protege Assurances	.155*	.132*	1																		
4 RM Protege Openness	.131*	.170**	.662**	1																	
5 RM Protege Conflict Mgmt	.103	.033	.558**	.447**	1																
6 RM Protege Positivity	.045	-.005	.380**	.189**	.446**	1															
7 RM Protege C. Advice	-.001	-.013	.428**	.447**	.299**	.300**	1														
8 RM Protege P. Advice	.089	.119	.436**	.641**	.241**	.120	.423**	1													
9 RM Contact by Phone	.050	-.044	.251**	.303**	.189**	.027	.119	.244**	1												
10 RM Contact by Email	.053	-.055	.111	.118	.132*	-.006	-.073	.051	.411**	1											
11 RM Mentor Assurances	.076	-.036	.772**	.639**	.509**	.310**	.393**	.442**	.263**	.199**	1										
12 RM Mentor Openness 1	-.017	-.064	.451**	.464**	.501**	.343**	.400**	.311**	.153*	.076	.496**	1									
13 RM Mentor Openness 2	.101	.093	.549**	.712**	.321**	.150	.232**	.529**	.251**	.208**	.562**	.383**	1								
14 RM Mentor Conflict Mgmt	.005	-.037	.533**	.542**	.616**	.358**	.511**	.424**	.138	.083	.608**	.592**	.465**	1							
15 RM Mentor Positivity	.048	-.059	.456**	.355**	.446**	.574**	.386**	.228**	.055	-.047	.532**	.442**	.249**	.574**	1						
16 C. Support Obtained	.246**	.087	.464**	.382**	.310**	.279**	.256**	.296**	.145	.223**	.510**	.365**	.321**	.439**	.353**	1					
17 P. Support Obtained	.172**	.115	.599**	.538**	.490**	.310**	.485**	.526**	.125	.048	.585**	.540**	.451**	.735**	.508**	.552**	1				
18 Relational Satisfaction	.131*	-.056	.555**	.348**	.485**	.312**	.394**	.251**	.094	.122	.580**	.570**	.285**	.593**	.477**	.602**	.661**	1			
19 Perceived Time-to-Degree	.054	-.030	.160*	.084	.153*	.171**	.054	.020	.066	.110	.168**	.173**	.076	.171**	.102	.204**	.111	.295**	1		
20 Research Self-Efficacy	.053	.014	.287**	.196**	.255**	.235**	.089	.085	.167*	.183**	.211**	.218**	.140*	.204**	.149*	.264**	.195**	.354**	.385**	1	
21 Relational Quality	.040	-.066	.491**	.373**	.420**	.323**	.399**	.315**	.110	.129*	.573**	.544**	.320**	.612**	.465**	.544**	.636**	.810**	.307**	.286**	1

*p<.05

**p<.01

Procedure

Participants received a Graduate School approved e-mail using both a university-wide graduate student listserv and/or a departmental listserv in January 2007 asking them to complete an online survey about mentoring created in mrInterview. The recruitment e-mail read:

> Dear students:
>
> The mentoring relationship between a faculty member and a doctoral student has historically been difficult to define. What exactly does a mentoring relationship look like and what can be gained, from a student's point of view, by engaging in a mentoring relationship? Sarah Cavendish, a doctoral candidate from the College of Communications & Information Studies, is conducting a study reviewed by the IRB (IRB # 06-0783-X4B) investigating faculty-student mentoring relationships. We would like to invite doctoral students to participate in the study by clicking on the link below:
>
> https://SSTARS.ad.uky.edu/mrIWeb/mrIWeb.dll?I.Project=CAVENDISHDISSER 1
>
> Thank you for your time.
>
> Sarah Cavendish, Communication

Informed consent was obtained on the first screen of the survey. Participants received no financial or course benefits for completing the survey and were instructed that if they already completed the survey once, not to complete it a second time.

Based on pilot research implementing similar online surveys, the survey was live for 3 weeks. There seems to be a critical time period immediately following a request to complete the survey, after which time the response rate drops dramatically. During week 1, students received an e-mail from either a) the Graduate School student listserv or b) the campus-wide graduate student organization listserv. Eighty-six participants completed the survey during this time period.

At the end of week 1, the Dean of the Graduate School asked Directors of Graduate Studies in each graduate program to send the survey link to their respective programs. In the first two weeks, 162 participants completed the online survey.

At the end of week 2, the researcher contacted each Director of Graduate Study individually and asked him or her to send out a reminder to the department listserv using the original e-mail text above. Thirty-four individual programs reported sending out reminders to their students. By the end of the data collection period (week 3), 314 students completed the survey. This method of using multiple avenues to invite participation in the survey was a useful way to reach a diverse sample of graduate students who can be traditionally difficult to access.

Participant responses were analyzed using aggregate data only. The information collected is confidential, available only to the researcher and dissertation advisor. After the data were collected, the survey was taken offline.

Chapter 3: Results

       To test the new Mentoring Relational Process Model (MRPM), regression analyses were performed to examine each of the hypotheses and research questions. Linear regression was used for the first two sets of hypotheses, while hierarchical regression was implemented for the third set. Structural equation modeling, though not a direct test of the research hypotheses, was conducted to provide an overall test of how well the data fit the proposed MRPM in the research question. A descriptive table is provided below (see Table 3.1) for all composite variables.

Table 3.1: *Descriptive Table for All Composite Variables*

Variable	N	*M*	*SD*	*Min. Value*	*Max. Value*
Career Support Sought	310	3.31	.90	1.00	5.00
Psychosocial Support Sought	310	3.25	.99	1.00	5.00
RM Protégé Assurances	236	5.54	.97	2.50	7.00
RM Protégé Openness	236	4.68	1.30	1.57	7.00
RM Protégé Conflict Mgmt.	236	5.86	.85	3.20	7.00
RM Protégé Positivity	236	5.78	1.13	2.00	7.00
RM Protégé Career Advice	236	5.86	1.28	1.00	7.00
RM Protégé Psychosocial Advice	236	4.08	2.03	1.00	7.00
RM Protégé Phone Contact	236	1.97	.97	1.00	5.00
RM Protégé Email Contact	236	2.94	.86	1.00	5.00
RM Mentor Assurances	236	5.32	1.17	1.00	7.00
RM Mentor Openness 1 (Honesty)	236	5.92	1.18	1.00	7.00
RM Mentor Openness 2	236	4.23	1.84	1.00	7.00
RM Mentor Conflict Mgmt.	236	5.54	1.24	1.00	7.00
RM Mentor Positivity	236	5.64	1.23	1.00	7.00
Career Support Obtained	236	3.60	.95	1.00	5.00
Psychosocial Support Obtained	236	3.94	.82	1.18	5.00
Relational Satisfaction	236	4.37	.72	1.00	5.00
Perceived Time-to-Degree	310	3.85	1.06	1.00	5.00
Research Self-Efficacy	310	3.90	.79	1.00	5.00
Relational Quality	236	4.48	.69	2.00	5.00

Hypothesis 1

The first set of hypotheses predicted support obtained from support sought, as mediated by the relational maintenance behaviors. Support sought and all of the relational maintenance behaviors were entered in one step.

Career Support Obtained

Career support sought ($t = 3.88$, $p < .001$; $\beta = .211$) predicted career support obtained ($F(14, 235) = 9.66$, $p < .001$; Adjusted $R^2 = .340$), although only certain relational maintenance behaviors (e.g., contact by email, mentor assurances, and mentor conflict management) remained in the final model (see Figure 3.1). Contact by email ($t = 2.84$, $p = .005$; $\beta = .173$), mentor assurances ($t = 2.53$, $p = .012$; $\beta = .245$), and mentor conflict management ($t = 2.44$, $p = .015$; $\beta = .216$) were significant, along with career support sought, in influencing career support obtained (see Table 3.2). Therefore, H1$_a$ was supported.

Table 3.2: *Regression Model of Career Support Obtained*

Predictor	*B*	*SE*	B	*p*
Career Support Sought	0.231	0.059	0.211	0.001
RM Protégé Assurances	0.129	0.094	0.132	0.169
RM Protégé Openness	0.012	0.071	0.016	0.865
RM Protégé Conflict Mgmt	-0.163	0.086	-0.146	0.059
RM Protégé Positivity	0.084	0.058	0.101	0.146
RM Protégé Career Advice	-0.026	0.050	-0.036	0.598
RM Protégé Psychosocial Advice	0.026	0.033	0.057	0.427
RM Protégé Phone	-0.049	0.059	-0.051	0.406
RM Protégé Email	0.191	0.067	0.173	0.005
RM Mentor Assurances	0.198	0.078	0.245	0.012
RM Mentor Openness 1 (Honesty)	0.085	0.056	0.106	0.129
RM Mentor Openness 2	-0.042	0.042	-0.081	0.318
RM Mentor Conflict Mgmt	0.164	0.067	0.216	0.015
RM Mentor Positivity	0.010	0.060	0.013	0.863

Note. Adj. $R^2 = .340$

Figure 3.1: *Career Support Sought on Career Support Obtained, Influenced by Relational Maintenance Behaviors*
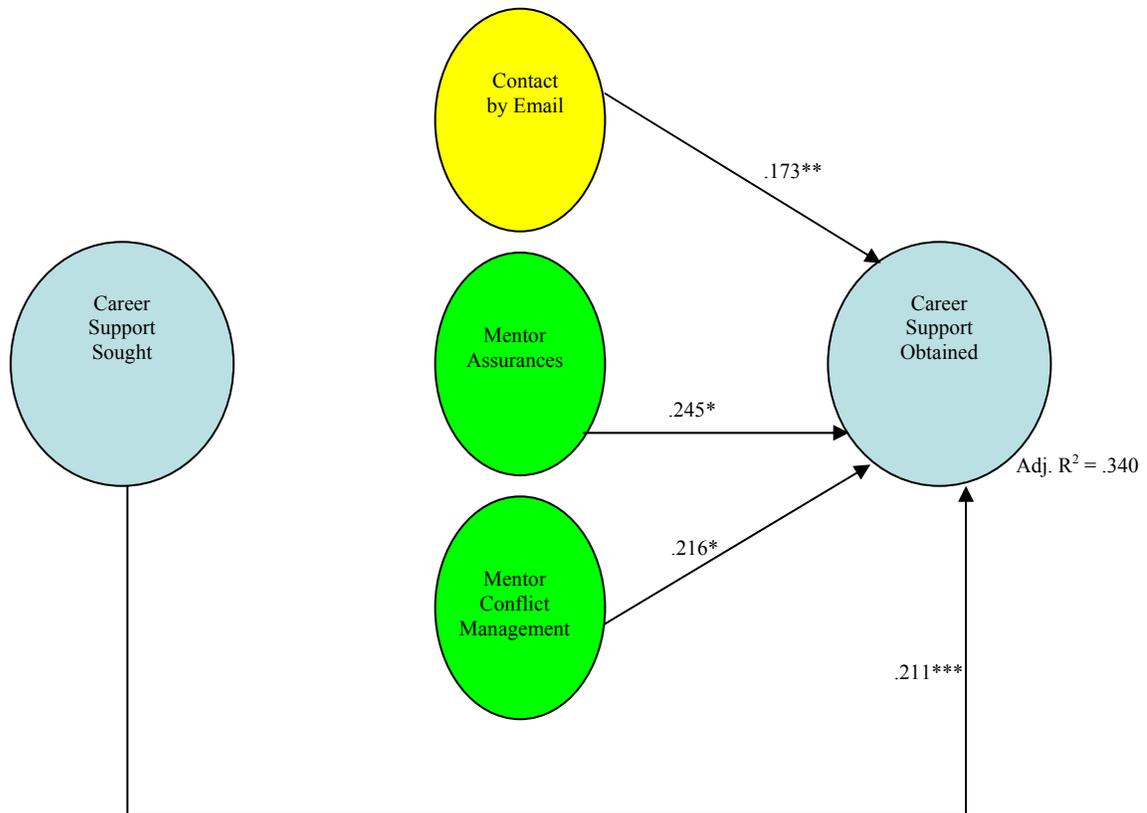
*p<.05, **p<.01, ***p<.001

Psychosocial Support Obtained

   Hypothesis 1_b was also supported. Psychosocial support sought (t =2.53, p =.012; β =.107) predicted psychosocial support obtained (F (14, 235) = 30.48, p < 001; Adjusted R^2 =.637), although again only certain relational maintenance behaviors remained in the final model (see Figure 3.2). Protégé assurances (t =3.25, p =.001; β =.234), protégé psychosocial advice-seeking (t =4.26, p <.001; β =.230), mentor openness 1 (t =2.29, p = .023; β =.119) and mentor conflict management (t =7.03, p <.001; β =.463) were significant, along with psychosocial support sought, in influencing psychosocial support obtained (see Table 3.3).

