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EXAMINING THE ROLE OF RESEARCH MENTORING IN PREDICTING
RESEARCH SELF-EFFICACY AMONG MINORITY PROFESSIONAL
PSYCHOLOGY DOCTORAL STUDENTS

by

Donald Edward Knight

A Dissertation
Submitted to the
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Department of Counselor Education and Counseling Psychology
Advisor: Lonnie E. Duncan, Ph.D.

Western Michigan University
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EXAMINING THE ROLE OF RESEARCH MENTORING IN PREDICTING RESEARCH SELF-EFFICACY AMONG MINORITY PROFESSIONAL PSYCHOLOGY DOCTORAL STUDENTS

Donald Edward Knight, Ph.D.

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The involvement of racial/ethnic minority doctoral students in the conduct of psychological research is of significance in meeting the mental health challenges of an increasingly diverse US population. However, scant empirical evidence exists regarding the mentored research experiences and resulting increases or decreases in confidence these students encounter in conducting research. The purpose of this study is to examine predictors [i.e., Research Mentoring Experiences (RME), perceptions of the Research Training Environment (RTE), and Interest in Research (IRQ)] of research self-efficacy among a sample of racial/ethnic minority PhD students in APA-accredited clinical and counseling psychology programs. The study is guided by a social-cognitive conceptual framework. Moreover, this study extends prior research (Hollingsworth & Fassinger, 2002), exploring the role of research mentoring experiences in affecting the research self-efficacies and behaviors of professional psychology doctoral students.

The researcher utilizes a cross-sectional, correlation design in examining the research mentoring experiences and research self-efficacies of racial/ethnic minority doctoral students. Online survey methodology serves as the process by which data is

collected, managed, and initially stored. Participants include 106 individuals (74 females, 31 males, and 1 transgendered person), who self-identify as Black or African American, Asian American, Hispanic/Latino, Biracial, or Multiracial.

Findings reveal endorsement of a range of research mentoring experiences by racial and ethnic minority doctoral students. The research mentoring experiences of minority doctoral students are also shown to account for a significant and unique proportion of variance in research self-efficacy above and beyond that explained by RTE and IRQ. Data also suggest the mediating effects of research mentoring experiences on the relationship between students' perceptions of their research training environments and their research self-efficacies. Further, data indicate the primacy of interest in research over research mentoring experiences as a predictor within the linear model predicting research self-efficacy. Finally, results reflect the moderating effect of mentor-mentee minority status congruence on the relationship between research mentoring experiences and research self-efficacy. Implications for the research mentoring of racial/ethnic minority doctoral students are discussed.

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Dedicated to the countless other racial/ethnic minority doctoral students seeking mentorship while sojourning through this process.

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CHAPTER I

INTRODUCTION

A growing concern exists among leaders within professional psychology that there will be a shortage of psychologists contributing to their disciplines' scientific traditions – either through conducting and publishing research or by applying scientific principles to practice. This concern has been substantiated by data suggesting that beyond the doctoral dissertation, few professional psychologists conduct or publish research (Gelso, 1993; Levy, 1962; Mallinckrodt, Gelso, & Royalty, 1990). In fact, the modal number of research publications for doctoral degree recipients post graduation has remained zero (Brems, Johnson, & Galluci, 1996; Watkins, Lopez, Campbell, & Himmell, 1986). This is a particular concern for professional psychology (i.e., in this context, clinical and counseling psychology) as the subfields comprising it seek to maintain their legitimacy as scientific fields of study.

For racial and ethnic minorities, this phenomenon appears to be particularly problematic given their already low participation and graduation rates within graduate psychology programs (Maton, Kohout, Wicherski, Leary, & Vinokurov, 2006). According to data published by the American Psychological Association (APA), the modal percentage of racial and ethnic minorities enrolled in APA-accredited, professional psychology doctoral programs from 2005-2006 was zero (American Psychological Association, Office of Program Consultation and Accreditation, 2008). Of the 366 accredited programs surveyed by the APA, two hundred and eleven

reported racial and ethnic minority student enrollment rates between 0-25 percent, with a majority languishing nearer the lowest end of the continuum. When compared with population rates in the United States (U.S.), which is approximately one-third of the entire population (U.S. Census Bureau, 2008), racial and ethnic minority participation rates at all levels of the psychology pipeline fall short of parity.

Beyond their low numbers within doctoral programs, racial and ethnic minorities face a multitude of issues associated with their retention in doctoral psychology programs. These students often find in predominantly white environments: limited or no faculty mentors reflecting their identities or research interests (Bowman, 1997; Pickren, 2004); scant resources and coursework, preparing them to effectively work with/in communities of color (Bayton, Roberts, & Williams, 1970; Mintz, Bartels, & Rideout, 1995); and feelings of isolation and alienation (Atkinson, Brown, & Casas, 1996). When considered in the larger scope of minority participation, it is not surprising that many students of color are disinterested in conducting research. In fact, there exists a proclivity among racial/ethnic minority doctoral students toward more practice-oriented interests, further limiting the potential for research involvement among this population (Atkinson, 1993; Bowman, 1997).

Despite the numerous barriers facing minority doctoral students, literature suggests that quality faculty mentoring through modeling behavior, relationship building, and advisement can make the difference in minority students' interests in pursuing academic careers and producing research (Atkinson, Neville, & Casas, 1991; Tentoni, 1995). Through this unique process of one-on-one mentoring, myths about the nature of research are demystified, and protégés learn academic-appropriate behavior (Bowman, 1997; Cusanovich & Gilliland, 1991). Moreover, mentoring

relationships allow for the transmission of social and cultural capital between mentors and mentees, developing students professionally, as well as, academically. Most importantly, mentoring is reported to have an efficacious impact on student research skill development (Betz, 1997).

With all the benefits of mentoring on student research behaviors and academic socialization, one is left to ponder who might be best suited to provide this specific relationship to students of color. The literature surrounding the characteristics of mentors suggests two major themes: 1) when available, mentors who are similar to their protégés on some salient identity status (e.g., race/ethnicity, gender, sexual orientation) are preferred (Bowman, 1997; Collins, Kanya, & Tourse, 1997; Evans & Cokley, 2008; Goldstein, 1979; Lark & Croteau, 1998); and 2) when racial/ethnic identity-congruent mentors are not available, effective, knowledgeable, and responsive mentors of dissimilar identity backgrounds suffice in providing protégés the necessary benefits accorded the mentoring relationship (Atkinson, Brown, & Casas, 1996; Atkinson, Neville & Casas, 1991; Dohm & Cummings, 2002). Though the former is ideal, unfortunately for most minority doctoral students the default mentoring dyad typically reflects the latter. This is largely due to the limited numbers of racial and ethnic minority faculty within doctoral psychology training programs, as has been well documented within the literature (Atkinson, Brown & Casas, 1996; Atkinson, Neville & Casas, 1991; Evans & Cokley, 2008; Garcia, 1980; Pope-Davis, Stone, & Nielson, 1997).

Beyond the mentoring relationship, research skill development and research behaviors have been demonstrated to take shape within what Gelso (1979, 1997) termed the research training environment (RTE). Gelso's construction of the research training environment encompasses the sum total of all instructional and interpersonal

aspects of the graduate training environment (including the graduate training program and the entire institution), which influence attitudes toward research and science production. To provide further detail as to the research-enhancing (and retarding) ingredients comprising the research training environment, Gelso (1993) suggested that: a) faculty model appropriate scientific behavior and attitudes; b) scientific activity is positively reinforced in the environment, both formally and informally; c) students are involved in research early in their training and in a minimally threatening way; d) it is emphasized during training that all research studies are limited and flawed in one way or another; e) varied approaches to research are taught and valued; f) students are shown how science and practice can be wedded; g) the training environment emphasizes that science can be a partly social experience; h) students are taught to look inward for research questions and ideas when they are developmentally ready for this responsibility; and i) students are instructed in statistics. The research training environment has been empirically tested and factor analyzed through the development of its associated scale, the Research Training Environment Scale – Revised (RTES-R; Kahn & Gelso, 1997).

Despite numerous critiques of the RTES-R – calling for the inclusion of research mentoring in the model (Betz, 1997; Mallinckrodt, 1997) – Gelso has yet to formally articulate an emphasis on this component. Nonetheless, he has acknowledged the significance research mentoring plays in the development of scientifically-minded doctoral students. This recognition of the influences of research mentoring is evidenced in the first two ingredients of the model: faculty modeling of appropriate scientific behavior and attitudes and the formal and informal positive reinforcement of scientific activity. Though limited, these aspects of the research training environment reflect key components of the research mentoring relationship,

including the modeling of scientific behavior and the giving of feedback. As mentioned above, these aspects of the mentoring relationship augment students' feelings of efficacy around research and ultimately influence them to move toward research rather than away from it.

According to social-cognitive theory, choice behaviors result from one's beliefs about their capabilities to accomplish certain tasks (Bandura, 1986). As such, social-cognitive theory would hold that one's confidence in performing research, their research self-efficacy, would lead to increased and more productive research behaviors. In following this reasoning, researchers within professional psychology have investigated this contention across a spectrum of factors, in order to better understand the impact of one's beliefs, outcome expectations, and their resulting research behavior (Bieschke , 2006; Gelso, Mallinckrodt, & Brust,1996; Hollingsworth & Fassinger, 2002; Phillips & Russell, 1994; West, Kahn, & Nauta, 2007; Love, Bahner, Jones, & Nilsson, 2007). Beyond self-efficacy's role in mediating the factors related to research outcomes, other factors are likely to influence the outcome of research self-efficacy.

In their study, Hollingsworth and Fassinger (2002) examined the role of research mentoring experiences on the research training of counseling psychology doctoral students. Assessing the mediating role of research self-efficacy, they found that both research mentoring experiences and research self-efficacy mediated the impact of the research training environment on research productivity. In other words, students' research self-efficacies and mentoring experiences perceptions of their research training environment were influenced by their in such a way that resulted in an increase in their research productivity. Empirically, these results provide promise for similar projects with minority doctoral students, as their involvement and interest

in research has been shown to be minimal.

Statement of the Problem

While mentoring literature within psychology continues to mount, little empirical knowledge is yet available concerning the role mentoring plays in the development of research self-efficacy, specifically among minority doctoral psychology students. Much of the existing body of literature within professional psychology consists of anecdotal accounts of students' and training directors' experiences with mentoring, in addition to, exemplars of mentoring done well. Additionally, as is evidenced in the work Hollingsworth and Fassinger (2002) – a similar research project which had not focused specifically on the experiences of minority students – many of the factors under investigation are not specifically focused around the minority doctoral student experience. Notwithstanding, the current research study seeks to extend the work of Hollingsworth and Fassinger (2002) and others investigating the impact of research mentoring experiences on research-oriented behavior and self-efficacy.

Statement of Purpose

The purpose of the current study is to delineate the role of research mentoring experiences in predicting research self-efficacy among minority, professional psychology doctoral students. By examining the role research mentoring plays in predicting research self-efficacy in minority doctoral students, training faculty, research institutions, and other stakeholders might better understand means of increasing this population's confidence in their research abilities. Additionally, by ascertaining the complex interplays among minority doctoral students, their mentors,

and their institutions, better approaches to intervening with this population in effectuating research behaviors can be envisioned.

Significance of the Study

Since racial and ethnic minorities are more likely than Whites to research matters associated with their minority statuses (Bayton, Roberts, & Williams, 1970; Hill, Castillo, Ngu, & Pepion, 1999), their involvement in the research enterprise is as significant as their White counterparts given the increasing societal need for more multiculturally-informed mental health services and research. As forecasted by U.S. Census Bureau projections, by the year 2050 roughly 54% of the U.S. population will be members of racial and ethnic minority communities (U.S. Census Bureau, 2008). If not viewed as a critical component of graduate psychology training, limited minority-led and minority-focused research may threaten professional psychology's multicultural scholarship and its viability in providing culturally-relevant mental health services to this increasing segment of the population.

Conceptual Framework

In order to better understand the phenomenon of research self-efficacy as predicted by research mentoring experiences among racial and ethnic minorities, a social cognitive theoretical framework was adapted for use in this investigation. From a social cognitive perspective, it is believed that people learn and acquire knowledge by observing others in social settings. In accordance with this premise, Bandura posited in his triadic-reciprocal model of causality that essentially: personal attributes influence and are impacted by one's environment and their own behavior; the

environment influences and is influenced by personal attributes and overt behavior; and finally, overt behavior influences and is influenced by personal attributes and the environment (Lent, Brown & Hackett, 2002). According to this theoretical frame, racial and ethnic minority students are thus influencers of – as much as they are influenced by – their research training environments and their own research-oriented behaviors. Implicit within the research training environment are mentoring relationships with faculty models, who demonstrate overt academic behaviors, which in turn are learned by students. Strengthening of students' learning is accomplished by faculty and training environments' reinforcement or punishment of choice research behaviors, and either students move toward or avoid research-oriented activities. This theoretical framework is evident throughout the design of this study. The research questions, design and data analysis all reflect this inclination.

Assumptions

The current study is predicated on a host of assumptions. One such assumption is focused around the nature of the research mentoring relationship. It is assumed that research mentoring serves as the proper channel through which minority doctoral students ought to receive validation of their research abilities and behaviors. Additionally, it is assumed that through assessing their experiences within the doctoral research training environment and their efficacy beliefs that minority students will be influenced to consider research rather than value it apart from their interests and proclivities toward more practitioner-oriented aims. Consequently, the study is predicated on the belief that increased efficacy around minorities' involvement within research will bring about a change in their research involvement

and ideally their subsequent career aspirations.

Research Questions

The purpose of this study is to ascertain the role of research mentoring experiences in the prediction of research self-efficacy within a sample of minority doctoral students in clinical and counseling psychology. As such the research questions guiding this investigation are as follows:

1. What are the research mentoring experiences of minority, professional psychology doctoral students?
2. Do research mentoring experiences predict research self-efficacy among minority doctoral students in professional psychology above and beyond that which is predicted by the research training environment and interest in research?
3. Do research mentoring experiences mediate the relationship between the research training environment and minority doctoral students' research self-efficacies?
4. What is the optimal combination of predictor variables (i.e., research training environment, interest in research, and research mentoring experiences) in accounting for the most variance in research self-efficacy?
5. Is the relationship between research mentoring experiences and research self-efficacy moderated by congruence in mentor-mentee minority status?

Definition of Terms

Professional psychology, within this research context, refers to the counseling and clinical subdisciplines of psychology. Traditionally, the term has also

encompassed school psychology as a subfield; however, for the purposes of the current study, the focus will remain on the two aforementioned subdisciplines.

Racial and ethnic minorities are individuals belonging to a category of people whose groups have been marginalized and/or oppressed within the U.S.

Research Mentoring Experiences refer to the extent to which students' faculty mentors attend to several research task functions within the research relationship.

Research Self-Efficacy refers to the confidence in one's ability to successfully complete a task associated with the process of performing research.

Research Training Environment has been conceptualized as the sum total of all the instructional and interpersonal factors involved in graduate training programs and institutions reflecting attitudes toward research and science.

CHAPTER II

LITERATURE REVIEW

Professional psychology graduate students and psychologists are reported to publish little research post graduation (Gelso, 1993; Levy, 1962; Mallinckrodt, Gelso, & Royalty, 1990). Of particular concern is the low involvement of minorities in research and research careers given the changing demographics within the United States and the need for diverse solutions to increasingly complex mental health challenges. Accordingly, the aim of the current research project is to delineate the role of research mentoring experiences in predicting research self-efficacy among minority, professional psychology doctoral students. By examining the role mentoring plays in predicting research self-efficacy of minority doctoral students, a better understanding of the type and number of research experiences had by this population may be reached. Additionally, by ascertaining the complex interplays among minority doctoral students, their mentors, and their institutions, better approaches to intervening with this population in effectuating research behaviors and increasing their research self-efficacies can be envisioned.

In this chapter, the extant literature concerning the research self-efficacies of racial and ethnic minorities is reviewed. Select factors contributing to research self-efficacy are raised in relief, in order to better understand minority students' engagement or lack thereof in the production of research. The fundamental purpose of this chapter is to provide credence, through the existing body of literature, for undertaking the current investigation. The chapter begins with a discussion of social cognitive theory, the theoretical frame undergirding the present study. The remainder

of the chapter consists of four major sections, each addressing the variables of interest (i.e., research self-efficacy, research mentoring, research training environment, and interest in research) within the study. As there is limited empirical research on minority doctoral students' research behaviors, the chapter's coverage of the topic will focus broadly on the experiences of students in general, tempered with what is known about the experiences of minorities within doctoral psychology training. The chapter concludes with a recapitulation of the literature covered and a discussion of the gaps within the body of literature.

Social Cognitive Theory

As the foundation for the current investigation, social cognitive theory provides a philosophical framework for understanding how minority students' research self-efficacies can be predicted by their research mentoring experiences, perceptions of their research training environments, and interests in research. The basic premise underlying social cognitive theory is that, as Bandura (1986) posited, human functioning is adaptive and organic in nature and can range in its possibilities given one's capacity for observational and experiential learning. He further suggested that while there are myriad possibilities associated with one's ability to observe and directly experience their external world, one's potential has biological limitations (Bandura, 1986). In this view, behavior is a complex function of neurophysiological capacities and environmental determinants. Stated differently, human functioning is reflected best by multiple reciprocal relationships that exist among the person (i.e., internal factors), their environment, and their behavior. Bandura termed these symbiotic interactions among the three factors influencing one's determinism, the

triadic model of reciprocity.

Underlying social cognitive theory is a set of assumptions driving the conceptualization of human action and events. These assumptions reflect both dimensions of social and cognitive functioning that rely heavily on an individual's capacity to process information and to engage in certain actions/behaviors. Implicit within the theory is the reliance on a set of capabilities required for learning and action to take place. Cognitive in nature, these capabilities reflect an assumption of mental functioning that is necessarily developmental and fluid. Bandura (1986) indicated that they included humans' capacities for symbolism, forethought, vicarious learning, self-regulation, and self-reflection.

Symbolism. A fundamental capability of human beings is their use of symbolism to reflect images. It is through symbolic representation that human beings can order their worlds within their minds and establish alternative courses of action. Without symbolism individuals are unable to create and to sustain mental pictures of objects in their external environments for later use or reflection.

Forethought. The ability of humans to think ahead and to plan demonstrates their adaptive capabilities for forethought. Forethought affords humans the option to envision different scenarios for future actions and to consider consequences or outcomes of these scenarios. Forethought is critical in relation to research self-efficacy and its various associated outcomes, as it is important for minority doctoral psychology students to see themselves carrying out tasks associated with research.

Vicarious Learning. One's capability to learn vicariously from others is a basic human function implicit in understanding social cognitive theory. Through the observation of others, humans demonstrate the capacity to learn without experiencing the pitfalls and countless errors of attempting a new behavior on their own. Vicarious

learning is a particularly useful mode of knowledge acquisition and can serve a critical role in the development of minority doctoral students' research self-efficacies.

Self-Regulation. The capacity to self-regulate is an essential component of human behavior. Human behavior is made more accurate and consistent over time with one's self-regulatory mechanisms. Self-regulatory functions assist in establishing a plan of action and executing it. It is through self-regulation that individuals not only monitor their actions but also redirect their behaviors toward improvement. In this manner, target behaviors can be enhanced through attunement to nuanced aspects of behavior.

Self-Reflection. Bandura (1986) suggested that one of the most critical human capabilities is that of self-reflection. Self-reflection refers to the human capacity for examination of one's thoughts, judgments, and actions. It is this metacognitive function that enables humans to redirect and make adjustments upon evaluating their pursuits and goals (Bandura, 2006). Thus, one's ability to learn, change, and subsequently grow is hinged upon their capacity for self-reflection.

Self-Efficacy Theory

An outgrowth of social cognitive theory, self-efficacy theory has enjoyed a long history as a psychological construct and has roots embedded within philosophical traditions (Grecas, 1989). Self-efficacy has had longstanding associations with such philosophical constructs as determinism, free will, causality, and a host of other human agency ideologies. Since its operational beginnings, self-efficacy has been employed as a construct to explain work performance, career decision making, and athletic performance, to name a few. Perceived self-efficacy, as

Bandura (1986) posited, is “people’s judgments of their capabilities to organize and execute courses of action required to attain designated types of performances” (p. 391). The emphasis here is less on the skills one might possess per se and more so, on the person’s beliefs about what can be accomplished with the skills they have. In this regard, self-efficacy is delineated from other self-referent constructs, such as self-esteem and self-concept, and involves the generative capabilities of an individual (Bandura, 1986, 1997).

Sources of information about one’s self-efficacy, as Bandura (1986, 1997) suggested, come from mastery experiences or displays of aptitude, vicarious experiences, verbal persuasion, and physiological and affective states. Mastery experiences, those in which an individual can demonstrate success at carrying out a given task, is the most robust source of self-efficacy information, as it provides a direct and genuine estimation of one’s capabilities. Vicarious experiences refer to those behaviors modeled by others through which individuals assess their own capabilities. Bandura’s conception of verbal persuasion involves the supportive, realistic reinforcement from others offered about one’s capabilities in a task area. Finally, one’s physiological and affective states provide clues to levels of stress tolerance, health functioning, and mood, which further serve as indicators of either success or failure in a given behavioral domain. All sources of information about one’s self-efficacy can be misinterpreted or misconstrued in the valuation of their capabilities. Therefore, it is essential for individuals to be aware of the source type and their abilities to critically assess their capabilities in task domains.