Table 3.3: *Regression Model of Psychosocial Support Obtained*

Predictor	*B*	*SE*	B	*P*
Psychosocial Support Sought	0.091	0.036	0.107	0.012
RM Protégé Assurances	0.200	0.061	0.234	0.001
RM Protégé Openness	-0.071	0.047	-0.112	0.130
RM Protégé Conflict Mgmt	-0.023	0.056	-0.024	0.673
RM Protégé Positivity	-0.037	0.038	-0.051	0.327
RM Protégé Career Advice	0.027	0.033	0.043	0.405
RM Protégé Psychosocial Advice	0.093	0.022	0.230	0.001
RM Protégé Phone	-0.036	0.039	-0.043	0.351
RM Protégé Email	0.010	0.044	0.010	0.826
RM Mentor Assurances	0.005	0.051	0.008	0.917
RM Mentor Openness 1 (Honesty)	0.083	0.036	0.119	0.023
RM Mentor Openness 2	-0.002	0.027	-0.005	0.934
RM Mentor Conflict Mgmt	0.306	0.044	0.463	0.001
RM Mentor Positivity	0.067	0.039	0.100	0.088

Note. Adj. R^2 = .637

Figure 3.2: *Psychosocial Support Sought on Psychosocial Support Obtained, Influenced by Relational Maintenance Behaviors*
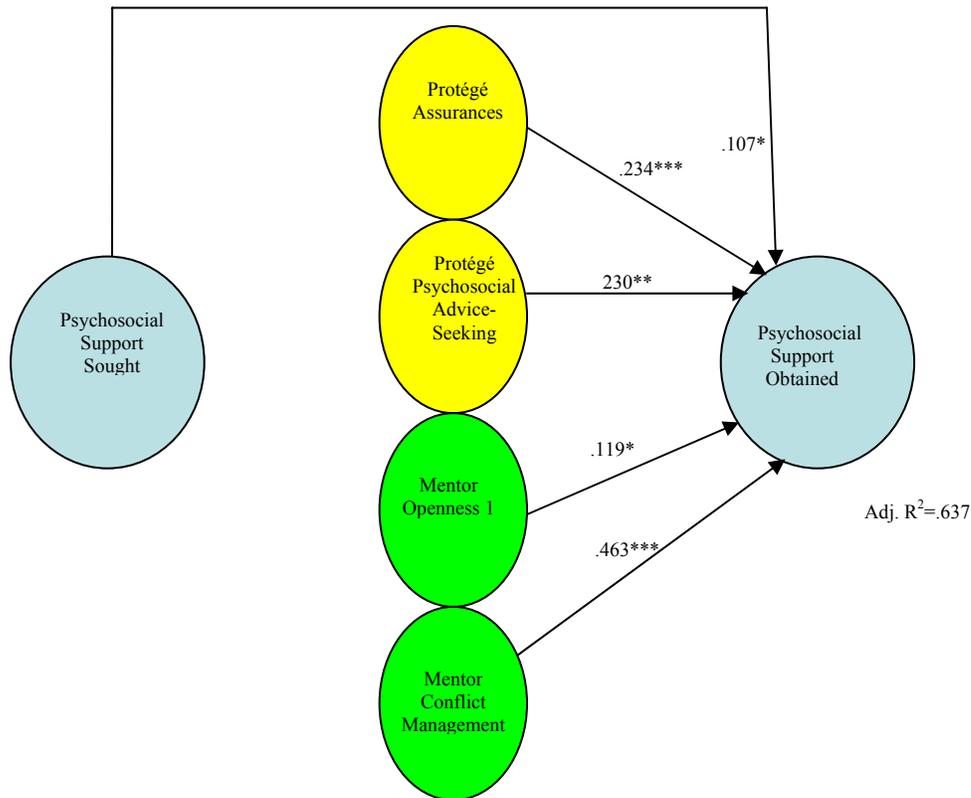
*p<.05, **p<.01, ***p<.001

In summary, both career support obtained (H$_{1a}$) and psychosocial support obtained (H$_{1b}$) were significantly predicted by career and psychosocial support sought, respectively. Further, specific relational maintenance strategies influenced each relationship.

Hypothesis 2

The second set of hypotheses tested critical graduate school outcomes from protégé and mentor relational maintenance strategies, as well as perceptions of support obtained. Again, all of the relational maintenance behaviors and perceptions of support obtained were entered in one step.

Relational Satisfaction

Hypothesis 2$_a$ predicted relational satisfaction from the relational maintenance strategies and support obtained. This hypothesis was supported. Protégé assurances (t =2.27, p = .024; β =.170), protégé openness (t = -2.83, p =.005; β = -.212), mentor openness 1 (t =4.28, p <.001; β =.230), career support obtained (t =5.36, p < .001; β =.279), and psychosocial support obtained (t =3.83, p < .001; β =.274) significantly predicted relational satisfaction (F (15, 235) = 26.21, p <.001; Adjusted R^2 =.617) (see Table 3.4 & Figure 3.3).

Table 3.4: *Regression Model of Relational Satisfaction as Predicted by Relational Maintenance and Support Obtained*

Predictor	*B*	*SE*	B	*p*
RM Protégé Assurances	0.126	0.056	0.170	0.024
RM Protégé Openness	-0.117	0.041	-0.212	0.005
RM Protégé Conflict Mgmt	0.069	0.050	0.082	0.169
RM Protégé Positivity	-0.054	0.034	-0.085	0.112
RM Protégé Career Advice	0.043	0.029	0.077	0.142
RM Protégé Psychosocial Advice	-0.029	0.020	-0.083	0.151
RM Protégé Phone	-0.031	0.034	-0.042	0.373
RM Protégé Email	0.029	0.040	0.034	0.469
RM Mentor Assurances	0.082	0.046	0.135	0.073
RM Mentor Openness 1 (Honesty)	0.139	0.033	0.230	0.001
RM Mentor Openness 2	-0.021	0.024	-0.054	0.392
RM Mentor Conflict Mgmt	0.026	0.043	0.046	0.539
RM Mentor Positivity	0.033	0.035	0.056	0.349
Career Support Obtained	0.211	0.039	0.279	0.001
Psychosocial Support Obtained	0.238	0.062	0.274	0.001

Note. Adj. R^2 = .617

Figure 3.3: *Relational Satisfaction as Predicted by Relational Maintenance and Support Obtained*
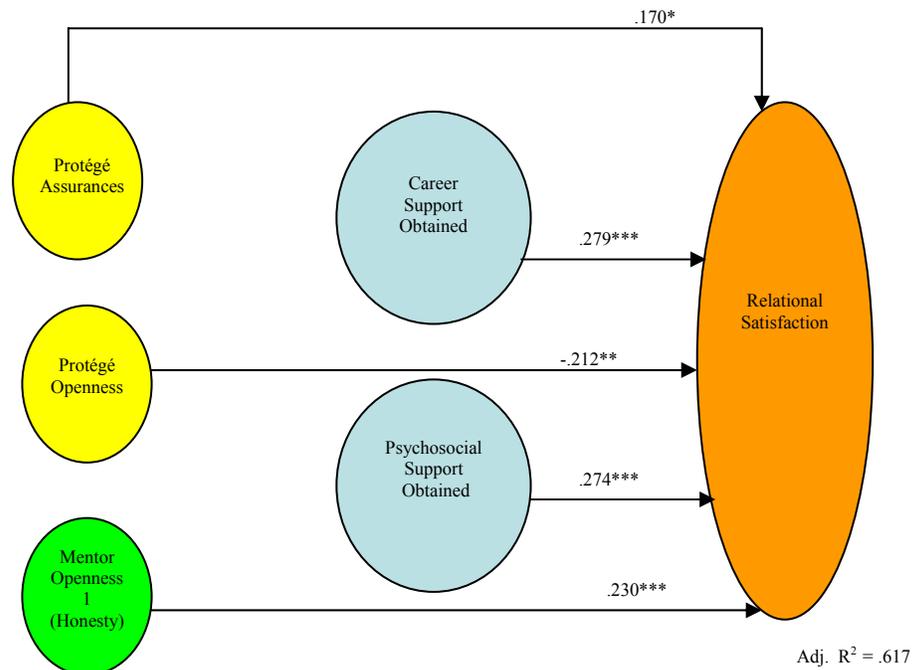
*p<.05, **p<.01, ***p<.001

Perceived Time-to-Degree

Perceived time-to-degree was not significantly predicted by the relational maintenance strategies and support obtained (F (15, 235) = 1.42, p =.142; Adjusted R^2 =.026). Therefore, H2$_b$ was not supported (see Table 3.5).

Table 3.5: *Regression Model of Perceived Time-to-Degree as Predicted by Relational Maintenance and Support Obtained*

Predictor	B	SE	B	p
RM Protégé Assurances	0.082	0.122	0.081	0.500
RM Protégé Openness	-0.026	0.090	-0.034	0.776
RM Protégé Conflict Mgmt	-0.025	0.109	-0.021	0.821
RM Protégé Positivity	0.112	0.074	0.130	0.130
RM Protégé Career Advice	-0.039	0.064	-0.051	0.545
RM Protégé Psychosocial Advice	-0.022	0.044	-0.046	0.615
RM Protégé Phone	0.014	0.075	0.014	0.851
RM Protégé Email	0.055	0.087	0.048	0.524
RM Mentor Assurances	0.040	0.100	0.048	0.686
RM Mentor Openness 1 (Honesty)	0.079	0.071	0.096	0.267
RM Mentor Openness 2	-0.024	0.053	-0.045	0.654
RM Mentor Conflict Mgmt	0.132	0.094	0.167	0.161
RM Mentor Positivity	-0.081	0.076	-0.102	0.288
Career Support Obtained	0.150	0.086	0.145	0.083
Psychosocial Support Obtained	-0.136	0.136	-0.114	0.317

Note. Adj. R^2 = .026

Research Self-Efficacy

Finally, hypothesis 2_c predicted research self-efficacy with the relational maintenance strategies and support obtained. This hypothesis was partially supported. Protégé assurances (t =2.05, p = .041; β =.235) was the only construct that significantly predicted research self-efficacy (F (15, 235) = 2.86, p <.001; Adjusted R^2 =.106) (see Table 3.6). The other relational maintenance strategies did not significantly predict research self-efficacy.

Table 3.6: *Regression Model of Research Self-Efficacy as Predicted by Relational Maintenance and Support Obtained*

Predictor	B	SE	B	p
RM Protégé Assurances	0.170	0.083	0.235	0.041
RM Protégé Openness	0.041	0.062	0.076	0.506
RM Protégé Conflict Mgmt	0.034	0.074	0.042	0.645
RM Protégé Positivity	0.091	0.050	0.148	0.073
RM Protégé Career Advice	-0.040	0.044	-0.074	0.358
RM Protégé Psychosocial Advice	-0.017	0.030	-0.050	0.574
RM Protégé Phone	0.049	0.051	0.069	0.339
RM Protégé Email	0.088	0.059	0.108	0.136
RM Mentor Assurances	-0.078	0.068	-0.131	0.254
RM Mentor Openness 1 (Honesty)	0.048	0.049	0.081	0.324
RM Mentor Openness 2	-0.030	0.036	-0.078	0.413
RM Mentor Conflict Mgmt	0.036	0.064	0.065	0.569
RM Mentor Positivity	-0.038	0.052	-0.067	0.466
Career Support Obtained	0.108	0.059	0.147	0.067
Psychosocial Support Obtained	-0.027	0.093	-0.032	0.769

Note. Adj. R^2 = .106

In summary, perceived time-to-degree was not predicted by the relational maintenance strategies and support obtained, while research self-efficacy was only predicted from protégé assurances. The relational maintenance strategies and support obtained most strongly predicted relational satisfaction in the current study.

Hypothesis 3

The third set of hypotheses tested the entire proposed mentoring process on relational satisfaction, perceived time-to-degree, research self-efficacy, and relational quality, respectively. Hierarchical multiple regression was calculated to test these hypotheses utilizing 4 separate steps based upon existing theory. Predictor variables were entered based upon the theoretical model. Support sought was entered in the first step because graduate students identify certain needs that may encourage them to seek a mentoring relationship. The protégé and mentor relational maintenance strategies were then entered in two separate steps. Protégé relational maintenance strategies were entered in step 2 because the mentoring relationship is initiated by the student and therefore, the strategic

communication behaviors the student engages in should be first examined. Third, the mentor also engages in relational maintenance behaviors that should be assessed next and fourth, the perceptions of mentoring support obtained were entered into the regression model.

While there is no definitive convention for reporting hierarchical regression, both tables and figures are used in the current dissertation. The tables contain only the predictor variables that were entered at each individual step. The figures, however, represent the final regression model for each criterion variable and contain only those variables that are statistically significant and contribute unique variance to the criterion variable.

Relational Satisfaction

Hypothesis 3_a was supported in the present study. Relational satisfaction was significantly predicted by support sought, relational maintenance behaviors, and support obtained (F (17, 235) = 23.72, $p < .001$; Adjusted $R^2 =.622$). Both career ($t =2.99, p = .003$; $\beta =.229$) and psychosocial ($t = -2.36, p =.019; \beta = -.180$) support sought were significant when entered in step 1, although the relationship between psychosocial support sought and relational satisfaction was negative (see Table 3.7). Support sought accounted for 3.2% of the variance.

The protégé relational maintenance strategies were entered in step 2 and along with support sought, accounted for 39.9% of the variance in relational satisfaction. Career support sought ($t =2.54, p = .012; \beta =.155$), psychosocial support sought ($t = -3.00, p = .003; \beta = -.185$), protégé assurances ($t =5.43, p < .001; \beta =.414$), conflict management ($t =3.51, p = .001; \beta =.230$) and career advice ($t =3.27, p = .001; \beta =.200$) were significant in step 2.

With the addition of the mentor relational maintenance behaviors in step 3, career support sought ($t =3.01, p = .003; \beta =.164$), protégé assurances ($t =3.56, p < .000; \beta =.292$), protégé openness ($t = -2.49, p = .013; \beta = -.210$), mentor assurances ($t =2.09, p = .038; \beta =.174$), mentor openness 1 ($t =4.87, p < .001; \beta =.289$), and mentor conflict management ($t =3.17, p = .002; \beta =.239$) accounted for 52.9% of the variance in relational satisfaction.

Finally, when support obtained (career and psychosocial) was added to complete the model, 62.2% of the variance in relational satisfaction was explained. Psychosocial support sought ($t = -2.18, p = .030; \beta = -.111$), protégé assurances ($t =2.52, p = .012; \beta =.190$), protégé openness ($t = -2.45, p = .015; \beta = -.186$), mentor openness 1 ($t =4.18, p < .001; \beta =.226$), career support obtained ($t =5.11, p < .001; \beta =.271$), and psychosocial support obtained ($t =3.89, p < .001; \beta =.281$) were all significant in the final model (see Figure 3.4).

Table 3.7: *Complete Regression Model on Relational Satisfaction*

Step	Predictors	*B*	*SE*	B	*p*	Adj. R^2
1	Career Support Sought	0.189	0.063	0.229	0.003	
	Psychosocial Support Sought	-0.133	0.056	-0.180	0.019	
						0.032
2	RM Protégé Assurances	0.307	0.057	0.414	0.001	
	RM Protégé Openness	-0.057	0.045	-0.104	0.211	
	RM Protégé Conflict Mgmt.	0.193	0.055	0.230	0.001	
	RM Protégé Positivity	0.003	0.037	0.004	0.945	
	RM Protégé Career Advice	0.112	0.034	0.200	0.001	
	RM Protégé Psych Advice	0.009	0.024	0.026	0.703	
	RM Protégé Phone Contact	-0.079	0.043	-0.108	0.066	
	RM Protégé Email Contact	0.081	0.047	0.097	0.087	
						0.399
3	RM Mentor Assurances	0.106	0.051	0.174	0.038	
	RM Mentor Openness 1	0.175	0.036	0.289	0.001	
	RM Mentor Openness 2	-0.032	0.027	-0.083	0.232	
	RM Mentor Conflict Mgmt.	0.137	0.043	0.239	0.002	
	RM Mentor Positivity	0.043	0.039	0.074	0.265	
						0.529
4	Career Support Obtained	0.205	0.040	0.271	0.001	
	Psychosocial Support Obtained	0.244	0.063	0.281	0.001	
						0.622

Figure 3.4: *Graphical Representation of Strongest Regression Model to Predict Relational Satisfaction*
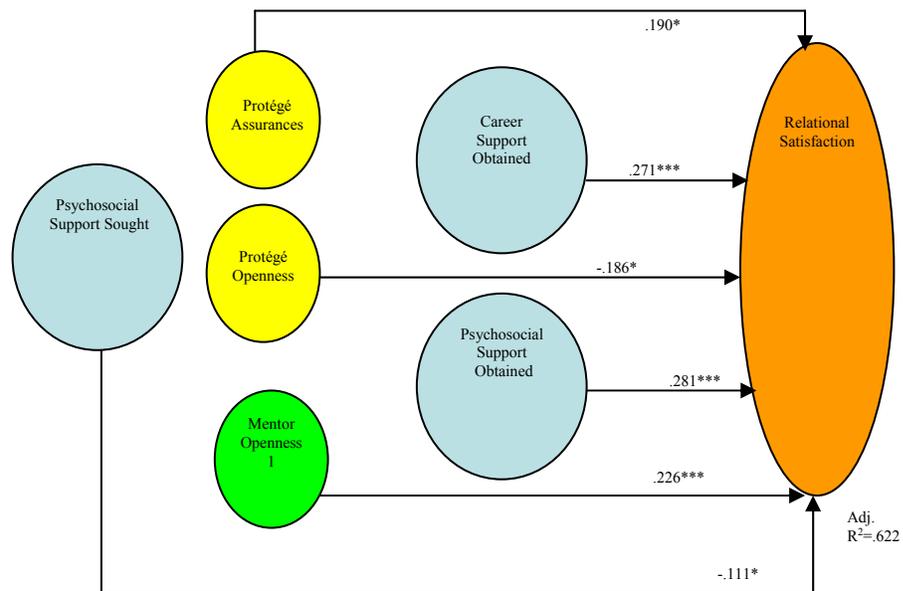
*p<.05, **p<.01, ***p<.001

Perceived Time-to-Degree

Hypothesis 3_b was not supported in this study ($F (17, 235) = 1.53$, $p =.085$; Adjusted $R^2 =.037$). While psychosocial support sought was significant ($t = -2.02$, $p = .045$; $\beta = -.156$) in step 1, it unfortunately was not included in subsequent steps (see Table 3.8). The complete regression model only accounted for 3.7% of the variance in perceived time-to-degree and was not statistically significant.

Table 3.8: *Complete Regression Model on Perceived Time-to-Degree*

Step	Predictors	B	SE	β	P	Adj. R^2
1	Career Support Sought	0.029	0.087	0.025	0.742	
	Psychosocial Support Sought	-0.158	0.078	-0.156	0.045	
						0.012
2	RM Protégé Assurances	0.128	0.098	0.126	0.194	
	RM Protégé Openness	0.017	0.079	0.022	0.831	
	RM Protégé Conflict Mgmt.	0.043	0.096	0.037	0.655	
	RM Protégé Positivity	0.102	0.065	0.118	0.177	
	RM Protégé Career Advice	-0.026	0.059	-0.033	0.667	
	RM Protégé Psych Advice	-0.020	0.042	-0.042	0.625	
	RM Protégé Phone Contact	-0.009	0.075	-0.009	0.904	
	RM Protégé Email Contact	0.097	0.082	0.085	0.239	
						0.035
3	RM Mentor Assurances	0.031	0.100	0.037	0.756	
	RM Mentor Openness 1	0.067	0.071	0.081	0.345	
	RM Mentor Openness 2	-0.032	0.053	-0.059	0.550	
	RM Mentor Conflict Mgmt.	0.105	0.085	0.134	0.216	
	RM Mentor Positivity	-0.092	0.076	-0.116	0.227	
						0.030
4	Career Support Obtained	0.168	0.087	0.162	0.056	
	Psychosocial Support Obtained	-0.092	0.137	-0.078	0.501	
						0.037

Research Self-Efficacy

Hypothesis 3_c predicted research self-efficacy as a function of support sought, relational maintenance behaviors, and support obtained. This hypothesis was partially supported ($F (17, 235) = 2.53, p = .001$; Adjusted $R^2 = .100$).

When support sought (career and psychosocial) was entered in step 1, neither was significant and in fact, both were negatively related to research self-efficacy ($R^2 = -.017$). However, with the addition of the protégé relational maintenance strategies, protégé positivity significantly predicted research self-efficacy ($t = 2.02, p = .045; \beta = .146$) and along with support sought, the protégé relational maintenance strategies accounted for 9.8% of the variance (see Table 3.9). Although none of the mentor relational maintenance strategies added in step 3 contributed unique variance, protégé assurances ($t = 2.28, p = .023; \beta = .260$) and protégé positivity ($t = 2.01, p = .046; \beta = .164$) predicted research self-efficacy with the

addition of the mentor behaviors. Support obtained (career and psychosocial) was added in the final step and the final model accounted for 10% of the variance in research self-efficacy. Only protégé assurances ($t =2.10$, $p = .037$; $\beta =.243$) significantly predicted research self-efficacy when all predictor variables were included in the regression equation (see Figure 3.5).

Table 3.9: *Complete Regression Model on Research Self-Efficacy*

Step	Predictors	B	SE	β	p	Adj. R^2
1	Career Support Sought	0.039	0.063	0.048	0.534	
	Psychosocial Support Sought	-0.018	0.056	-0.025	0.739	
						-0.007
2	RM Protégé Assurances	0.132	0.068	0.182	0.053	
	RM Protégé Openness	0.023	0.054	0.043	0.670	
	RM Protégé Conflict Mgmt.	0.058	0.066	0.070	0.383	
	RM Protégé Positivity	0.090	0.045	0.146	0.045	
	RM Protégé Career Advice	-0.026	0.041	-0.049	0.518	
	RM Protégé Psych Advice	-0.019	0.029	-0.054	0.515	
	RM Protégé Phone Contact	0.043	0.051	0.060	0.407	
	RM Protégé Email Contact	0.101	0.056	0.124	0.075	
						0.098
3	RM Mentor Assurances	-0.063	0.069	-0.106	0.362	
	RM Mentor Openness 1	0.052	0.049	0.088	0.288	
	RM Mentor Openness 2	-0.034	0.036	-0.090	0.347	
	RM Mentor Conflict Mgmt.	0.043	0.059	0.077	0.463	
	RM Mentor Positivity	-0.038	0.052	-0.067	0.466	
						0.093
4	Career Support Obtained	0.115	0.060	0.156	0.058	
	Psychosocial Support Obtained	-0.016	0.094	-0.019	0.862	
						0.100

Figure 3.5: *Graphical Representation of Strongest Regression Model to Predict Research Self- Efficacy*
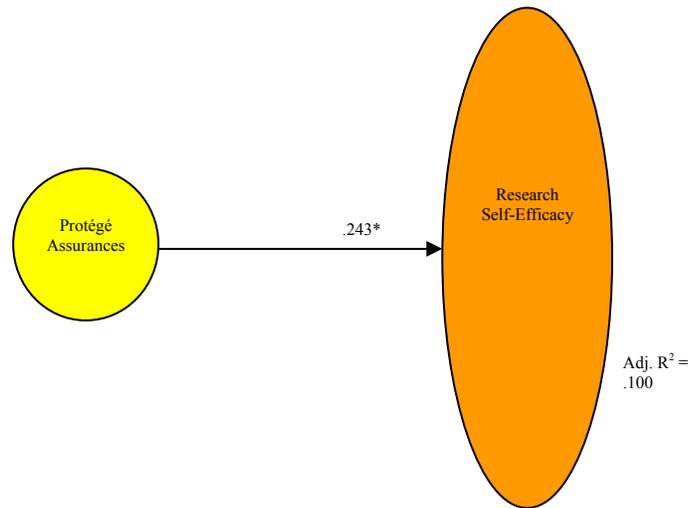
*p<.05

Relational Quality

 Hypothesis 3_d was partially supported in the present study. Relational quality was significantly predicted by relational maintenance behaviors and support obtained (F (17, 235) = 16.33, $p < .001$; Adjusted R^2 =.526). Neither career (t =1.38, $p = .170$; β =.107) nor psychosocial (t =-1.60, $p = .112$; β =-.124) support sought was significant when entered in step 1 and the relationship between psychosocial support sought and relational quality was negative (see Table 3.10). Support sought accounted for 0.4% of the variance.