Self-efficacy beliefs are said to influence behavior in ways that either increase or limit potential. Through relatively high estimations of one’s capabilities, potential is increased as individuals engage in activities that are growth promoting or that

strengthen one's competency in a particular area (Bandura, 1986). The opposite holds true as well, that as one's estimation of their abilities is low – despite their actual performance level – they are more likely to shun the activity in question and produce less competence over time (Bandura, 1986). Consequently, self-efficacy or confidence in one's skills and/or talents to effectuate an outcome can either produce increased behavior or limit it. Accordingly, if choice behavior is augmented or lessened, then self-efficacy is similarly influenced. This reciprocal relationship between behavior and internal personal factors (i.e., self-efficacy) underscores the fundamental association between how one feels about their abilities and their outcome behaviors.

Self-efficacy is particularly useful as a construct in discussing research abilities and resultant behaviors of doctoral students, as conducting research involves a particular skill set that necessitates one's belief in their ability. Professional psychology has made considerable use of the self-efficacy construct within the empirical literature. Self-efficacy has been associated with constructs including: career development (Betz & Hackett, 1981), sports performance (Law & Hall, 2009), imagery rehearsal (Suinn, 1996), and graduate trainee development (Hess, Knox & Hill, 2006; Shinke, da Costa & Andrews, 2001), among others. Under the current investigation, self-efficacy is applied to the furtherance of knowledge related to research skill development and the conduct of research.

Research Self-Efficacy

Capitalizing on the construct of self-efficacy, researchers and academicians within professional psychology have utilized it to explain research skill development and research approach behaviors. In this section, research self-efficacy research is

highlighted in an effort to better understand the research behaviors of doctoral students in clinical and counseling psychology. The section begins with an exploration of the ways research self-efficacy is measured, including factors that make up the construct. It is followed by a critical review of the research regarding its utility in impacting research behaviors. Finally, the section is concluded with a summary of the research data yet available on the research self-efficacy of students.

Measuring Research Self-Efficacy

Research self-efficacy, as it has been broadly defined, refers to one's judgments about their ability to perform certain research tasks (Bieschke, Bishop, & Garcia, 1996). Adapting the principles of broad self-efficacy, research self-efficacy has been characterized by various researchers and has been operationalized in equally disparate ways. To date, there are three prominent measures of research self-efficacy. In existence are: the Self-Efficacy in Research Measure (SERM; Phillips and Russell, 1994), the Research Self-Efficacy Scale (RSES; Bieschke et al., 1996), and the Research Attitudes Measure (RAM; O'Brien, Malone, Schmidt, & Lucas, 1998). Each measure has its unique psychometric strengths and challenges; all attempt to reflect the research self-efficacy construct. Below is a brief summary of each.

Self-Efficacy in Research Measure (SERM). The SERM was developed by Phillips and Russell (1994) to assess doctoral students' research self-efficacy. Owing part of its genesis to the Survey of Research Training (SORT; Royalty & Reising, 1986), the 33-item SERM is a self-report measure that has sound psychometric properties. The SERM has been reported to evince total score reliability estimates at a Chronbach's alpha of .96 (Forester, Kahn & Hesson-McInnis, 2004; Phillips & Russell, 1994). Its total score validity estimate has been substantiated by findings that

reveal higher total SERM scores for students further along in their programs (i.e., Year in Program) and by correlations with research productivity measures (Forester, Kahn & Hesson-McInnis, 2004; Phillips & Russell, 1994).

Research Self-Efficacy Scale (RSES). Developed by Greeley et al. (1989) and later revised by Bieschke et al. (1996), the RSES is a 51-item instrument, devised to assess perceptions of performance capabilities regarding research behaviors. Initially a 53-item measure, the RSES was revised by Bieschke and her colleagues to reflect factor analytic data, which suggested two original items did not load onto the measure's four component factors. Those four factors reflected one's confidence in their conceptualization, implementation, early tasks, and presenting the results abilities. Reported internal consistency data (i.e., Cronbach's alpha between .96 and .98) suggest a high correlation among items on the RSES, indicating their similarity in measuring research self-efficacy beliefs.

Research Attitudes Measure (RAM). The RAM (O'Brien, Malone, Schmidt, & Lucas, 1998) is a 23-item measure, which assesses one's degree of confidence in performing specified research tasks. Responses to the measure are on a 5-point Likert-type scale, ranging from 0 (no confidence) to 4 (absolute confidence). Chronbach's alpha for the RAM has been reported at .93 (O'Brien et al., 1998). Items on the RAM reflect a range of research tasks, on which respondents must indicate their level of self-efficacy. The measure was delineated into six discrete domains of research self-efficacy, including: discipline and intrinsic motivation, analytical skills, preliminary conceptualization skills, writing skills, application of ethics and procedures, and contribution and utilization of resources.

Factor analytic research by Forester, et. al. (2004), assessing the domains across the three research self-efficacy instruments, provides information regarding

core aspects within and amongst the three instruments. Primarily, the researchers were interested in assessing the fit of the various domains within each measure.

Secondarily, they set out to assess aspects across the three constructs that were both similar and dissimilar in nature. It was anticipated that each of the items would load on one of their corresponding measure's four or six (i.e., in the RAM's case) first-order factors and that each of the first-order factors would load onto their second-order factor (i.e., some measure of research self-efficacy). In so doing, each instrument would provide sound measurement of the construct of interest and provide greater validity to the overall components of research self-efficacy. Results from the study suggest that the first-order factor loadings demonstrated poor fit among the various measures of research self-efficacy implemented within the study.

Notwithstanding, the combined three measures' factor loadings revealed four domains comprising the underlying research self-efficacy construct, which involved: data analysis self-efficacy, research integration self-efficacy, data collection self-efficacy, and technical writing self-efficacy. This factor structure of self-efficacy, as assessed by the three empirically-supported measures of the construct suggests some degree of congruence among researchers as to the essential areas of research in which any investigator must demonstrate confidence.

Predicting Research Self-Efficacy

Research regarding research self-efficacy has been mounting over the years, with numerous scholars investigating factors that support the research confidence of scientifically-minded psychologists. Social cognitive theory suggests that internal factors, such as self-efficacy, impact and are impacted by environmental and behavioral factors. As such, a number of factors have been shown to relate to, to

mediate and be mediated by, and to predict and to be predicted by research self-efficacy. Among them have been individual's early research involvement (Love et al., 2007), scholarly productivity (Brown, Lent, Ryan, & McPartland, 1996; Hollingsworth & Fassinger, 2002; Kahn, 2001; Kahn & Scott, 1997; Royalty & Magoon, 1985), year in program (Bieschke et al., 1996; Bishop & Bieschke, 1998; Kahn & Scott, 1997), learning style (West, Kahn, & Nauta, 2007), and achievement goals (Deemer, 2010), to name a few. For the purposes of the current investigation, the relationships between research self-efficacy and interest in research, research mentoring experiences, and perceptions of the research training environment are examined to better understand the research experiences of racial/ethnic minority professional psychology doctoral students.

Interest in Research. Interest in research has been demonstrated to have a strong correlation with research self-efficacy beliefs, evincing direct (Bishop & Bieschke, 1998; Kahn & Scott, 1997; West et al., 2007) and indirect (Kahn, 2001) effects between the two. Research suggests that students' interests in research are in part, influenced by their confidence in conducting research; additionally and equally important to their interest development are their outcome expectations of conducting research (Bieschke et al., 1995; Bishop & Bieschke, 1998). While not a current area of focus within this investigation, research outcome expectations of racial/ethnic minority doctoral students may prove an invaluable area for future research emphasis. Such a line of research might draw attention to students' expectations of success or failure in doing research or the viability of the research to bring about change within their communities of origin.

Research Mentoring Experiences. Professional psychology doctoral students' research mentoring experiences have been shown to influence their research

self-efficacies (Hollingsworth & Fassinger, 2002; Rawls, 2008). Hollingsworth and Fassinger (2002) found a positive association between the research self-efficacies and mentoring experiences of counseling psychology doctoral students; and Rawls (2008) reported an inverse relationship between the research self-efficacies and research mentoring experiences of counselor education doctoral students. Hollingsworth and Fassinger's (2002) findings also suggested the mediating role of research mentoring experiences in the relationship between the research training environment and scholarly productivity. While research mentoring experiences exert influence on research self-efficacy, satisfaction with one's mentor relationship (Kahn, 2001) appears not to predict research self-efficacy among a sample of counseling psychology doctoral students.

Research Training Environment. Perceptions of the research training environment have been implicated repeatedly in studies examining its influence on research self-efficacy (Gelso, Mallincrodt, & Judge, 1996; Phillips & Russell, 1994) and research productivity. With its robust nature as a construct, the research training environment has been shown to account for a considerable amount of variance in the research self-efficacies of professional psychology graduate students.

Previous research suggests that there are no major differences between White and non-White students' research self-efficacy (Phillips & Russell, 1994). However, as Phillips and Russell (1994) found, there are between group differences in their research productivity – a variable often mediated and/or predicted by research self-efficacy and perceptions of the research training environment. Of note was the skew in the demographics of racial/ethnic group differences, as minority participants were more concentrated in their earlier years than in the more advanced. Moreover, worth further inquiry was the finding of no significant difference between minority and non-

minority self-efficacy reports despite the significantly higher report of non-minority research productivity.

Mentoring

In recent years, research on mentoring has evinced a proliferation of new information concerning how graduate students in psychology acquire pertinent skills, assimilate knowledge, and develop professionally. The zeitgeist surrounding the exponential growth of this body of research is owed in part to concerns about professional psychology's legacy and legitimacy as a science and of its integration of that science into clinical practice (Gelso, 2006; Hollingsworth & Fassinger, 2002). Academicians, clinical researchers and the profession as a whole are all concerned about how clinical skills and scientific knowledge are being transmitted and sustained by psychologists-in-training. As such, this section of the literature review highlights the use of mentoring, as a means of transmitting skills and knowledge and as a mechanism for increased research self-efficacy among minority doctoral students. The section begins with a brief historical perspective on the nature and definitional concerns surrounding mentoring, follows with a treatment of the research literature on mentoring and research mentoring, and concludes with a discussion of the limitations of the research mentoring literature.

Mentoring Definition

Among the community of scholars contributing to the body of literature surrounding mentoring, little agreement may be reached regarding the definition and nature of mentoring (Bogat & Redner, 1985; Jacobi, 1991; Wright, 1992). The disparate conceptualizations of what mentoring is can arguably be attributed to the

various functions and purposes it serves. Research on mentoring spans across numerous sectors of society and encompasses as many niche functions, from youth mentoring and student mentoring to the mentoring that occurs in the workplace (Eby et al., 2007; Jacobi, 1991). Additionally, mentoring's nature, whether formal or informal, adds complexity to how it is defined. These, among other factors, make it a challenge to operationalize the construct of mentoring and to find convergence across domains of study.

The earliest research concerning mentoring grew out of the adult development and workplace management literature (Kram, 1983; Kram, 1985; Levinson, et al., 1978; Missirian, 1982; & Phillips, 1977). Researchers in these areas sought to establish how knowledge, skills, and confidence in a chosen industry were transmitted from more senior to junior-level individuals. Some of the earliest of these seminal works around mentoring were often stratified along gender lines, a phenomenon that has implications for how mentoring has developed over the years.