 The protégé relational maintenance strategies were entered in step 2 and along with support sought, accounted for 31.7% of the variance in relational quality. Psychosocial support sought (t = -2.05, $p = .042$; β = -.135), protégé assurances (t =3.43, $p = .001$; β =.279), protégé conflict management (t =2.22, $p = .027$; β =.155) and protégé career advice-seeking (t =2.90, $p = .004$; β =.189) were significant in step 2.

 With the addition of the mentor relational maintenance behaviors in step 3, mentor assurances (t =2.83, $p = .005$; β =.251), mentor openness 1 (t =3.73, $p < .001$; β =.236), and mentor conflict management (t =4.00, $p = .000$; β =.321) accounted for 46.5% of the variance in relational satisfaction.

 Step 4 included the entire model and accounted for 52.6% of the variance explained in the quality of the relationship. Mentor assurances (t =2.37, $p = .019$; β =.201), mentor openness 1 (t =3.02, $p = .003$; β =.183), career support obtained (t =3.52, $p = .001$; β =.209) and psychosocial support obtained (t =3.12, $p = .002$; β =.252) were significant in predicting the perceived quality of the mentoring relationship (see Figure 3.6).

Table 3.10: *Complete Regression Model on Relational Quality*

Step	Predictors	B	SE	B	p	Adj. R^2
1	Career Support Sought	0.085	0.062	0.107	0.170	
	Psychosocial Support Sought	-0.089	0.055	-0.124	0.112	
						0.004
2	RM Protégé Assurances	0.200	0.058	0.279	0.001	
	RM Protégé Openness	-0.009	0.047	-0.017	0.848	
	RM Protégé Conflict Mgmt.	0.127	0.057	0.155	0.027	
	RM Protégé Positivity	0.051	0.039	0.083	0.190	
	RM Protégé Career Advice	0.102	0.035	0.189	0.004	
	RM Protégé Psych Advice	0.036	0.025	0.106	0.146	
	RM Protégé Phone Contact	-0.064	0.044	-0.089	0.153	
	RM Protégé Email Contact	0.093	0.049	0.115	0.057	
						0.317
3	RM Mentor Assurances	0.149	0.053	0.251	0.005	
	RM Mentor Openness 1	0.138	0.037	0.236	0.001	
	RM Mentor Openness 2	-0.021	0.028	-0.057	0.442	
	RM Mentor Conflict Mgmt.	0.179	0.045	0.321	0.001	
	RM Mentor Positivity	0.023	0.040	0.040	0.572	
						0.465
4	Career Support Obtained	0.153	0.043	0.209	0.001	
	Psychosocial Support Obtained	0.212	0.068	0.252	0.002	
						0.526

Figure 3.6: *Graphical Representation of Strongest Regression Model to Predict Relational Quality*
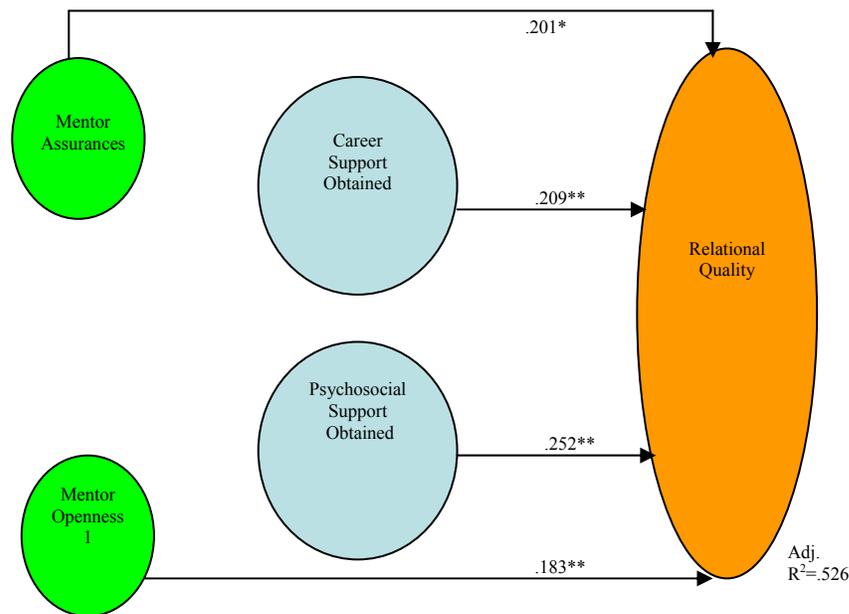
*p<.05, **p<.01, ***p<.001

To summarize, the complete Mentoring Relational Process Model predicted the most variance in relational satisfaction and relational quality, followed by research self-efficacy. Perceived time-to-degree was not significant in the current study.

To provide a complete test of the Mentoring Relational Process Model (RQ 1) tested in this dissertation, structural equation modeling was performed on the data to assess goodness-of-fit.

Research Question 1

Structural equation modeling (SEM) was employed, but unfortunately the data in the current dissertation did not fit the proposed theoretical model. The relevant statistical indicators (e.g. CFI, RMSE, ratio of chi-square to degrees of freedom) do not meet the critical value criteria necessary in SEM to produce an appropriate model. The CFI was below the necessary critical value, while the RMSE was above the critical value. Further, the ratio of chi-square to the degrees of freedom was also above the acceptable critical value of 7. It is inappropriate, therefore, to include the SEM analysis because statistical support was not generated.

Chapter 4: Discussion

While mentoring has been previously explored in a wide variety of sectors, a recurring criticism of the extant research is that it is often unclear how mentoring is conceptualized, operationalized, and tested. The first goal of the present dissertation was to provide clarity to the existing corpus of research. The dissertation, then, makes a significant contribution to the mentoring literature by clarifying the progression of the research in this area and extending prior lines of research. Specifically, this dissertation introduces the concept of support sought, identifies communication strategies utilized in the relational mentoring process, clarifies support obtained, and examines additional potential outcomes of mentoring. This chapter will first provide interpretation and analysis of the findings presented in chapter 3. Second, limitations of the present study will be addressed. Finally, new directions for future research will be discussed.

Interpretation and Analysis of Results

Three sets of hypotheses and one research question were explored in this study. The first two sets of hypotheses each explored a portion of the Mentoring Relational Process Model, while the third set and the research question examined the entire causal process and the goodness-of-fit of the data to the model, respectively.

Hypothesis 1

Hypothesis 1 predicted career (H_{1a}) and psychosocial (H_{1b}) support obtained from career and psychosocial support sought, respectively, as well as from specific relational maintenance strategies. Both career and psychosocial support obtained were significantly predicted in the present study. Thirty-four percent of the variance in career support obtained was explained by career support sought, protégé e-mail contact with a mentor, mentor assurances to the protégé about the status of the relationship, and mentor conflict management. With regard to psychosocial support obtained, almost 64% of the variance in psychosocial support obtained was explained by the initial psychosocial support sought, the protégé behaviors of assurance and psychosocial advice-seeking, and the mentor behaviors of openness and conflict management.

The initial support sought (career or psychosocial) by a protégé is important to whether protégé perceptions of support are obtained (career or psychosocial). Students have a responsibility to determine what they are looking for and what they expect from the mentoring relationship. Beyond this initial support sought, however, it appears that much of the perception of support obtained can be explained by perceptions of certain mentor relational maintenance behaviors.

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The current data suggest that protégés must communicate regularly (i.e., e-mail contact) with their mentors if they desire to obtain career support, but the remainder of the variance explained in this outcome is attributed to the mentor behaviors of assurances and conflict management. In contrast to the findings on career support obtained, both the protégé behaviors of assurance and psychosocial advice-seeking and the mentor behaviors of openness and conflict management together predict more than half of the psychosocial support obtained in the current dissertation. One way to interpret the differences in the model for H_{1a} and the model for H_{1b} is that career support obtained often involves more one-way (mentor to protégé), task-directed communication, while psychosocial support obtained is an overall affect variable that involves interactions between both the protégé and the mentor.

Contact by e-mail, mentor assurances, and mentor conflict management work together to predict career support obtained. As measured in the present study, the underlying theme in mentor assurances and mentor conflict management is respect. Mentors indicate respect for their protégés by providing assurances about working together in the future and by being proactive, patient, and understanding by effectively managing conflict. Protégé relational maintenance strategies do not seem to influence perceptions of career support obtained, according to the current data. For example, conflict is an interactional process and one would expect that protégés would report engaging in the process with the mentors. However, the data in present dissertation indicate that it is likely that protégé perceptions of whether the mentor effectively managed conflict are more salient in predicting whether perceptions of career and psychosocial support are obtained than are a protégé's own conflict management behaviors.

Respect and honesty are themes in the outcomes that predicted psychosocial support obtained as well. Protégé assurances, protégé psychosocial advice-seeking, mentor conflict management, and mentor openness 1 (mentor honesty) are the most salient constructs in explaining psychosocial support obtained. The protégé demonstrates respect for his or her mentor by providing assurances of future work together. Further, the implication in psychosocial advice-seeking is that protégés respect and trust their mentors enough to seek their advice on matters not directly related to the "nuts and bolts" of the academic program or future career. The relational maintenance behaviors, as strategic communication, provide an appropriate way to assess a protégé's perception of the respect and honesty in the relational mentoring process.

The relational mentoring process is predicated upon the protégé providing respect to the mentor. Whether or not perceptions of psychosocial support are obtained, however, is largely predicted by whether the mentor provides respect to the protégé. The mentor demonstrates respect of the protégé by appropriately managing conflict and by being honest (mentor openness 1) with the protégé about the mentoring process, the protégé's degree progress, etc.

From a protégé's perspective, the expectations of the faculty mentor-doctoral student relationship and whether perceptions of career and psychosocial support are obtained in the mentoring process are heavily reliant on perceived respect. While the protégé plays a role in the psychosocial support obtained, the central focus in the support obtained seems to rest squarely with specific mentor strategic communication behaviors. There are three pragmatic implications especially worthy of discussion related to hypothesis 1.

First, protégés engaged in the mentoring process may receive more of the career support they desire if they are able to identify their specific career and psychosocial needs and share them with the mentor. Graduate school administration officials would be well-advised to provide programming materials that help doctoral students identify their strengths and weaknesses and specific areas of concern in which they desire support. For example, the Rackham School of Graduate Studies at the University of Michigan provides its graduate students with a guide entitled "How to Get the Mentoring You Want: A Guide for Graduate Students at a Diverse University" (Rackham School, 2004). This guide encourages students to ask themselves questions of self-appraisal such as "what are my strengths?" and "what kind of skills do I need to develop?" before seeking a faculty mentor. These questions are reflective of protégé support sought in the current dissertation.

Second, the findings indicate that protégés identify a limited role for themselves in the support they obtain, and that much of the onus of career and psychosocial support obtained lies with the faculty member. For example, mentor conflict management was a strong predictor of both career and psychosocial support obtained. Mentors, then, must consider how they approach conflict within the mentoring process. If a student and a faculty mentor disagree about the required coursework for the student's program of study, how does the faculty member handle this disagreement? Does he or she attempt to constructively address the problem or is the response simply "that's the way it is"? The results of the current study would indicate that the former response would lead the protégé to perceive more support obtained than the latter. While this finding may seem apparent, the reality of the mentoring process is that good communication strategies are not always employed.

Finally, the emphasis on respect between mentor and protégé is important. While it is difficult to mandate respect, it is clear that protégés expect that their mentors will demonstrate respect for them when working together. The mentoring process appears to function best when there is a perception of respect that serves as the foundation for the mentor-protégé interactions. While mentoring is conceptualized as a student-initiated, student-managed process, data from the current dissertation suggest that protégés desire and expect certain mentor behaviors when assessing the career and psychosocial support they obtain.

Hypotheses 2 and 3

Hypotheses 2 and 3 provide tests of three possible outcomes of the mentoring process critical in graduate education—relational satisfaction, perceived time-to-degree, and research self-efficacy. Hypothesis 2 predicts these outcomes from the relational maintenance strategies and support obtained (career and psychosocial). Hypothesis 3 completes the Mentoring Relational Process Model (MRPM) with the addition of career and psychosocial support sought. One additional outcome, relational quality, is also examined in hypothesis 3.