Most prominent among the earlier mentoring research was the work of Levinson and his colleagues (1978), in exploring men's adult development and workplace management. Their work emphasized the developmental experiences and tasks of men, as they transitioned from younger to older adulthood. In characterizing the phenomenon of mentoring, Levinson and his colleagues highlighted the complexity inherent in attempting to encapsulate the various roles, functions, and purposes of mentoring. They had the following to say about what mentoring is:

“The mentor relationship is one of the most complex, and developmentally important, a man can have in early adulthood. The mentor is ordinarily several years older, a person of greater experience and seniority in the world the young man is entering. No word currently in use is adequate to convey the nature of the relationship we have in mind here. Words such as “counselor” or “guru” suggest the more subtle meanings, but they have other connotations that would be misleading. The term

mentor is generally used in a much narrower sense, to mean teacher, adviser, or sponsor. As we use the term, it means all these things, and more.” (p. 97)

The authors further suggested that mentoring is not characterized by the formal roles assumed in the relationship, but more so by the nature and the utility of the relationship. By this token, Levinson and his colleagues (1978) placed emphasis on the functionality and purpose of the mentoring relationship, and less on the roles played in it. In so doing, their work also raised more questions than it provided answers. For instance, it is unclear as to how the mentoring function can be served without an appreciation for the roles that mentors and protégés play in the relationship. Having delineated roles, the mentor and protégé better understand how they are to engage the process and the limits of their engagements. Similarly, given the multiplicity of mentor roles highlighted in the above passage, it is unclear as to what functions can or should be served by the mentoring process. Notwithstanding, the above conceptualization of the mentoring relationship provides foreshadowing for contemporary mentoring research, as the limited nature of mentoring and its relationship is evidenced in Levinson and his colleagues’ work.

Levinson and his colleague’s work was widespread, in book form, and regarded as seminal in its treatment of adult developmental issues and the utility of mentoring. However, it lacked the operational clarity necessary to capture the full nature of mentoring, as it did not address the nuances of women or other marginalized groups’ experiences of the phenomenon. No specific information in their research is suggested as to the cultural or racial perspectives of the participants involved in their study. As such, it is presumed that the mentoring relationship could only be framed from a predominantly White and male perspective.

Around the time of the publication of *The Seasons of A Man’s Life*, Phillips

(1977) and Missirian (1982) sought to further understand the construct through their respective investigations into the mentoring of women in the workplace. Phillips' research was limited in its reach, as it was her doctoral dissertation, which was never published; and, though published in book form, Missirian's work did not enjoy the same widespread reception of Levinson and his colleagues' research. Nonetheless, both Phillips and Missirian's works provided a window into women's experiences within the workplace and their need for mentoring in order to ascend to higher statuses within business.

Kram's (1985) work on mentoring pulled together disparate pieces of research on both men and women and synthesized them into a more cogent discussion. Her research brought together the experiences of men and women in management research and established a more comprehensive view of the phenomenon of mentoring. In so doing, she laid the foundation for understanding the major functions of the mentoring relationship, which reflected both men and women's experiences within the world of business management and beyond.

Other definitions and conceptualizations of what mentoring is have since grown out of this tradition of research. In her extensive review of the mentoring literature, Jacobi (1991) reported the existence of fifteen different definitions associated with the construct. Below is a sample of more recent conceptualizations of the mentor(ing) phenomenon.

Adapting Bell's (2000) definition, Taylor and Neimeyer (2009) conceptualized a mentor as "someone who helps someone learn something that he or she would have learned less well, more slowly, or not at all if left alone."

Williams-Nickelson (2009) suggested the following definition of mentoring in promoting her model for women mentoring other women within psychology.

Mentoring is the process by which integration occurs in a developmentally appropriate timeframe. It is a type of interpersonal relationship that changes over time and includes the intentional process of nurturing, support, protection, guidance, instruction, and challenge within mutually agreed upon and ethical parameters that include the integration of personal and professional aspects of an individual's life. (p. 286)

Taken together with previous definitions and conceptualizations, it is evident that there remains divergence within the literature regarding how mentoring is operationalized.

Notwithstanding, there exist points of convergence across the different definitions of mentoring. Jacobi (1991) indicated that there were five essential themes consistent among the various definitions of mentoring she reviewed. They included the following propositions:

- That mentoring is by nature a helping relationship, mobilized in an effort toward protégé goal achievement.
- That all mentoring encompasses some psychosocial, professional development, and modeling component.
- That the mentoring relationship is one of mutual benefit to both the protégé and his/her mentor.
- That there is an interpersonal dynamic to the mentoring relationship.
- That mentors, with respect to their protégés, are more knowledgeable, skilled, or experienced in a particular domain.

The aforementioned points of convergence are reflected within the various functions mentoring serves. As such, mentoring functions provide a parsimonious base for capturing the elemental aspects of the mentor-protégé relationship.

Mentoring Functions

Mentoring functions are those that provide the mechanisms for development in the mentor-protégé relationship. It is through these functions of the mentoring relationship that the transmission of knowledge, skills, and confidence in a chosen domain can occur. Similar to the roles of mentors and protégés, mentoring functions are important in establishing clearer expectations for the relationship and distinguishing mentoring from other types of working relationships (Kram, 1985).

Mentoring functions were first operationalized into discrete construct domains by Kram (1985). She identified two major domains of mentoring functions: career functions and psychosocial functions, which highlight unique yet interdependent aspects of the mentoring relationship. Whereas career functions serve to improve or augment one's advancement in their profession, psychosocial functions seek to advance one's sense of proficiency, identity, and value in their professional role (Kram, 1985). A well-struck balance between both functions of the mentoring relationship is indicative of a strong interpersonal bond and increased closeness between a mentor and their protégé. Mentoring that lacks psychosocial functions in the relationship is often regarded as technical in nature and often limited in its connectivity and intimacy – qualities routinely associated with the exclusivity of the mentoring relationship (Kram, 1985).

Beyond mentoring functions, research suggests the presence of varying levels and degrees of mentors (Clawson, 1980; Phillips, 1982; Shapiro, et al., 1978). In Phillips' (1982) work, mentors were delineated on primary and secondary levels. Primary mentors incorporated both aspects of career and psychosocial function into the mentor-protégé relationship, while secondary mentors provided only career functions. Shapiro and his colleagues (1978) theorized that mentoring functions

varied on a continuum of relationship types, ranging from mentoring to peer (i.e., with sponsor and guide types respectively in between) relationships. Such relationships were said to differ in their exclusivity, emotionality, and hierarchical natures. By comparison, the mentor relationship was deemed as most exclusive and emotional and as one that reflected a power differential. Reflecting a combination and extension of the abovementioned perspectives, Clawson (1980) posited that mentoring functions were indicated by the areas of life impacted by the relationship (i.e., between boss and subordinate) and the individuals' levels of commitment to the relationship. As such, quality of life and commitment to the relationship suggest the mentoring functions of the boss-subordinate relationships in his study. Each of these explanations for the utility and nature of mentoring functions in developmental relationships suggest ways of conceptualizing the purpose(s) of mentoring.

Mentoring Dysfunction

While an overwhelming majority of the literature on mentoring highlights its benefits and functions served, there is a growing body of research, which discusses the challenges inherent in the mentoring relationship (Feldman, 1999; Scandura, 1998). From problematic protégés to mentors threatened by protégé successes, there are a host of challenges impinging upon the success of mentoring relationships. Below are considerations that impact such relationships between mentors and their protégés.

Mismatching of Mentors and Protégés. While mentoring relationships are typically based in shared interest(s) or commonality (i.e., via career, lifestyle or other avenues), some mentoring relationships reflect poor matching between the mentor and the protégé (Eby, McManus, Simon & Russell, 2000; Ragins, 1997). This may be the

case for several reasons; among them, the literature suggests differences in personal style (Allen, Johnson, Xu, Biga, Rodopman, & Ottinot, 2009; Feldman, 1999), communication style, research interests, and work behavior, to name a few. Despite reasoning, it is critical to recognize the impact of mentor-protégé pairings on mentoring outcomes, as the incongruence between them may contribute to dissatisfaction and lack of goal attainment.

Mentor Dysfunction. While individuals serving in roles as mentors may possess domain-specific knowledge, skills, and abilities that exceed those of their protégés, they may well lack the requisite knowledge, skill, and ability to mentor (Johnson & Huwe, 2002). The opposite could hold true as well – an individual possessing the wherewithal to mentor may be deficient in their domain area. Mentors can also act in ways that involve taking credit for protégé work, misusing authority, and engaging in actions that reflect jealous, harassing, and/or interpersonally inappropriate behavior (Eby et al., 2000).

Protégé Dysfunction. Despite mentors' ineffectiveness and negative contributions to the mentoring relationship, protégés also impact the relationship in negative ways. The research on negative mentoring experiences suggests that protégés contribute to the downfall of mentoring relationships through acts of betrayal, overzealous and manipulative behavior, and poor self-reflective conduct (Halatin & Knotts, 1982; Ragins & Scandura, 1997, 1999). Additional areas of concern by mentors include: protégé sabotage, deception, possessive behavior, and conflict (Eby & McManus, 2004).

Mentoring Minority Graduate Students

The significance of mentoring minorities in psychology has been documented

over the years by countless researchers and scholars within higher education and professional psychology (Atkinson, Brown, & Casas, 1996; Blackwell, 1989; Chan, 2008; Evans & Cokley, 2008; Ortiz-Walters & Gilson, 2005). Padilla (1994) had the following to say about it:

“Mentoring is such an important part of the comfort level needed by ethnic students choosing to pursue ethnic scholarship that we must be concerned about the small number of ethnic academicians who are available to serve the mentoring needs of students and younger colleagues.” (p. 24)

The pervasiveness of this issue remains salient for the training of minority professional psychology doctoral students due to their persistent, limited presence throughout the psychology pipeline – from graduate school enrollment through to faculty/researcher ranks (APA Center for Workforce Studies, 2011; APA Office of Ethnic Minority Affairs, 2008; Maton et. al., 2006). Beyond the numbers associated with minority participation, lie the mentoring experiences of ethnic minorities within their respective programs. The disparate mentoring experiences minority students face range along lines of not only race and ethnicity, but also other dimensions of personal identity, as evidenced within the literature (Evans & Cokley, 2008).

A factor that is of particular importance to minority doctoral students within the psychology doctoral training environment involves their mentoring relationships with faculty (Atkinson, Neville, & Casas, 1991; Blackwell, 1989; Hill, Castillo, Ngu, & Pepion, 1999; Redmond, 1990). Research indicates that ethnic minority doctoral students tend to have difficulty in graduate studies due to the mismatching of research interests and interpersonal relationships with White advisors/mentors. Moreover, some students find that they do not have the support associated with mentoring by majority faculty (Collins, Kanya, & Tourse, 1997; Davidson & Foster-Johnson, 2001; Smith & Davidson, 1992; Walker, Wright, & Hanley, 2001). However, there have

been instances wherein White faculty members have sufficed as mentors.

In their article concerning mentoring ethnic minority students for careers in academia, Hill et al. (1999) argued that despite ethnic and racial differences, White male senior faculty were in need and were capable of providing invaluable resources for ethnic minority doctoral students in professional psychology. Initiated by the support of the Western Interstate Commission of Higher Education (WICHE) Doctoral Scholars Program, the relationships between the faculty members and the students within the study were strengthened through intermediary, commission-sponsored training and professional development efforts. Doctoral scholars maintained that although not perfect, the support they received from their mentors was facilitative and that it provided them with increased exposure to the inner workings of the professoriate. Though the doctoral scholars asserted that their relationships with White faculty were beneficial; they also mentioned that they had their share of racial and ethnic differences. On various occasions, Linda, a Latina WICHE doctoral scholar, recalled having to struggle in forming her relationship with a White male faculty mentor. There were power plays along gender and ethnic lines and times whereby she was heightened in her awareness of their differences; however, due to the respect established earlier in the relationship, Linda was able to move beyond their differences and benefit from the relationship (Hill et. al., 1999).

Although there exist successful working relationships between cross-cultural mentoring dyads (i.e., White mentors and minority mentees), there is evidence to suggest that minority students thrive in ethnically-matched mentoring dyads. As Davidson and Foster-Johnson (2001) contend in their article, a variety of benefits are to be had in same race mentor-protégé relationships. Among them number, (1) having role models that reflect their racial/ethnic backgrounds and interests, (2)

utilizing mentors as cultural translators between the protégé and the program, and (3) being positively induced by mentors to consider careers as professors and researchers (Davidson & Foster-Johnson, 2001).

Though beneficial in having same race mentor-protégé pairings, ultimately what matters most about the mentoring relationship, despite racial matching, is that students feel supported and that they have someone who can help them negotiate doctoral and research training environments. Findings in a study by Atkinson, Neville, and Casas (1991), indicated this phenomenon wherein the protégé benefit of ethnic minority professionals from mentorship by ethnically similar mentors, other-minority mentors, or European American professors was not clearly delineated. The data collected in this study reflected two periods in the professional's training and experience – in their doctoral process and in supervision during their first novel professional experience. The finding of undifferentiated responses to mentor race/ethnicity was an artifact of the study, due in part to the phenomenon of low prevalence of minority faculty within the academy. That there were fewer individuals reporting having been mentored or supervised by same-race or ethnically-similar mentors indicate a consistent reality across the face of higher education. There is an urgent need for increasing racial/ethnic minority faculty and researchers within post-secondary education.

Mentoring and Gender Differences

While the experiences of minority graduate students are similar in many ways, the mentoring experiences for women of color might suggest some nuances within their respective groups. Factors such as limited role models, mentor-protégé sexual attraction, and perceived weakness are among a host of other concerns facing minority

women. Similar to their White female counterparts, these women experience a range of adversities that appear experientially different from those of men in psychology.

In previous years, women in psychology across the board were more likely than their male contemporaries to receive less financial support for graduate school matriculation (Syverson, 1982), to be awarded assistantships for teaching rather than research (McNeal et al., 1975; Solomon, 1976), to be in a cross-sex mentoring relationship, if placed at all (Feldman, 1999), and to experience sexual harassment and inappropriate cross-sex relationships (Clark et al., 2000; Kitchener, 1989; Schneider, Baker & Stermac, 2002), to mention a few.

As recent data suggest, the presence of women in psychology is steadily increasing. Women comprise roughly seventy percent of new doctoral degree recipients in both clinical and counseling subfields of psychology (APA Center for Workforce Studies, 2011). They also make up a burgeoning group of lower to mid-level, full-time faculty and lecturers within U.S. graduate psychology departments, despite their limited presence in higher-ranking faculty positions (APA Center for Workforce Studies, 2011). However, the experiences of minority women, in comparison with their White cohort members appear to be qualitatively different.

Despite the growing presence of women in psychology, women of color continue to experience challenges in finding mentors who reflect them (Ragins, 1997). Of note are the most recent participation rates of minority faculty within graduate psychology departments, which reflect a gross underrepresentation at all levels of full-time faculty within traditional academic settings (i.e., excluding professional schools). Minority men and women, on the whole, comprised but 13% (compared with their over $\sim 33\frac{1}{3}$ percent census rates) of the full-time faculty in U.S. doctoral departments of psychology within traditional academic settings,

between 2009-2010 (APA Center for Workforce Studies, 2011). Given their underrepresentation on doctoral departments of psychology faculty, minority women must find alternative means of surviving the doctoral process. Research suggests that a number of minority women find alternative means of professional and personal support. African American women, in particular, report seeking mentoring outside of the confines of the departments and universities, in which they matriculate (Jackson, Kite, & Branscombe, 1996).

Research Mentoring

Applied to the research abilities of students, mentoring has implications for the effective research training of all graduate psychology students. Research regarding the role and significance of research mentoring experiences in the training of graduate psychology students suggests that mentoring has a profound effect on the research self-efficacy (Gelso, 2006; Hollingsworth & Fassinger, 2002), research productivity (Gelso, 2006), satisfactory and unsatisfactory experiences with research (Love et al., 2007), and professional identities of professional psychology graduate students. Johnson and Huwe (2002) suggest that securing a graduate school mentor who will mentor students in research (among other aspects of training), is among the most critical steps in completing and being satisfied with the doctoral process, altogether. For minority doctoral students in professional psychology, it is arguably the most critical step, as their research mentoring experiences are often inextricably tied to their successfully completing the doctoral dissertation as opposed to languishing in the “All But Dissertation” (ABD) status (Padilla, 1994).

In researching the impact of the mentoring relationship on one’s research

productivity, Kahn (2001) introduced the construct and measure into a previously established model predicting scholarly activity (Kahn & Scott, 1997). Seeking to refine and broaden the existing model, he added mentoring relationship and research outcome expectation to a list of empirically supported predictor variables (e.g., year in program, research training environment, and investigative interests). The inclusion of quality of mentoring relationship, despite its hypothesized effect revealed non-significant effects (i.e., direct or indirect) on scholarly activity and research self-efficacy (Kahn, 2001). Neither were there significant indirect effects of any variables on research outcome expectations through research self-efficacy. There were however significant relationships shown between investigative interests and mentoring relationship and the perceptions of the research training environment and one's relationship with their mentor.

Later research in this area demonstrated a slight departure from utilizing quality of the mentoring relationship to research mentoring experiences. Research mentoring experiences were shown to have significant effects on research self-efficacy and to predict research productivity (Dohm & Cummings, 2002; Hollingsworth & Fassinger, 2002).

Findings from Love and her colleagues' (2007) study suggest that support from an adviser/mentor or the lack thereof is among the most frequently reported contributors to satisfactory and unsatisfactory research experiences (i.e., among participants in individual and team research, respectively). Support from an adviser/mentor or the lack thereof was second only to the group dynamics participants experienced within a team research approach, in both the satisfactory and unsatisfactory categories. Regarding satisfactory experiences of individual research opportunities, participants indicated:

“The main factor that made the projects satisfactory was my access to good supervision or guidance from my adviser.” Another participant wrote, “I completed a thesis for my master’s degree and worked with an excellent, caring adviser who really helped me through some of the rough spots.” (p. 318)

Unsatisfactory experiences of individual research brought about the following comments:

“The process can feel lonely at times, which is frustrating.” Another stated, “I needed more structure and more opportunity for one-on-one time to discuss my ideas in a private setting. I was looking for a mentor versus a supervisor.” (p. 318)

Information gleaned from the research mentoring experiences of students suggest that good research mentoring comes from responsive and attentive mentors who set aside space and time to meet the pressing research needs of their protégés. Also good research mentoring appears to be reflected in concern for the protégé well-being and development as a junior scholar.

Research Training Environment

Much research surrounding the preparation of professional psychology doctoral students to conduct research emphasizes the duality found within the scientist-practitioner model (Betz, 1997; Brems, Johnson, & Gallucci, 1996; Gelso, 1997; Heppner, Gelso, & Dolliver, 1987; Mallinckrodt, Gelso, & Royalty, 1990). In considering the balance between the pragmatic and the research oriented, researchers, training directors, and faculty alike have argued the need to produce more doctoral students who can vacillate between both ends of the model (Gelso, 1979). Gelso (1979, 1993) posited that counseling psychology doctoral students’ decisions to seek careers and/or pursue opportunities to perform research after graduating are mediated, in part, by the research training environment (RTE). The RTE has been theorized to

comprise all that is implicit and explicit in the graduate training process, impacting students' attitudes and subsequent behaviors around research (Gelso, 1993). The research training environment serves as an incubator for the development of scientists. In this regard, the RTE can either augment or dampen students' interests in research.

In his initial development of RTE theory, Gelso (1979) proposed ingredients, which were hypothesized to make up the research training environment. In seeking to enhance his RTE theory, Gelso (1993) set forth to present a revised view of RTE, based on years of empirical and theoretical support of the RTE. Further developed as a theory, the updated RTE incorporated only six main variables, which garnered empirical support from research over the years. The constituents of this revised theoretical model included (1) faculty modeling of research behavior, (2) rewarding research activity of students in the RTE, (3) participation of students in research early and in the least stigmatizing way, (4) acknowledgment of research as an inevitably flawed process, (5) instruction of research design reflecting varied approaches, and (6) demonstration of the value added in integrating science and practice (Gelso, 1993). Beyond the six fundamental factors, Gelso (1993) also contended that of the ten previous factors, there were two that exhibited interaction effects with subject factors (i.e., interactions existing between introspection in developing research topics and the interpersonal perspective of research with personal skill factors).

Further developing the RTE model, Kahn & Gelso (1997) utilized a factor structure approach to determine underlying aspects of the RTE Scale. In so doing, they were able to delineate two higher order factors onto which nine components loaded, categorizing them into discrete interpersonal vs. instructional types. The extension of Gelso's earlier work in this way, permitted the inclusion of components

previously unsupported by empirical data – those being, (1) looking inward for research ideas, (2) the research training environment advocating an interpersonal aspect to science, and (3) the extent to which statistics courses are made accessible through more applied approaches (Gelso, 1997).

In evaluation of the revised theoretical model, it is apparent that various aspects of the model fall short of its promise. Particularly, the faculty modeling vector of the RTE construct does not appear to include research mentoring as a component. It assumes that the vicarious observation of and limited engagement in faculty research is solely enough to impact students' interest in research. However, it takes a deeper connection between the faculty researcher and the student in order to impact research productivity.

Interest in Research

Researchers' efforts at investigating students' and psychologists' interests in conducting research have ranged from estimations of vocational aspirations and personality preferences to surveys of interests in carrying out specific research-oriented tasks. Regardless of the approach taken, knowledge in this area can play a critical role in the research mentoring and training of minority graduate students. By assessing where not only their students but also their faculty members' interests lie, training program faculty and administrators can appropriately match their students' vocational interests and preferences with complementary aspects of their training environments.