Initially, hypothesis 2 was proposed to narrowly target the impact of the relational maintenance strategies and support obtained on each outcome. Extant research does not assess support sought, so hypothesis 2 allows for relatively direct comparisons with other studies. Support sought was proposed in the current dissertation and the complete model was tested in hypothesis 3. However, when the results were calculated, it became clear that the two hypotheses function very similarly. Given the similarities in the findings of hypothesis 2 and hypothesis 3, the discussion is presented concurrently.

Relational Satisfaction

Almost 62% of the variance in relational satisfaction in hypothesis 2 was predicted from protégé assurances, protégé openness, mentor openness 1 (mentor honesty) and support obtained (career and psychosocial). When support sought was included in the model in hypothesis 3, psychosocial support sought was the only additional construct that was significant and the variance predicted increased slightly to 62.2%. The lack of substantial change in variance from hypothesis 2 to hypothesis 3 may indicate that support sought is not particularly important with regard to relational satisfaction. Both protégé and mentor communication strategies seem to affect a protégé's satisfaction with his or her mentoring process.

When considered as a group, the salient relational maintenance strategies that emerged again highlight respect and honesty. Protégé assurances and mentor openness 1 (mentor honesty) reflect both the protégé's own respect for the mentor through assurances of future work together and the mentor's respect for the protégé via honest dialogue and feedback.

In contrast to protégé assurances and mentor openness 1, however, protégé openness is negatively related to relational satisfaction in both hypotheses in the current study. The data suggest that there are issues or concerns that either protégés do not wish to initiate discussion with their mentors about or that there are issues that mentors do not want to hear about and when protégés present them, they negatively impact the relationship. The dichotomy between what strategic communication behaviors protégés expect from their mentors and what they, as protégés, are willing to provide is apparent. The baseline for determining what comprises an appropriate level of openness and honesty in a mentoring process appears to again lie largely with the mentor.

Equally important in predicting relational satisfaction are the protégé perceptions of the career and psychosocial support obtained. Both types of support obtained are the strongest influences on the protégé's satisfaction with the mentoring process. Even if the relational maintenance strategies were present in a mentoring process, relational satisfaction would likely be low if protégés did not believe they were receiving career and psychosocial support. At its core, the relational mentoring process is a functional, goal-driven process. The ultimate goal for protégés in doctoral programs is completing the PhD and obtaining the first job. The support received as part of mentoring should help protégés achieve this goal.

Finally, when support sought (career and psychosocial) was added to the model in hypothesis 3, only psychosocial support sought was additionally significant and it was negatively correlated with relational satisfaction. Two explanations are plausible for this finding. First, protégés may not be seeking psychosocial support from a faculty mentor (and therefore relational satisfaction is not dependent on them receiving it). Instead, protégés may seek psychosocial support from other sources such as peers and significant others. This explanation provides support for looking at "mentoring constellations"—multiple people who function as mentors for a given protégé in different ways (Higgins & Thomas, 2001). For example, a protégé may have one faculty member who provides them primarily with career support, a significant other who provides the psychosocial support, a more senior graduate student who acts as a cheerleader, and a staff person who helps the protégé with logistical issues in navigating graduate school. The mentoring constellation can also be

comprised of several faculty members who serve different functions for the protégé—one helps with statistics, another with networking, and so on. In either case, the mentoring process, as informed by mentoring constellations, includes more than just one faculty member and one protégé and is deserving of further consideration.

Alternatively, protégés may not seek psychosocial support from a mentor for reasons similar to the ones provided for the negative relationship between protégé openness and relational satisfaction. There is a certain degree of bravado associated with being successful in a doctoral program. Students must show that they are strong enough to make it through the challenges placed before them relatively unscathed and on their own. By seeking psychosocial support, protégés are admitting that they are vulnerable and need help. This degree of openness may not occur from a protégé to a mentor for the fear that the mentor will view the protégé less favorably.

In summary, relational satisfaction is positively predicted by protégé assurances and mentor openness 1 (mentor honesty), as well as perceptions of support obtained. Protégé openness and psychosocial support sought are negatively correlated with relational satisfaction. It appears that protégés desire a degree of openness from the mentor and expect career and psychosocial support, but there is a point where too much openness and honesty on the behalf of the protégé are viewed as detrimental, which is consistent with other self-disclosure literature (e.g., Gilbert & Horenstein, 1975). The mentor's strategic communication behaviors seem to outweigh what the protégé does with respect to relational satisfaction.

Perceived Time-to-Degree

Neither hypothesis 2 nor hypothesis 3 had significant results for perceived time-to-degree in the current dissertation. Support sought, relational maintenance strategies, and perceptions of support obtained did not, either individually or together, successfully predict perceived time-to-degree. This finding could be due to the measurement of perceived time-to-degree in the present study. The three items that were used to measure perceived time-to-degree asked participants to compare their time to qualifying exams or degree completion to an "average" time for their department. Perhaps the idea of an "average" time to completion is so ambiguous that participants were interpreting the questions vastly different from one another or perhaps the uncertainty about the doctoral process itself may prevent students from projecting a perceived time-to-degree. Also, the norm may be so different from department to department that assessing a perception of perceived time-to-degree in a cross-disciplinary study is inappropriate.

An equally likely explanation for the finding is that perceived time-to-degree is influenced by student factors such as realistic expectations and locus of control, rather than a relationship with a mentor. These student factors require further exploration. A student who believes that he can complete a degree in two years start to finish or a student who believes that it will undoubtedly take her 10 years may each have unrealistic expectations which influence reported perceptions of time-to-degree. Further, students who have an internal locus of control and therefore, believe that they shoulder the responsibility for what happens to them in their doctoral programs, may assess their perceived time-to-degree much differently than those who believe that their degree progress is only controlled by external forces. In conclusion, the data in the current study did not support the claim that the mentoring process affects perceived time-to-degree. In future studies, then, perceived time-to-degree should not be included as a salient outcome with regard to the relational mentoring process.

Research Self-Efficacy

An underwhelming 11% of the variance in research self-efficacy in hypothesis 2 and 10% in hypothesis 3 was predicted by protégé assurances. No other individual constructs were significant in explaining additional variance in research self-efficacy according to the current data. This outcome is the sole case where only protégé characteristics, to the exclusion of mentor characteristics, are alone salient. When a protégé is faced with conducting research, it appears that the perceptions of the impetus for doing so successfully lie with the protégé.

Protégé assurances emphasize the protégé's desire and intention to work with the mentor throughout one's academic career. A plausible explanation for the influence of protégé assurances on research self-efficacy is that the more committed a mentor believes that a protégé is to working together, the more likely the mentor may be to invest time and energy into providing research guidance. This time spent together may in turn influence how confident a protégé feels in conducting his or her own research.

It is also important, however, to recognize that individual protégé characteristics such as persistence or locus of control may be more important than the mentoring relationship in predicting research self-efficacy. For example, if a protégé does not feel comfortable writing strong hypotheses, he or she may ask a mentor for help. The mentor may hand the protégé a book about the topic and send him or her away to read about good hypotheses. The persistent protégé will do the reading, but will also approach the mentor again if questions remain. Through this persistence, the protégé is likely to receive the

information he or she needs, while at the same time increasing confidence in conducting research; thus, potentially increasing research self-efficacy. Further exploration of the influence of protégé characteristics on research self-efficacy is warranted.

Relational Quality

While mentoring has a largely positive connotation in both extant literature and the current dissertation, it is hypothetically possible that protégés may report being in a low-quality mentoring relationship. Therefore, assessing perceived relational quality is important. Do protégés believe that their relationships are largely functional and helpful or dysfunctional and unhelpful? A majority (53%) of the variance in relational quality is predicted by mentor assurances, mentor openness 1 (mentor honesty), career support obtained and psychosocial support obtained.

Consistent with earlier findings in the present study, mentor behaviors focused on respect and honesty, along with perceptions of support obtained, are the most salient in predicting relational quality. The data suggest that neither the initial support a protégé seeks, nor his or her own communication behaviors explain the quality of the mentoring relationship. While the protégé's role in maintaining a quality relationship cannot be ignored, if the mentor does not provide respect and honesty to the protégé, the perceived quality of the relationship will likely be diminished.

Before addressing pragmatic implications of hypotheses 2 and 3, it is appropriate to briefly discuss how the complete Mentoring Relational Process Model (MRPM) may be reconceptualized as a result of the current study. When all predictor variables are included, support sought plays a negligible role in predicting the criterion variables. Therefore, support sought may be excluded from future iterations of the MRPM, with one caveat. When only considering the partial model that treats support obtained as the criterion variable, support sought does play an influential role and should be included. In general, the support sought to relational maintenance behaviors to support obtained pathways tested in hypothesis 1 produced some interesting results that are worthy of continued exploration.

With regard to the relational maintenance behaviors that protégés frequently report in the current study as they relate to the critical graduate outcomes, protégé and mentor assurances and protégé openness and mentor openness 1 (as indicators of respect and honesty) were the only strategies that were significant. Therefore, the reconceptualized MRPM should highlight these strategies and exclude the others. This finding is particularly useful given that the present dissertation is the first exploration of the relational maintenance

strategies in the mentoring context and provides future researchers with a solid foundation for further investigation of relational maintenance in mentoring.

Both career and psychosocial support obtained are consistently important in predicting relational satisfaction and perceptions of relational quality. It appears that protégés desire certain career and psychosocial support and whether or not they receive it greatly influences their affective assessment of the relational mentoring process. Therefore, career and psychosocial support obtained should be included in future iterations of the MRPM.

Finally, the relational mentoring process adequately predicts relational satisfaction and relational quality in the current study and justifies their inclusion in the revised MRPM. However, given that relational satisfaction and relational quality are similar constructs that produced similar results, including both of these outcomes in a revised MPRM is not necessary. Therefore, only relational satisfaction will be used as an affective outcome in the revised model because of its connection in previous research to relational maintenance strategies.

Perceived time-to-degree and research self-efficacy, as indicators of student productivity, were not well-predicted by the data in the present study. Therefore, they should not be included in future iterations of the MRPM. Possible additional outcomes mentioned in extant literature that may be worthy of testing include student productivity as evidenced by conference presentations, publications, etc., positive evaluation of the graduate school experience, and commitment to the doctoral program. In sum, the present study provided a test of the Mentoring Relational Process Model and suggests a reconceptualization (see Figure 4.1) of it, as well as directions for future research. The new MRPM highlights the relational maintenance strategies that indicate respect and honesty (assurances and openness, respectively), as well as career and psychosocial support obtained, and provides a conceptual model to test the additional outcomes described above.

Figure 4.1: Reconceptualized Mentoring Relational Process Model (MRPM)
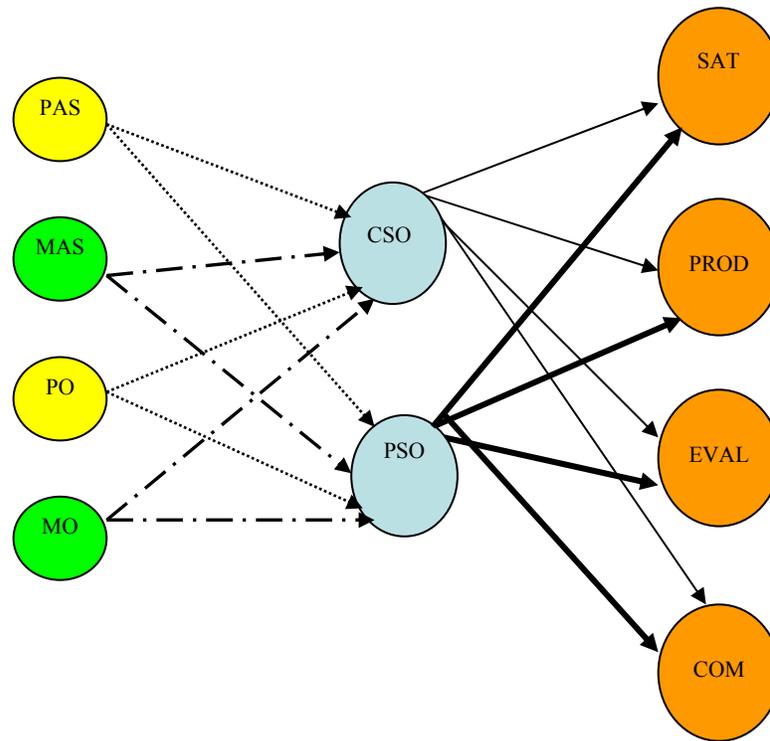
Key:

PAS – Protégé Assurances	CSO – Career support obtained
MAS – Mentor Assurances	PSO – Psychosocial support obtained
PO – Protégé Openness	SAT – Relational Satisfaction
MO – Mentor Openness	COM – Commitment to Doctoral Program
PROD – Student Productivity	EVAL – Evaluation of Doctoral Program

Pragmatic Implications of Hypotheses 2 and 3

The findings in the present study suggest that the mentoring process is especially salient with regard to the affective outcomes of relational satisfaction and relational quality. That is, protégés that are engaged in the relational mentoring process with a faculty member at the University of Kentucky are largely satisfied with the mentoring they receive and believe that they are in a quality relationship. This finding suggests several positive conclusions for the university with regard to faculty-doctoral student interactions. The students in mentoring relationships appear to believe that the mentoring they are receiving provides appropriate support and guidance. While more pragmatic outcomes (such as perceived time-to-degree and research self-efficacy) would be nice, the importance of a positive affect toward mentoring should not be discounted.