Research in the area of research interest suggests that individuals with particular occupational aspirations (Lent, Brown, & Hackett, 1994) and personality

types (Mallinckrodt et al., 1990) are drawn to certain academic and career domains. Accordingly, researchers have adapted a range of measures to assess interest in research, which have included the use of scales estimating research attitudes (James & Simons, 2011; Mallinckrodt et al., 1990), questionnaires regarding future career aspirations (Betz, 1997), and scales assessing students' interest in research-oriented tasks (Bieschke & Bishop, 1994), to name a few. With each, definitions of interest in research vary.

Lent and his colleagues (1994) forwarded a framework of interest establishment, which set forth multiple propositions seeking to explain this developmental arc. They defined career interests (e.g., interest in research) as patterns of likes, dislikes, and indifferences regarding career-relevant activities and occupations (Lent et al., 1994). Holland code type has also been shown to indicate interest in research. In particular, investigative interests have been shown to predict research productivity and research self-efficacy (Kahn, 2001).

Scant empirical data exists regarding the status or development of research interest among minority doctoral/graduate students. Readily available information on this population includes anecdotal accounts of their research mentoring experiences or the limited availabilities of minority-matched mentors as mentioned above. However, some research is available to suggest minority psychology graduate students' penchants for research-oriented career interests – particularly in relation to academic (i.e., to include research/scholarly activities) versus practitioner-oriented careers.

Examining factors impacting minority graduate students' stated career goals, Pope-Davis, Stone, and Nielson (1997) surveyed 118 minority students in APA-approved counseling psychology programs. Participants choosing from three career goal options (i.e., academic, practitioner, or combined), indicated the influences on

those career choices and the reasons for their selections. Findings revealed an overwhelming majority (i.e., 73.7%) of respondents expressing career interests which combined elements of both the academic and the practitioner. This combined career outlook was further emphasized by respondents indicating preferences for a roughly even split (i.e., 52% practice and 48% academic) in the time spent carrying out both types of tasks. Roughly 7% of the participants indicated a clear preference for an academic career, whilst the remainder (i.e., 19.5%) endorsed practitioner-only aims. Participants rank-ordered items and provided additional comments regarding influences on their stated career goals. Many reported influences, which were either present or lacking in their training experiences. Of note were the two most frequently endorsed influences (i.e., both positive and negative) on careers goals, which included: *positive feedback regarding your ability and reinforcement for good clinical skills*, among positive influences, and *lack of minority faculty members in program*, and *lack of mentoring programs*, among negative influences.

Pope-Davis and his colleagues' research lends empirical support for the time-honored debate over the presence of minorities in psychology doctoral programs and their involvement within research. Their research highlights the intentionality of minorities to fashion careers that blend the scientific with the pragmatic; and it is a stark reminder of the promise deferred of minorities engaged within an enterprise that is responsive to and reflective of their ethnic/cultural experiences. Reasons provided for respondents' endorsements of a blended career spanned from giving back to their communities of origin and educating while helping their clients, to not being limited by either career goal (i.e., academic or practitioner-oriented) alone. Such reasons provide fodder for increased awareness and vigilance on the part of training programs to increase faculty and curricula focused around action-oriented research that

advocates for the needs of marginalized racial and ethnic groups.

Earlier research into the research interests of clinical psychology graduate students, in general, suggest a clearer understanding as to the limited numbers of clinical psychology, PhD students interested in research-oriented careers. Similar to the work mentioned above involving counseling students' career interests, Parker and Detterman (1988) queried students regarding their career aspirations and ideal balance of time spent between conducting research and engaging in clinical practice. Results from their study revealed a prevalent clinical orientation among the majority of students surveyed.

Summary

As discussed above, what is known about the research skill development of minority doctoral students within the professional psychology is limited. Based on the limited findings presented within the current body of literature, it has been shown that the research self-efficacies of minority doctoral professional psychology students are not significantly different than their White counterparts. However, little to no research on the unique experiences of minorities in the conduct of research and their confidence in doing so suggests that much is yet to be discovered about the factors influencing their increased confidence and engagement in research.

Further, there remains some ambiguity within the literature regarding who is best suited to provide research mentoring to racial and ethnic minority students – that is, minority versus non-minority mentors. What is also unclear from the current literature – despite the similar self-report of White and minority psychology graduate students on dimensions of research self-efficacy and perceptions of the research

training environment – is whether there exist distinct factors at play when examining the ways in which minority and non-minority mentors socialize minority professional psychology students into the conduct of research. Equally ambiguous is the nature of the research mentoring experiences of minority doctoral students within counseling and clinical psychology and to what extent, if at all, their experiences significantly predict their confidence in conducting research.

Under the current investigation, the researcher seeks to elucidate the relationship between minority clinical and counseling psychology doctoral students' research mentoring experiences and their research self-efficacies. In so doing, descriptive data can be provided regarding the research mentoring experiences of this population. Moreover, the factors contributing to increased confidence in conducting research can be culled from the data to suggest optimal aspects of graduate training leading toward higher research self-efficacy within this population. Furthermore, findings from the current investigation can provide insight into those best suited to provide mentorship of minority doctoral students in clinical and counseling psychology. Finally, without comparing the experiences of minority doctoral students with those of their White counterparts, more specific attention can be paid to the myriad challenges and experiences they uniquely face in being trained/mentored in the conduct of research. Toward this end, the following research hypotheses were derived in an effort to answer the questions undergirding this investigation.

Research Hypotheses

Given the information gleaned from the review of literature surrounding the research mentoring experiences and research self-efficacies of minority doctoral students, the following hypotheses were derived:

- Hypothesis 1: The research mentoring experiences of minority doctoral students will range, providing a current status of their research activities.
- Hypothesis 2: Research mentoring experiences will predict a significant proportion of variance accounted for within the research self-efficacies of minority doctoral students above and beyond that which is explained by their perceptions of their research training environments and interest in research.
- Hypothesis 3: Given the importance established by research mentoring experiences in the research skill development of minority doctoral students, research mentoring experiences will mediate the relationship between the research training environments and research self-efficacy.
- Hypothesis 4: The optimal combination of predictor variables accounting for the most variance in research self-efficacy will reflect the following priority of predictor variables: Interest in Research > Research Mentoring Experiences > Research Training Environment.
- Hypothesis 5: The relationship between research mentoring experiences and research self-efficacy will be moderated by congruence in mentor-mentee minority status, such that the relationship will be stronger for congruent pairs.

CHAPTER III

METHODS

Power Analysis

An a priori analysis of power was conducted in order to establish a reasonable sample size in detecting a small-to-moderate effect size for the study. In order to establish an appropriate estimate, effect sizes from previous research on research mentoring and research self-efficacy were obtained and used for comparison. Based on prior empirical research, a reasonable effect size of 0.08 was evinced in the literature. Cohen (1988) suggested that small-to-medium effect sizes were ideally from 0.02 to 0.15, placing the 0.08 effect size in the small-to-medium range. Utilizing the G*Power 3.0.10 power and sample size calculator, the researcher was able to surmise that in order to reach a power level of 0.80 (based on an effect size estimation of 0.08), 137 participants would be needed for a three-predictor model.

Participants

One hundred and forty-three respondents filled out the online survey. Some respondents were removed due to international student status, omission of racial/ethnic minority status, and other exclusionary factors; consequently, the final sample consisted of 106 minority doctoral students in professional psychology. The students were from APA-accredited, clinical and counseling psychology programs throughout the United States. Fifty-nine were enrolled in clinical psychology programs, forty-five in counseling psychology programs; and two were enrolled in combined programs (i.e., one from a Law & Clinical Psychology program and the

other from a Clinical, Counseling & School program; see Figure/Table for a complete program breakdown). Of the participants included in the sample, 34 (32.1%) self-identified as Black or African American, 28 (26.4%) as Asian American, 23 (21.7%) as Hispanic or Latino/a, 18 (17%) as Biracial, and 3 (2.8%) as Multiracial (see Figure/Table for a breakdown of racial/ethnic background).

Consistent with the changing demographics of psychology, a majority of the sample's size was comprised of individuals who identified as female (74 or 69.8%), followed by males (31 or 29.2%) and by an individual identifying as transgendered (1 or 1%). Participants ranged in age from 22 to 58, with a median age of 27. Approximately, forty percent of them were first-generation college attendees; and 79.2% indicated that their family of origin belonged to the lower to middle class socioeconomic status groups (i.e., Lower, Lower-middle, and Middle class).

Respondents ranged in their year in the doctoral program, from 1st to Post Internship, establishing a multimodal distribution of participants. The majority of respondents were in their 1st (23 students), 2nd (23 students), and 3rd (20 students) years in their respective programs; and among 4th- and 5th-year doctoral students, fourteen represented each. Forty-four doctoral students had already completed a master's thesis prior to starting their doctoral program, while 33 were working on theirs en route to the doctoral degree and 29 had either not completed one at all or it was not applicable to their program of study. Of the 106 participants in the study, rough forty percent (i.e., 42 participants) indicated that their primary mentor was an individual from a racial/ethnic minority background. The modal number of graduate statistics courses taken by racial/ethnic minority doctoral students was two, with 72.7% of participants having completed between two to four. Finally, the majority (i.e., ~55%) of respondents had only taken one research methods course by the time of

their involvement in the study.

Measures

Demographic Questionnaire

A demographic questionnaire was devised to capture participant background information. Items on the demographic questionnaire included information about: year in program, number of completed graduate statistics and research methods classes, family of origin's socioeconomic background, gender, and age, among others. In order to identify mentor-mentee congruence on racial and ethnic minority status, participants indicated whether their mentor was a member of a minority or non-minority racial/ethnic group; an option of 'Don't Know' was provided for students uncertain of their mentor's minority status. Finally, participants were provided an additional opportunity at the end of the survey to share open-ended comments about their research training and/or feedback concerning their involvement in the study.

Shortened Version of the Self-Efficacy Research Measure (SERM, 1994)

A 12-item version of the original 33-item SERM was used to measure doctoral students' research self-efficacy. The original version of the measure was a 33-item self-report measure, which assesses confidence in four areas of research skill development, including research design, practical research skills, quantitative and computer skills, and writing skills. Items on the SERM are in Likert-type format (ranging from 0 no confidence to 9 total confidence) and require respondents to indicate their level of confidence on items including: writing the introduction and literature review for a thesis or dissertation, formulating hypotheses, utilizing resources for needed help, and using statistical packages. Phillips & Russell (1994)

reported a Cronbach's alpha of .96 for the measure, suggesting its robust reliability as a measure of research self-efficacy.

For purposes of this study, the brief version of the SERM was used in order to minimize the length of the total survey. Kahn & Scott (1997) revised the SERM into a brief version by choosing the three items with the highest item-to-subscale-total correlations for the four factored scale, resulting in a 12-item scale. The shortened version of the SERM has been reported to evince a Cronbach's alpha of .87. In adapting the SERM for use with the current study, the Likert-type scale was reduced from 10 to 5 possible response choices (i.e., 0 = no confidence and 4 = total confidence) for ease of responding to the survey online. Consequently, the range of scores on the SERM was from 0 to 48, with higher scores reflecting greater research self-efficacy. The measure's internal consistency for the current study was estimated at .89.