Mentor strategic communication behaviors that demonstrate respect and honesty facilitate the mentoring process and result in satisfaction and perceived quality. As was argued with the importance of these behaviors to perceptions of support obtained, mentors should consider their actions in light of this finding. When a protégé comes to a mentor with a problem, the degree to which the mentor addresses the problem with respect and honesty, while still providing appropriate support, will determine satisfaction and quality from a protégé's point of view.

In turn, protégés should consider the degree of openness that they engage in with their mentors. While protégés reported a negative relationship between their own openness and relational satisfaction, is it because they fear openness will not be received well by the mentor? Or is this relationship a result of unrealistic protégé perceptions of how the mentor will respond? The answer likely lies somewhere in between these two alternatives.

As part of the psychosocial support between protégés, advice regarding what topics to discuss with a mentor and what topics to avoid is often provided. For example, a protégé telling a mentor that he or she is considering leaving a program ABD ("All But Dissertation") is ill-advised because it indicates a lack of commitment to the program to many mentors. More senior doctoral students who offer such advice may have either experienced problems with their own mentors as a result of being too open, or certainly know someone else who did. This scenario would be one example of fear on the part of the protégé.

Protégé expectations of mentor reactions to specific problems can also be blown out of proportion as a result of urban legends about graduate school. The protégé may unrealistically believe that his or her committee is trying to "make life difficult" by suggesting additional courses or changes to a dissertation proposal because other protégés have told horror stories about similar experiences. However, as with any interpersonal relationship, the dynamics of each individual mentoring pair will determine how respect, honesty, and openness are enacted and realistic expectations on behalf of both the mentor and the protégé can increase the overall satisfaction and quality of the relationship.

The MRPM proposed in this dissertation does not adequately predict the outcomes of perceived time-to-degree or research self-efficacy. The idea that these outcomes are simply not related to the relational mentoring process must be entertained. Rather, it is possible that structural issues such as clarity of program requirements or antecedent protégé characteristics such as internal local of control and persistence may be better predictors of perceived time-to-degree and research self-efficacy.

Finally, the reconceptualized MRPM was used to create the Mentor-Protégé Contract (MPC) (see Appendix B). Graduate schools may use the MPC to help begin a dialogue between students and faculty members about the relational mentoring process and to hopefully facilitate more productive mentoring interactions. The underlying goal with such a contract is to ultimately increase satisfaction and the other outcomes posited in the MRPM by focusing attention on the strategic communication behaviors that influence the relational mentoring process and the career and psychosocial support obtained.

First, the MPC asks mentors to commit to providing assurances, respect, and honesty to the protégé about his or her progress in the doctoral program. For example, the mentor agrees "[t]o provide you (protégé) with assurances of my commitment to work together during your doctoral career. If there comes a time when I believe that you are going down a path that I am not comfortable with, I will share that with you as well." This item directly addresses the importance of mentor assurances that emerged in the present study. Additional items were created to address mentor openness and career and psychosocial support obtained (see Appendix B).

For protégés, assurances, openness, and support obtained are also addressed in the MPC (see Appendix B). For example, with regard to protégé openness, the protégé commits "[t]o be honest with you (mentor) in my communication about the doctoral process. I will recognize when the information my peers share with me is helpful and when it simply creates anxiety. If I have concerns about the truth regarding a particular topic, I'll ask you, rather than allowing myself to become uneasy as a result of what I hear from my peers." Together, mentors and protégés are also asked to identify expectations and commitments to their specific interpersonal relationship.

The utility of the MPC is two-fold. First, it highlights the communication strategies that, at least in the present study, seem most salient to facilitating the relational mentoring process. Second, and of greater importance, the MPC provides a way for mentors and protégés to talk about their expectations for mentoring. Given the preeminence of mentor behaviors in relation to many of the outcomes in the present dissertation, the MPC provides mentors with a tool to discuss the mentoring process. Graduate schools can supply mentors with the MPC and encourage them to use the contract early in the mentoring relationship to avoid problems later in the process. The MPC should be revisited at various points during the protégé's academic career, at the very least, when he or she advances to candidacy. The creation of the MPC is an applied outcome of the current study.

Research Question 1

The failure of structural equation modeling (SEM) to provide a statistical fit for the proposed Mentoring Relational Process Model is not surprising. Given the mixed regression results on the individual outcome variables, the lack of results when all predictor and criterion variables were included confirms the argument that the Mentoring Relational Process Model does not provide a complete explanation for mentoring as currently conceptualized.

Summary of Findings

The results of the empirical test of the Mentoring Relational Process Model (MRPM) provide several worthwhile conclusions. First, the relational maintenance strategies that were most salient in this study may be grouped under the umbrella theme of respect and honesty. Of particular note, mentor strategies consistently emerged as influential on the outcomes in the present study.

While mentoring is portrayed as a student-initiated, student-driven process, the current data suggest that mentor behaviors must be assessed as well. Given this emphasis on mentor behavior, it also appears that protégés may believe that there is a line of demarcation with respect to being open with a mentor that the protégé will not cross. The negative correlation between protégé openness and the respective outcomes was somewhat surprising. The regular interaction inherent in the relational mentoring process provides a venue for openness and honesty to potentially occur. The fact that the openness of the mentor is positively related to affective outcomes, while the openness of the protégé is negatively related suggests that protégés desire openness and honesty, but are not willingly to be entirely forthcoming themselves.

Second, the investigation of support sought in the present dissertation was a first exploration as to whether it matters what a protégé believes that he or she needs with regard to career or psychosocial support. The answer provided by the current data seems to be that, with regard to the career or psychosocial support obtained, it matters what the protégé is seeking. If one does not know what kind of help is needed, it is difficult to use the appropriate communication strategies to meet the career and psychosocial needs. By contrast, support sought does not appear to matter greatly with respect to the outcomes of relational satisfaction, perceived time-to-degree, research self-efficacy, and relational quality. When assessed as part of the complete Mentoring Relational Process Model, support sought does not have much explanatory power. This difference may be potentially attributed to the more immediate, focused nature of support obtained as an outcome, as

opposed to the more long-term, diffuse nature of the critical graduate outcomes. Limitations of the current study will now be discussed.

Limitations

Several potential limitations are important to note in the present dissertation. First, due to the logistical difficulties of obtaining a large enough sample to produce adequate power to test both mentors and protégé perceptions, only protégé perceptions of the mentoring process were assessed. This sampling procedure is a limitation because it is difficult to draw conclusions about the entire mentoring experience without assessing both mentors and protégés.

Second, the cross-sectional design of the present study prevents a developmental understanding of the relational mentoring process. While there were individual participants at all points along the continuum of the doctoral program (and therefore the dissertation provides a picture of the developmental process), a cross-sectional design makes it impossible to follow the progression of the mentoring process with any one individual.

Third, quantitative survey research does not provide the researcher with an opportunity to pursue lines of questioning that emerge as a result of the research itself. The participants were forced to answer pre-determined questions and did not have an opportunity to expand upon them. As a result, it has been difficult to ascertain the salient outcome measures that protégés consider most important.

Next, measurement clarity was a limitation with some of the measures in the present study. The composite psychosocial support obtained scale that was modified from Paglis et al. (2006) did not cleanly measure this concept and in fact, subdivided into three scales through factor analysis. The composite scale was used in the regression analyses in order to allow for comparison with extant research; however, future research needs to reexamine this measure. Additionally, two of the relational maintenance measures (protégé advice and mentor openness) could not be summed as composite scales and therefore were treated as individual items. These measures should also be revised before use in future studies.

Finally, the causal process regression model proposed in the current dissertation did not account for demographic differences among the study participants or provide for consideration of structural issues such as institution size or attendance status. For example, the relational mentoring process may be qualitatively different based on protégé or mentor gender, academic discipline, and status with regard to passage of qualifying exams. While not argued in the present study, examining these differences may provide additional insight into the relational mentoring process.

Drawing upon the findings of the present dissertation and the recommendations made throughout the document, future directions will now be discussed.

Future Directions

One goal of solid research is that it generates as many questions as it answers—the present study is no exception. Several avenues for future research may be proposed as a result of this dissertation.

First, there is a need for interactional mentoring studies; that is, studies that investigate pairs of mentors and protégés together in the graduate school environment. Interaction studies would provide a mechanism to move beyond simply protégé or mentor perceptions of what is occurring to a system of checks and balances to see if the perceptions match one another. Further, it is challenging to fully assess any relationship by only looking at one participant in the relationship.

Second, in the spirit of Paglis et al. (2006), more longitudinal studies of mentoring would provide a more precise understanding of the mentoring process. Mentoring changes over the academic career of any particular doctoral student and cross-sectional surveys do not fully capture this evolution. A student who is completing his or her first semester in a doctoral program has vastly different needs from one who is preparing to defend a dissertation. Longitudinal studies would highlight the developmental nature of the mentoring relationship.

Third, there is a place for triangulation of methods in mentoring research by conducting additional qualitative inquiry into the mentoring process in graduate school. Qualitative research can be used either as formative research to help identify initial questions to examine or as follow-up research once preliminary data has been gathered. Future explorations of mentoring would fall largely into the latter category. For example, mentor conflict management emerged as an important factor on several outcomes in the present study. What is about mentor conflict management that is so salient? Focus groups or structured interviews would allow researchers to more carefully probe that question. Finally, the effects of power in a mentoring relationship need exploration to better understand how this dynamic affects issues such as openness and honesty between a mentor and a protégé. The inherent power differential between a mentor and a protégé in doctoral education may prevent protégés from sharing certain information with their mentors. Further, it is clear from the results of the current study that protégés place importance on the mentor behaviors; qualitative methods would allow researchers to find out why. After probing deeper into the relational mentoring process with qualitative research, it will likely

provide direction to aid in the further reconceptualization of the Mentoring Relational Process Model and the Mentor-Protégé Contract (see Appendix B).

Even with the advances in mentoring measurement, there is still much work to be done. Psychosocial support obtained (or simply psychosocial mentoring in extant research) was not found to be a clean measurement in the current study; a more accurate measure would be helpful. Additionally, it may be useful to consider whether entirely new scales should be created to measure mentoring in graduate school (rather than simple adaptations of scales from the business world). Perhaps the environments are so different that measures do not translate well.

Next, given that the specific graduate school outcomes of perceived time-to-degree and research self-efficacy were not predicted well from the Mentoring Relational Process Model (MRPM), additional outcomes may be considered. For example, rather than measuring confidence in conducting research (research self-efficacy), future studies may instead choose to examine research productivity. That is, is the number of conference presentations or publications that a student has directly related to engagement in the mentoring process? Further, it would be interesting to examine whether commitment to an academic career is influenced by mentoring (see reconceptualized MRPM in Figure 4.1).

Additionally, exploratory research with regard to status in program (e.g., year, attendance, etc.), academic discipline, candidacy status, and gender, as well as inherent structural issues such as institution size and attendance status of the student may provide interesting insight into the outcomes of the mentoring process. Do doctoral candidates who are writing a dissertation desire different support than first-year PhD students with different end outcomes in mind? The logical answer would be yes; future research may examine what these differences are and how they are addressed. The last issue deserving of study with regard to the outcomes is the impact of individual student characteristics on pragmatic outcomes such as perceived time-to-degree and research self-efficacy. Student characteristics including persistence, motivation, and locus of control may provide further explanation of the role of mentoring as opposed to the role of the individual.

Finally, while relational maintenance strategies provide an acceptable way to assess the communication that facilitates the relationship between a mentor and protégé, the current relational maintenance scales need revisiting for use in contexts other than romantic relationships. For example, the assurances that are described in romantic relationships may not translate directly to work and school contexts as written. Relational maintenance is a concept that is applicable in numerous contexts and a more general measure of relational

maintenance would be step in the right direction. This chapter describes the findings of the current dissertation, as well as addresses salient limitations and future directions.

Historically, mentoring research has been confusing at best and frequently contradictory. Extant research provides little direction for assessing mentoring beyond conceptual distinctions between career and psychosocial dimensions of the relational mentoring process. The current dissertation first provides clarity to this corpus of research.

Mentoring is a *relational process*, of which the faculty-student interaction is a significant component. Protégés initiate this process by first determining what their career and psychosocial support needs are, conceptualized as support sought. No prior mentoring studies have examined student expectations of career and psychosocial support needs. Measures created for the present study provide a first exploration of the impact of support sought. With regard to the career and psychosocial support that protégés perceive they obtain, the support initially sought is important. When examining support sought on the more distal outcomes of relational satisfaction, perceived time-to-degree, research self-efficacy, and relational quality, support sought appears to play a much smaller role according to the data in the current dissertation.

After protégés have identified what their own career and psychosocial needs are, the question becomes what communication strategies are used by protégés to get these needs met. Extant research assumes that there is a collection of behaviors that indicate mentoring, but it does not often investigate the important strategies that allow mentoring to occur. Kalbfleisch (2002) argued that protégés use maintenance strategies to facilitate a mentoring relationship and that they are more likely to use maintenance strategies than mentors. However, she did not test these assertions, leaving this task to subsequent researchers. The present study provides an initial test by conceptualizing maintenance as relational maintenance strategies and examining the effects of relational maintenance on the mentoring process.

The relational maintenance strategies appear to provide a useful way to measure the communication that occurs throughout the mentoring process. From support obtained to relational satisfaction, relational maintenance played an important explanatory role in the current dissertation. The strategies most closely connected to respect and honesty (i.e. assurances and openness) were most salient. As an interesting contrast to Kalbfleisch's assertions, the perception of mentor relational maintenance behaviors seems to be more important than the protégés own actions. While mentoring is clearly student-initiated, the role of the mentor was highlighted in the present study.

Protégé perceptions of support obtained are the most common way that mentoring is measured in extant research. That is, does a protégé believe that his or her mentor provides challenging assignments or a place to vent concerns about being a doctoral student? The theoretical significance of career and psychosocial support obtained was reinforced by the findings in the current dissertation. Career and psychosocial support obtained are predicted by support sought, as well as being predictive of relational satisfaction and relational quality.

The present study also highlights the need to continue refining mentoring measurement, especially with regard to psychosocial support obtained. It appears that the Paglis et al. (2006) measure is in need of more conceptual clarity. The factor analysis identified three distinct psychosocial support obtained measures that should be further explored. Given that Paglis and colleagues adapted their measure from the most commonly used mentoring scales, it provides a possible explanation for the murkiness of previous mentoring findings. If the measurement is unclear, the findings may also be unclear.

The final step in the mentoring process is the outcomes that occur as a result of engagement in mentoring. Prior research has produced mixed findings about the influence of mentoring on outcomes such as attrition, evaluation of the graduate school experience, academic success, productivity, and student commitment to the program. The current study also has mixed results. The mentoring process clearly matters with regard to the affective outcome of satisfaction. Protégés who believe that they receive career and psychosocial support from their mentors, as well as are treated with respect and honesty, report being satisfied with mentoring. Relational quality, a closely related outcome, was also salient in the current study. Relational quality asks protégés to identify whether their mentoring process is functional, effective, etc.—it's not enough just to be in a relationship, it must also be perceived as worthwhile.

Mentoring does not appear, at least in the present study, to substantially influence the pragmatic outcomes of perceived time-to-degree and research self-efficacy as measures of student productivity. While this finding is disappointing, it provides an exciting opportunity to continue thinking about what the outcomes of mentoring truly are. Additional outcomes such as student productivity (as indicated by conference presentations and publications), evaluation of the doctoral program, and student commitment to the doctoral program could be tested in future research.

In summary, the present dissertation clarifies the extant mentoring literature and proposes a causal process model to test the relational mentoring process and its effect on

salient graduate school outcomes. Further, the current study clearly investigates the communication behaviors that facilitate the process and details the importance of perceived respect and honesty, especially on the part of the mentor, in facilitating positive outcomes. Next, this dissertation reinforces the preeminence of career and psychosocial support obtained in predicting a protégé's satisfaction and perceived quality with the relational mentoring process. Finally, the study provides support for the impact of the relational mentoring process on the affective outcomes of relational satisfaction and relational quality, while providing suggestions for future research into outcomes indicative of student productivity since the indicators in the present study (i.e., perceived time-to-degree and research self-efficacy) were not successfully predicted from the Mentoring Relational Process Model.

Returning to the rationale for this dissertation, at least 50% of doctoral students that begin doctoral programs never finish (Lovitts, 2001). This attrition rate is very costly and if anything can be done to reduce it, it is worthy of consideration. Lovitts argues that the causes of attrition (and the opposite condition of persistence) are not solely related to the characteristics of the individual doctoral student, but rather to what happens to the student after he or she arrives. As a result of engaging in the relational mentoring process, protégés create a connection with a faculty member that has the potential to provide them with support throughout their programs. The findings of the current study indicate that protégés believe that what the mentor does most strongly affects their perceptions of career and psychosocial support obtained. If connection with someone on campus increases perceptions of support obtained and hopefully, persistence, then mentoring is inherently worthwhile. If Lovitts' estimation of attrition is correct, this dissertation provides preliminary evidence that closer attention to the relational mentoring process and the associated theoretical model could one day be employed by doctoral programs across the country to significantly reduce the number of doctoral students who fail to complete the degree.

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Demographics

1.   Sex/gender: (1) Female (2) Male

2.   Primary ethnic background:

      (1) Euroamerican   (2) Latino/a   (3) Asian American (4) African American

      (5) Other Foreign Born Citizen   (6) Other

3.   Are you an international student? (1) Yes or (2) No

4.   Your Academic College:

      (1) Agriculture

      (2) Arts and Sciences

      (3) Business and Economics

      (4) Communications and Information Studies

      (5) Dentistry

      (6) Design

      (7) Education

      (8) Engineering

      (9) Fine Arts

      (10) Health Sciences

      (11) Law

      (12) Medicine

      (13) Nursing

      (14) Pharmacy

      (15) Public Health

      (16) Social Work

      (17) Patterson School of Diplomacy

      (18)   Martin School of Public Policy

      (19)   Graduate Center for Nutritional Sciences

      (20)   Graduate Center for Biomedical Engineering

5.   Your Specific Department or Program:_____

6.   Are you a (1) full-time or (2) part-time student?

7.   What year are you in your program? 1 2 3 4 More than 4

8.   Are you or have you been a TA, GA or RA at the University of Kentucky?

(1) Yes   (2) No

9.   How many semesters have you been a graduate student at the University of

Kentucky (including summers)? (Pull down menu w/ 1-20)

10.   How many semesters have you been at the University of Kentucky (total)?

_____

11. What is your age?   (1) 18-25 (2) 26-33 (3) 34-41 (4) 42-49 (5) Over 50

12.   Have you passed your qualifying exams? (1) Yes (2) No (3) N/A

13.   Have you defended a dissertation proposal? (1) Yes (2) No (3) N/A

14.   Do you expect to graduate at the end of this academic year? (1) Yes (2) No

15. Is this your first experience as a graduate student? (1) Yes (2) No

**Career & Psychosocial Support Sought Instructions: Graduate students frequently
face situations that require new skills and knowledge. Think about your current
situation as a graduate student and provide your responses to the following statements.
What do you need to know or understand or be able to do to be successful as a
graduate student? In other words, to what extent do you have the following needs:**

1 = To a very slight extent

2 = To a slight extent

3 = To a moderate extent

4 = To a large extent

5 = To a very large extent

Career Support Sought (derived from Paglis, Green, & Bauer, 2006)

16. Help completing tasks in a timely manner.

17. Guidance determining an appropriate course of study.

18. Information about post-graduation career options.

19. Specific skill training in statistics, writing, analysis, etc.

20. Networking with other scholars in my chosen area of study.

Psychosocial Support Sought (derived from Paglis, Green, & Bauer, 2006)

21. A space to voice my concerns/fears about graduate school.

22. Guidance regarding balance between school and/or work and the "rest of life."

23. Encouragement that I am becoming a competent student/scholar.

24. Someone who listens to me when I have questions and/or concerns about school.

25. A role model to pattern my behavior after.

Relational Maintenance Behaviors Instructions:
A mentor is a faculty member who provides you with career and/or emotional support beyond what you would receive in the classroom. Mentoring generally involves a level of engagement beyond simply approving courses, etc. This person may or may not be your faculty adviser. Think of a person that fits the description and then answer the following questions with that person in mind.

24. Can you identify a faculty member who fits the above description for you? (1) Yes or (2) No

In order to facilitate the relationship and seek support for the needs described in the last section, think about which communication strategies you use to initiate, develop and/or maintain your relationship with the faculty member you consider to provide you mentoring:

7 = Strongly Agree
6 = Agree
5 = Moderately Agree
4 = Undecided
3 = Moderately Disagree
2 = Disagree
1 = Strongly Disagree

Relational Maintenance Behaviors (adapted from Stafford, Dainton, & Haas, 2000; with Mediated Communication derived from Canary, Stafford, Hause, & Wallace, 1993).

<u>Protégé Assurances</u>

26. I show my respect for my mentor.

27. I imply to my mentor that our relationship has a future.

28. I tell my mentor how much s/he means to me.

29. I talk with my mentor about plans for the future.

30. I stress my commitment to work with my mentor.

31. I show my mentor how much he/she means to me.

32. I talk about future events with my mentor (e.g. qualifying exams, graduation, finding a job, etc.)

<u>Mentor Assurances</u>

33. My mentor shows respect for me.

34. My mentor implies that our relationship has a future.

35. My mentor tells me how much I mean to him/her.

36. My mentor talks about plans for the future with me.

<u>Protégé Openness</u>

37. I encourage my mentor to be honest with me.

38. I simply tell my mentor how I feel about the relationship.

39. I talk about my concerns/fears with my mentor.

40. I disclose what I need or want from the relationship to my mentor.

41. I like to have periodic talks about our relationship with my mentor.

42. I am open about my feelings with my mentor.

43. I talk about where we stand with my mentor.

Mentor Openness

44. My mentor is honest with me.

45. My mentor simply tells me how he/she feels about the relationship.

Protégé Conflict Management

46. I apologize to my mentor when I am wrong.

47. I cooperate in how I handle disagreements with my mentor.

48. I listen to my mentor and try not to judge.

49. I am understanding with my mentor.

50. I am patient with my mentor.

Mentor Conflict Management

51. My mentor apologizes to me when he/she is wrong.

52. My mentor cooperates in how he/she handles disagreements with me.

53. My mentor listens and tries not to judge.

54. My mentor is understanding with me.

55. My mentor is patient with me.

Protégé Positivity

56. I act cheerful and positive when around my mentor.

57. I try to be upbeat when my mentor and I are together.

Mentor Positivity

58. My mentor is cheerful and positive when around me.

59. My mentor is upbeat when he/she and I are together.

Career Advice

60. I ask my mentor what he/she thinks I should do about my academic and/or career problems.

Psychosocial Advice

61. I ask my mentor's opinion on things going on in my life.

Mediated Communication

62. How often do you contact your mentor by phone?
(1) Never (2) Monthly (3) Weekly (4) Daily (5) More than 1 time/day

63. How often do you contact your mentor by email?

(1) Never   (2) Monthly (3) Weekly (4) Daily (5) More than 1 time/day

Career and Psychosocial Support Obtained Instructions:

Recall that a mentor is a faculty member who provides you with career and/or emotional support beyond what you would typically receive in the classroom. Mentoring generally involves a level or engagement beyond simply approving courses, etc. Continue to think of the same faculty member you identified earlier and answer the following questions:

1 = To a very slight extent

2 = To a slight extent

3 = To a moderate extent

4 = To a large extent

5 = To a very large extent

Career Support Obtained (Paglis, Green, & Bauer, 2006)

64. My mentor reduces unnecessary risks that could threaten the possibility of my advancing in my program.

65. My mentor helps me finish assignments/tasks or meet deadlines that otherwise would have been difficult to complete.

66. My mentor helps me to meet new colleagues.

67. My mentor gives me assignments that increase my written and personal contact with influential faculty in the school.

68. My mentor gives me assignments or tasks that prepare me for my desired position (teaching, research, or industry) after I graduate.