Research Mentoring Experiences Scale (RMES; 2002)

The Research Mentoring Experiences Scale is a 28-item instrument devised to measure the degree to which one's research advisor/mentor attends to them on various research task functions. On a Likert scale ranging from 1 (Very Little) to 5 (A Great Deal), respondents rated the extent to which their research faculty/mentor paid attention to various research function tasks. Respondents also had the option to select Not Applicable, which had no associated point value. The scale is divided into two subscales including the psychosocial and career dimensions of the research mentoring relationship. The Psychosocial Mentoring subscale is comprised of 12 items and emphasizes the more affective components of the research enterprise. Typical items in this section include: expressing appreciation for your contributions to research,

communicating respect for cultural differences in your relationship, and expressing enthusiasm for research. The Career Mentoring subscale consists of 16 items, which are geared toward faculty mentors helping their advisees to carry out specific research tasks. Typical items in this subscale included: helping you develop research ideas, exposing you to different research methods, and helping you organize a review of the literature. A total score is derived by adding all of the item responses and dividing by the total number of items; a total score or either of the subscale scores may be used, depending on the purpose(s) established by its user. The range of score values is from 1 to 5 (i.e., Very Little to A Great Deal), characterizing the respondent's research mentoring experiences. A Cronbach's alpha of .95 was reported for the scale, in the current study.

Research Training Environment Scale – Revised (RTES-R)

The RTES-R is a 54-item scale developed by Gelso, Mallinckrodt, and Judge (1996). The scale measures the nine ingredients purported to be essential to research training within the graduate psychology training environment. The subscales comprising the RTES-R reflect the nine domains of the research training environment, including: a) Faculty Modeling of Appropriate Scientific Behavior; b) Positive Reinforcement of Scholarly Activities; c) Early, Low Threat, Involvement in Research Activities; d) Teaching, Relevant Statistics and the Logic of Design; e) Teaching Students to Look Inward for Research Ideas; f) Seeing Science as a Social Experience; g) Teaching That All Experiments are Inevitably Flawed; h) Focus on Varied Investigative Styles; and i) Science is Wed to Clinical Service. Each subscale consists of six items and have responses ranging from 1 disagree to 5 agree. Instructions on the protocol suggest obtaining mean subscale scores (i.e., by dividing

the total score on a subscale by 6) and a mean item score for the entire scale (i.e., by dividing the measure's total score by 54). A total score on the measure can range from 54 to 270.

For use in the current study, a modified version of the RTES-R was used for brevity within the research protocol. In so doing, the researcher adapted Hollingsworth and Fassinger's (1998) version of the RTES-R, which capitalized on factor analysis data by Kahn and Gelso (1997). The final version of the RTES-R resulted in a 27-item scale, which reflected the three highest factor loadings on each of the nine subscales. In lieu of six items per scale, the shortened version of the RTES-R has three items per scale. A total score on this version ranges from 27 to 135. Similar to the original measure, mean subscale scores could be obtained by dividing each subscale total by three; and mean item scores would be reached by dividing the total scale score by 27. In Hollingsworth and Fassinger's (2002) study, the scale demonstrated good internal consistency with a Cronbach's $\alpha = 0.92$. Under the current investigation, the measure's internal consistency was fair at a Cronbach's $\alpha = 0.78$.

Interest in Research Questionnaire (IRQ)

Developed by Bishop & Bieschke (1998), the IRQ was established to assess students' interest in the activities of research. This 16-item scale consists of items describing various aspects of research involvement. Typical items on the IRQ range from "conducting a literature review" to "designing a study" and require students to indicate their level of interest in the activity. Items are scaled from 1 (very uninterested) to 5 (very interested). Total scores on the IRQ range from 16 to 80, with higher scores suggesting greater research interest. Prior empirical research with the

IRQ indicated a Cronbach's alpha of .90 for the scale. For the current investigation, the scale's Cronbach's alpha reliability was estimated at .92.

Procedures

As the case has been made previously, racial/ethnic minority doctoral students in professional psychology PhD programs are grossly underrepresented. As such, given their low numbers across counseling and clinical psychology programs, a "snowball" sampling procedure was employed within the study. Snowball sampling methods are suitable for situations in which sampling from populations of interest is either obscure or less accessible (Okazaki & Sue, 1995; Salganik & Heckathorne, 2004). This respondent-driven sampling approach involves the use of participants as recruiters of other potential participants in order to augment a study's sample size. The method is seen as a valid approach for the population of interest given their variable inaccessibility through training programs and limited numbers.

In order to establish an initial pool of participants for the study, training directors from all APA-accredited, PhD-granting, clinical and counseling psychology programs were solicited to encourage their students' participation. Securing the most recent listing of APA-accredited programs in clinical and counseling psychology, the researcher transferred accreditation information from the Office of Program Consultation and Accreditation's website to a datasheet on his computer (American Psychological Association, Office of Program Consultation and Accreditation, 2012). The researcher did not include degree-granting programs in Canada, as the experiences of U.S. racial/ethnic minorities cannot be generalized to those beyond its borders. Further, PsyD programs were also omitted from the final listings due to the programs' practitioner-oriented philosophy and lack of emphasis on research. In total,

there were 163 clinical and 66 counseling psychology programs, which fit the study's inclusion criteria. Contact information for each of these programs' training directors was obtained through the websites of the respective subfields' council of training programs and the programs' websites as well. For the subfield of counseling psychology, the Council of Counseling Psychology Training Programs (CCPTP) was identified; and the Council of University Directors of Clinical Psychology (CUDCP) was referenced for information on clinical psychology training directors.

In total, 229 clinical and counseling psychology programs' training directors were contacted in order to solicit racial/ethnic minority student involvement within the study. Each training director received an initial email (see Appendix B) from the principal and student investigators, introducing the study and requesting their participation in forwarding the invitation email (see Appendix C), inclusive of the web address for the online survey (see Appendix D for the survey) to racial/ethnic minority doctoral students in their respective programs. Both the student and the principal investigators' names and electronic signatures were affixed to the emailed letters. Of the 229 programs, a total of 43 training directors or some designee responded via email to indicate that they received the request (43 programs), were forwarding it on to their students (31 of the 43 programs), or were not allowed or unable to share the research request (7 of the 43 programs).

Follow up emails and phone calls to training directors were made two weeks after the original effort had been established. In the follow-up email, the researcher removed the email addresses of training directors who through email responses indicated they had previously forwarded the invite to their students. A final email invitation was sent to training directors one month after the initial email invitations were sent, encouraging them to make a final effort in forwarding the invitation

reminder to their students.

It was anticipated that the email invitations for student participants would not produce a large response rate given oversampling of this population by researchers and given graduate programs' policies surrounding dissertation research solicitation. Therefore, participants completing the survey were encouraged to forward the invitation email or survey link via online social networking platforms (i.e., Facebook, Twitter, etc.) to colleagues who fit the inclusion criteria. Social network and email links at the end of the survey provided an efficient means of sharing the survey opportunity with other racial/ethnic minority doctoral students. Moreover, the student and primary investigators utilized their informal and formal contacts at APA-accredited programs to augment the number of student participants in the study. Efforts were also made to solicit participants at conferences and conventions affiliated with racial/ethnic minority doctoral students and psychologists' attendance (e.g., Winter Roundtable at Columbia University Teacher's College). Email invitations were also circulated through the listservs earmarked for the Society of Clinical Psychology – Division 12 of the APA Student Affiliate group, the Association of Black Psychologist's Student Circle, the National Latino Psychological Association, the Asian American Psychological Association, and the Society for the Psychological Study of Ethnic Minority Issues – Division 45 of the APA. The Student Affiliate Group for the Society of Counseling Psychology – Division 17 of the APA did not respond to numerous attempts at soliciting support, so their students were not forwarded the email invitation via this group.

The online survey tool chosen for data collection with the current study was SurveyGizmo. SurveyGizmo is a comprehensive, online survey software, which automates and integrates the various aspects of the data collection phase of research.

SurveyGizmo's features include: survey interfacing which reflects institutional or corporate branding; customizable survey item types; participant invitation and reminder automation; multi-lingual survey translation; and exportation of data to secured file locations, to name a few (SurveyGizmo, 2011). With such an encompassing product, researchers are afforded the flexibility and the time to attend to other aspects of the research process.

Online survey use is becoming more common among social and behavioral science researchers as a flexible, comprehensive data collection tool (Kraut, Olson, Banaji, Bruckman, Cohen, & Couper, 2004). Its use affords researchers access exponentially to a broader base of potential participants, as its platform is available worldwide; not to mention, the online automation of research minimizes financial costs associated with having research assistants or paid volunteers administer protocols (Kraut, Olson, Banaji, Bruckman, Cohen, & Couper, 2004). Moreover, participants can take a survey in a situation that might be perceived as less risky – given their choice in environments when filling out the protocol (Sproull & Kiesler, 1991).

With the increased use of online surveys and data collection techniques, there is always the risk of data vulnerability and participant identification; however, steps were taken to make assurances concerning participants' involvement in the study. Information gleaned from participants on the online survey was anonymous in that there was no identifying information requested throughout the protocol. The only information collected from respondents was the participants' computer IP address, for reducing response duplication; this was accomplished through the online survey platform's settings. Through the use of a computer's unique Internet Protocol (IP) address, thought of as a computer's address, electronic devices can communicate with

each other over a network, sharing a wealth of information (Wikipedia, 2011). This unique address was used to compare response patterns for data duplication elimination purposes.

Involvement within the study was completely voluntary. Likewise, information gleaned from respondents was kept confidential. Neither names nor personally revealing information about participants' identities were used in any phase of the study. The only exception to this policy was made in association with the incentive portion of the survey. Participants had the option to enter their names on a separately-linked survey page for a lottery prize giveaway of one of four (4) \$25 gift cards to Best Buy or Target retail stores. Individuals were informed that the researcher would contact them regarding their lottery winning status and discard their identifying information thereafter.

Data Analytic Plan

To examine the role of research mentoring in minority doctoral students' research self-efficacies, several research questions and hypotheses were raised. The following section outlines the data analytic tools used to resolve each of the target research questions and their respective hypotheses. Specific attention is given to the nature and type of data collected and how best to utilize that data in answering the research questions under investigation.

Research Question 1

What are the research mentoring experiences of racial/ethnic minority, professional psychology doctoral students?

Review of the extant literature concerning research mentoring experiences

revealed limited information regarding the type and quality of experiences had by racial/ethnic minority doctoral students in professional psychology. As such, the researcher sought to provide a current perspective of the varied experiences of this population. It was expected that racial/ethnic minority doctoral students' research mentoring experiences would range given the myriad aspects and degrees of doctoral research mentoring to which each were exposed.