69. My mentor gives me assignments that present opportunities to learn new skills.

Psychosocial Support Obtained (Paglis, Green, & Bauer, 2006)

70. My mentor shares history of his/her career with me.

71. My mentor encourages me to prepare for advancement in this program.

72. My mentor encourages me to try new ways of behaving in my role as a graduate student.

73. I try to imitate the work behavior of my mentor.

74. I agree with my mentor's attitude and values regarding education.

75. I respect and admire my mentor.

76. I will try to be like my mentor when I reach a similar position in my career.

77. My mentor demonstrates good listening skills in our conversations.

78. My mentor discusses my questions or concerns regarding feelings of competence, commitment to advancement, relationships with peers and faculty or school/family conflicts.

79. My mentor shares personal experiences as an alternative perspective to my problems.

80. My mentor encourages me to talk openly about anxieties and fears that detract from my work.

81. My mentor conveys empathy for the concerns and feelings I have discussed with him/her.

82. My mentor keeps feelings and doubts that I share with him/her in strict confidence.

83. My mentor conveys feelings of respect for me as an individual.

Relational Satisfaction Instructions: Think again about the faculty mentor you have identified. On a scale of 1 – 5, how satisfied are you with the relationship:

1 = Strongly Disagree
2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly Agree

Relational Satisfaction (adapted from Hendrick, 1988 – Items 4 and 7 are reverse-scored)

84. My mentor meets my academic needs.

85. I am satisfied with my mentoring relationship.

86. I have a positive relationship with my mentor.

87. There are times when I wish I hadn't initiated the mentoring relationship.

88. My current mentoring relationship meets my expectations.

89. I respect my mentor.

90. I have encountered several problems with my mentoring relationship.

Perceived Time-to-Degree Instructions: Unlike undergraduate education, graduate programs often vary in length from student to student and program to program. Considering your current degree progress, answer the following questions regarding your perceived time-to-degree.

On a scale of 1 to 5, with 1 being not at all confident and 5 being very confident, how confident are you that you...

1 = Not at All Confident

2 = Not Very Confident

3 = Moderately Confident

4 = Confident

5 = Very Confident

Perceived Time-to-Degree (created for this study)

91. Will (or did) finish your coursework on schedule?

92. Will finish your dissertation on schedule?

93. Will finish all degree requirements in the "average" time for your program?

Research Self-Efficacy Instructions: Most graduate programs emphasize research to some degree. In the following questions, consider how confident you are in your own research skills.

On a scale of 1 to 5, with 1 being not at all confident and 5 being very confident, how confident are you that you can….

1 = Not at All Confident
2 = Not Very Confident
3 = Moderately Confident
4 = Confident
5 = Very Confident

Research Self-Efficacy (Paglis, Green, and Bauer, 2006 – adapted from Bandura, 1977 – originally a 10 pt. scale)

94. Be an effective contributor to a research project?
95. Successfully conduct a research project by yourself?
96. Submit a paper to a convention that will be accepted?
97. Be an effective co-author on a paper?
98. Submit a paper to a journal that will be accepted?
99. Effectively conduct data analyses?
100. Identify and pose research questions that are worthy of study?
101. Complete a literature review and summarize the important issues?
102. Design and conduct effective research?
103. Be an effective and successful scholar?

Instructions: Think of the faculty member you referenced throughout this survey. Is that person a/an:

104.   (1) Male or (2) Female

105. (1) Euroamerican   (2) Latino/a   (3) Asian American (4) African American

(5) Other Foreign Born Citizen(6) Other

106.   (1) Assistant Professor (2) Associate Professor (3) Full Professor (4) Don't know

107. Quality Instructions: Finally, please indicate the degree to which you believe the relationship you have referenced with a faculty member throughout this survey is….

Functional	1	2	3	4	5	Dysfunctional
Unsatisfying	1	2	3	4	5	Satisfying
Effective	1	2	3	4	5	Ineffective
Unhelpful	1	2	3	4	5	Helpful
Pleasant	1	2	3	4	5	Unpleasant

As a mentor, I can offer you the following:

- To provide you with assurances of my commitment to work together during your doctoral career. If there comes a time when I believe that you are going down a path that I am not comfortable with, I will share that with you as well.

- To respect your time, what you share with me in confidence, and your expectations of this relationship.

- To be honest with you about your degree progress and my assessment of your development as a scholar.

- To help you identify your career strengths and provide you with the career support you need at this point in your career.

- To provide a listening ear and an open door as you navigate the waters of the doctoral program.

As a protégé, I can offer you the following:

- To be committed to working together and to seriously considering your suggestions regarding my work and my progress in the doctoral program.

- To respect your time and to regularly acknowledge the fact that I am not the only, or the most important, student that you work with.

- To be honest with you in my communication about the doctoral process. I will recognize when the information my peers share with me is helpful and when it simply creates anxiety. If I have concerns about the truth regarding a particular topic, I'll ask you, rather than allowing myself to become uneasy as a result of what I hear from my peers.

- To tell you if I feel like I am not receiving the career or emotional support that I think I need to continue developing as a scholar.

Together, we agree to:

(Given that each mentoring dyad will have unique needs as well, this space provides a place to enumerate those specific commitments.)

Mentor Signature:_____

Protégé Signature:_____

VITA

Name: Sarah Elizabeth Cavendish

Date of Birth: 05/22/1978

Birthplace: Charleston, WV

Education

2004-2007	Doctoral degree student and candidate Department of Communication The Graduate School at the University of Kentucky Lexington, KY
2002	M. A., Communication Studies Marshall University Huntington, WV
2000	B. A., *Magna Cum Laude,* Communication Studies Marshall University Huntington, WV
1996	High School Diploma, *Valedictorian* Capital High School Charleston, WV

Professional Experience

2005-2007	Teaching Assistant, University of Kentucky Department of Communication, Lexington, KY
2004-2006	Research Assistant, University of Kentucky College of Nursing, Tobacco Policy Research Program, Lexington, KY
2002-2004	Community Outreach Manager, American Lung Association of West Virginia, Charleston, WV
2002-2004	Grassroots Organizer, Coalition for a Tobacco-Free West Virginia, Charleston, WV
2001-2002	Computer Teacher, St. Agnes Grade School, Charleston, WV
2000-2002	Teaching Assistant, Marshall University Department of Communication, Huntington, WV

Scholastic and Professional Honors

Top 4 Student Paper Panel, Instructional Development Division, Southern States Communication Association, 2006

International Communication Association Graduate Teaching Assistant Award, 2006

National Conference on Graduate Student Leadership Delegate, 2005

Catherine G. Cummings Graduate Award in Communication Pedagogy, 2002

United States Golf Association Fellowship Finalist, 2002

Gamma Beta Phi, Marshall University, 2000

Omicron Delta Kappa, Marshall University, 2000

Service

Founding President, University of Kentucky Graduate Student Congress, 2006-2007

Microteach Group Leader, University of Kentucky New Student Orientation, 2006.

Communication Graduate Student Association Co-Chair, 2005-2006

Student Representative to Program Committee, University of Kentucky Graduate Programs in Communication, 2005-2006

Symposium Co-Chair, University of Kentucky Communication Graduate Student Association, 2004-2005

Student Representative to Recruitment Committee, University of Kentucky Graduate Programs in Communication, 2004-2005

Publications

Refereed
Cavendish, S. E. (2006).   Repeal the smoking ban: An analysis of a tobacco industry front group website. *Kentucky Journal of Communication, 26*(2), 127-147.

Cavendish, S. E. (2007). [Review of the book *Parenting and Professing: Balancing Family Work with an Academic Career*]. *Journal of Family Communication, 7*(1), 81-83.

Hahn, E.J., Riker, C.A., Butler, K., **Cavendish, S.,** Lewis, P., Maggio Greathouse, L.W., Nunley, V. (In press). Enforcement of tobacco Purchase, Use, and Possession laws in four Kentucky communities. Policy, Politics, and Nursing Practice.

Published Reports & Manuals
Hahn, E., Robertson, H., **Cavendish, S. E.,** Peiper, N., Nunley, V., Riker, C., & Greathouse-Maggio, L. (2006). *Smoke-free community campaign toolkit with CD-ROM: A joint project between the University of Kentucky College of*

Nursing's Kentucky Center for Smoke-free Policy and the ALERT Regional Prevention Center/Pathways, Inc. Lexington, KY.

Hahn, E. J., Rayens, M. K., Maggio, L. G., Riker, C., Robertson, H., Peiper, N., Pasley, G., Okoli, C., Hedgecock, C., **Cavendish, S. E.,** Lee, S., McGee, J. M., Centers, I., Jones, K. (2006). *Secondhand smoke and smoke-free policy*. Frankfort: Kentucky Cabinet for Health and Family Services.

Hahn, E. J., Rayens, M. K., Riker, C., Greathouse, L., Rasnake, R., Okoli, C., **Cavendish, S. E.,** Wood, T., Gresham, K. (2004). *Kentucky tobacco prevention and cessation status report.* Lexington: University of Kentucky College of Nursing.

Scholarly Presentations

Cavendish, S. E. (April 2007). Subways, service, and students: New York City through the lens of race, class, and gender. Paper presented at the Southern States Communication Association conference, Louisville, KY.

Noar, S. M., Palmgreen, P., Clark., A., **Cavendish, S.,** & Zimmerman, R. S. (2007, April). *Mass media campaigns as a tool for HIV prevention: A review and update.* Poster session presented at the Fifth National Conference of the Rural Center for AIDS/STD Prevention, Bloomington, IN.

Cavendish, S. E. (October 2006). A conversation with seven women: Work and family in the academy through the eyes of graduate students. Paper presented at the Organization for the Study of Communication, Language, and Gender conference, St. Louis, MO.

Cavendish, S. E. (September 2006). *The West Wing:* President as symbol. Paper presented at the Kentucky Communication Association conference, Cumberland Falls, KY.

Noar, S. M., Palmgreen, P., Clark, A., **Cavendish, S. E.,** & Zimmerman, R. S. (August 2006). Design, implementation, and evaluation of HIV/AIDS prevention media campaigns: How are we doing? Poster presented at the XVI International AIDS Conference, Toronto, Canada.

Cavendish, S. E. (April 2006). A situated pedagogy approach to communication across the curriculum. Paper Presented at the Southern States Communication Association conference, Dallas, TX. **Top 4 Student Paper.**

Cavendish, S. E. (April 2006). It's not your mother's interpersonal communication: Goffman and Rogers in cyberspace. Paper Presented at the Southern States Communication Association conference, Dallas, TX.

Lane, D. R. & **Cavendish, S. E.** (April 2006). Communication across the engineering curriculum. Poster Presented at the Southern States Association Pre-Conference on Communication Across the Curriculum, Dallas, TX.

Lu, H. Y., Lustria, M. L. A., Case, D. O., Andrews, J., Kwon, N., **Cavendish, S. E.,** & Floyd, B. R. (2006). What influences international students' disaster-related

information seeking online if a disaster hits their country? Paper presented at 2006 Association for Library and Information Science Education conference, San Antonio, TX.

Cavendish, S. E. (November 2005). Advising. National Conference on Graduate Student Leadership, St. Louis, MO.

Cavendish, S. E., Henning, Z. T., Kimmel, K. M., & Webb., E. (September 2005). Improving graduate education through theory, research, and student empowerment: An integrated approach to solving socialization issues in higher education. Panel presented at the Kentucky Communication Association conference, Natural Bridge, KY.

Cavendish, S. E. (May 2005). Lessons for advocates from a tobacco industry front-group website. Paper presented at the National Conference on Tobacco or Health, Chicago, IL.

Signed: Sarah Elizabeth Cavendish