As was explained in the description of the RMES, information regarding the research mentoring experiences of racial/ethnic minority doctoral students was captured using a 6-point Likert scale, with numerical items ranging from 1 (Very Little) to 5 (A Great Deal) and with an option for *Not Applicable* (N/A) responses. Respondents indicated their beliefs about how much attention their faculty research mentor paid to facilitating their development of specific research tasks (e.g., *helping you develop research ideas*). In order to provide a global picture of the research mentoring experiences of racial/ethnic minority doctoral students, descriptive statistics including: measures of central tendency, range and dispersion of scores, and missing data (i.e., to include items marked N/A) were used to provide a summary of endorsed experiences. Since the RMES is comprised of two subscales measuring *Psychosocial Mentoring* and *Career Mentoring*, a measure of correlation between them was also used to demonstrate overall uniformity of the underlying construct.

Research Question 2

Do research mentoring experiences predict research self-efficacy among minority doctoral students in professional psychology above and beyond that which is predicted by the research training environment and interest in research?

Based on the current literature surrounding the significant role mentoring

plays in the development of racial/ethnic minority doctoral students, it was anticipated that their research mentoring experiences would play a critical part in their respective sense of confidence in their research abilities. The attention paid by a faculty research mentor to a minority doctoral student's research skill development was further suggested to account for a unique proportion of variance within research self-efficacy above and beyond that which could be previously explained by their perceptions of their research training environments and their interests in research. In order to address this research question, a hierarchical multiple regression analysis was used to parse out the unique contribution of research mentoring experiences to students' research self-efficacy beliefs. Given the empirical evidence supporting the robust natures of the research training environment and interest in research constructs, these variables were entered into the first block of the regression model; and research mentoring experiences was entered into the second block. The data gleaned from the two models (i.e., the first including solely RTE and IRQ and the second adding RMES) provided information regarding the effect of research mentoring experiences on racial/ethnic minority doctoral students' research self-efficacies.

Research Question 3

Do research mentoring experiences mediate the relationship between the research training environment and minority doctoral students' research self-efficacies?

As mentioned above, the importance and primacy of the research mentoring experiences of minority doctoral students suggests its utility in modulating the research self-efficacies in this population. As such, it was hypothesized that research mentoring experiences would exert an indirect or mediating effect on the relationship between students' perceptions of their research training environments and their

research self-efficacies. To test this hypothesis, a mediation analysis was carried out using multivariate analyses (i.e., multiple regression) and the Sobel Test of standard error.

Research Question 4

What is the optimal combination of predictor variables (i.e., research training environment, interest in research, and research mentoring experiences) in accounting for the most variance in research self-efficacy?

The optimal combination of predictor variables accounting for the most variance in research self-efficacy was found in carrying out the procedure for Research Question 2. Given the previously mentioned state of the research literature, it was hypothesized that the order of predictors accounting for the most variance in research self-efficacy would proceed as follows: Interest in Research > Research Mentoring Experiences > Research Training Environment.

Research Question 5

Is the relationship between research mentoring experiences and research self-efficacy moderated by congruence in mentor-mentee minority status?

As was suggested by anecdotal commentary and empirical support raised within the review of the literature, research mentoring of racial/ethnic minority doctoral students by minority faculty, when available, is seen as ideal. Various benefits to minority congruence between mentor-mentee pairing have been cited by faculty and researchers alike, indicating that doctoral students: benefit from seeing themselves reflected in the faculty/researcher role, are often afforded the opportunity to research areas of interests associated with their minority statuses, and are provided

the means to work and research phenomena within their respective communities of origin (Davidson & Foster-Johnson, 2001). As such, it was anticipated that the relationship between research mentoring experiences and research self-efficacy would be moderated by congruence in mentor-mentee minority status, such that the relationship between them would be stronger for congruent pairs. This hypothesis was tested by the use of multivariate analyses to assess the influence of mentor-mentee minority status congruence on the relationship between research mentoring experiences and research self-efficacies of racial/ethnic minority students.

CHAPTER IV

RESULTS

The aim of the current research project is to delineate the role of research mentoring experiences in predicting research self-efficacy among minority, professional psychology doctoral students. In this chapter of the dissertation, descriptive statistics and multivariate analyses are used to ascertain the role and function of research mentoring experiences in predicting racial/ethnic minority professional psychology doctoral students' research self-efficacies. In so doing, the study adds to the existing literature surrounding the status of minority doctoral students' research mentoring experiences and extends the research self-efficacy literature.

Research Question 1: Status of Racial/Ethnic Minority Doctoral Students' Research Mentoring Experiences

The first research question focuses on the myriad types of research mentoring experiences had by racial/ethnic minority doctoral students and the amount of attention paid by their faculty research mentors to each. Table 4.1 summarizes the research mentoring experiences endorsed by racial/ethnic minority doctoral students on the RMES. Means, standard deviations, and number of responses for each item are provided in the table. Of note is the range of items marked *Not Applicable* within the dataset, which is suggestive of the behaviors not present within the mentoring relationship. Among the items highly rated as Not Applicable were the following (i.e., appearing in highest rating order): *Introducing you to her/his professional colleagues who have similar research interests and Discussing his/her research dilemmas with*

you (9, 8.5%); Encouraging you to apply for research related grants (8, 7.5%); Encouraging you to express your ideas in research meetings (7, 6.6%); Communicating respect regarding cultural differences in your relationship and Encouraging you with presentations of research at professional conferences (6, 5.7%).

Similar to the items marked Not Applicable, behaviors with the lowest mean scores ranged and included the following (ordered from least to greatest): *Providing advice about how to manage feelings of frustration with research (M=2.70, SD=1.37); Encouraging you to apply for research related grants (M=2.83, SD=1.58); Encouraging you to talk openly about anxieties or fears that interfere with research (M=2.95, SD=1.42); Helping you organize a review of the literature (M=3.00, SD=1.32); Discussing his/her research dilemmas with you (M=3.08, SD=1.40); and (M=3.12, SD=1.54).* Among the highest mean scores on RMES were the following items: *Expressing enthusiasm for research (M=4.10, SD=1.17); Constructively criticizing your research work (M=3.95, SD=1.12); Modeling competence in research related skills (M=3.92, SD=1.21); Encouraging you to express your ideas in research meetings (M=3.88, SD=1.30); Communicating interest in your ideas when you talk about research (M=3.84, SD=1.32); and Discussing your research-related goals (M=3.81, SD=1.18).*

No significant correlation was discerned between research mentoring experiences and students' year in their doctoral program. Likewise, there was no statistically significant correlation between research mentoring experience scores and congruence statuses. Finally, no significant differences were found in research mentoring experiences or its subscales based on gender or psychology subfield; separate independent sample *t* tests were carried out to compare these means.

Table 4.1
Mean Scores for Item Responses on the Research Mentoring Experiences Scale

	M	SD	N	N/A
1. Discussing your research-related goals?	3.81	1.18	104	1
2. Helping you develop research ideas?	3.74	1.24	105	0
3. Involving you in one or more specific research projects?	3.59	1.42	101	5
4. Exposing you to different research methods?	3.16	1.31	100	3
5. Reminding you that flaws in research projects are inevitable?	3.29	1.28	101	4
6. Suggesting additional resources, such as people or literature, you can consult to improve your research?	3.79	1.19	104	2
7. Helping you organize a review of the literature?	3.00	1.32	100	5
8. Helping you to identify weaknesses in a research project?	3.61	1.19	103	3
9. Helping you develop a realistic timetable for research projects?	3.19	1.26	104	2
10. Encouraging you to apply for research related grants?	2.83	1.58	98	8
11. Encouraging you to attend important professional conferences?	3.45	1.56	104	2
12. Introducing you to her/his professional colleagues who have similar research interests?	3.12	1.54	97	9
13. Encouraging you with presentations of research at professional conferences?	3.41	1.47	100	6
14. Collaborating with you on joint research projects?	3.47	1.40	100	5

Note. Maximum N = 106. Item numbers less than 106 reflect items endorsed N/A or missing. M = Mean, SD = Standard Deviation, N = Observations, and N/A = Not Applicable

Table 4.1 (continued).

	M	SD	N	N/A
15. Encouraging you to express your ideas in research meetings?	3.88	1.30	98	7
16. Using his/her power to motivate you to complete research tasks?	3.32	1.34	102	4
17. Offering positive feedback about your research work?	3.76	1.26	103	2
18. Constructively criticizing your research work?	3.95	1.12	103	3
19. Encouraging you to talk openly about anxieties or fears that interfere with research?	2.95	1.42	103	3
20. Providing advice about how to manage feelings of frustration with research?	2.70	1.37	101	4
21. Communicating interest in your ideas when you talk about research?	3.84	1.32	105	1
22. Communicating respect regarding cultural differences in your relationship?	3.53	1.47	99	6
23. Expressing appreciation for your contributions to research?	3.56	1.27	103	3
24. Modeling competence in research related skills?	3.92	1.21	102	4
25. Observing connections between research and practice?	3.55	1.28	101	5
26. Describing research as rewarding?	3.74	1.20	100	5
27. Discussing his/her research dilemmas with you?	3.08	1.40	97	9
28. Expressing enthusiasm for research?	4.10	1.17	105	1

Note. Maximum N = 106. Item numbers less than 106 reflect items endorsed N/A or missing.

M = Mean, SD = Standard Deviation, N = Observations, and N/A = Not Applicable

Table 4.2

Correlations, Means, and Standard Deviations Among the Measures

Measure	1	2	3	4	5	6
1. Research Self-Efficacy	–					
2. Research Mentoring Experiences	.37**	–				
3. Career Mentoring	.43**	.96**	–			
4. Psychosocial Mentoring	.25**	.94**	.81**	–		
5. Research Training Environment	.20*	.50**	.54**	.40**	–	
6. Interest in Research	.41**	.22*	.27**	.14	.12	–
<i>M</i>	33.24	3.47	3.41	3.55	3.74	61.90
<i>SD</i>	7.40	.95	.97	1.03	.62	11.52

Note. * Correlation is significant at the .05 level. (2-tailed)

** Correlation is significant at the .01 level. (2-tailed)

Research Question 2: Research Mentoring Experiences Explains Unique Variance

The second research question devised for investigation in this study addresses the influence of research mentoring experiences on racial/ethnic minority doctoral students' research self-efficacies. A bivariate correlation coefficient, $r = .37$, $p < .01$, provided initial credence to the relationship between research mentoring experiences and research self-efficacy, suggesting a significant positive association between them. Moving beyond this bivariate relationship, however, the researcher was specifically interested in ascertaining the amount of unique variance explained in racial/ethnic minority doctoral students' research self-efficacies, above and beyond that which would be explained by their interest in research and their perceptions of their research training environments. Hierarchical regression analyses were employed in examining

this research question. Specifically, the researcher used a hierarchical regression analysis to delineate the effect of research mentoring experiences on research self-efficacies above and beyond that which was already established within the literature for the research training environment and interest in research.

In the first block of the regression, interest in research and research training environment were entered as the predictor variables and research self-efficacy was entered as the criterion (or dependent/outcome) variable. Into the second block of the regression, the researcher entered research mentoring experiences as the predictor and research self-efficacy as the criterion. Using the enter method, the model for the first regression emerged ($F_{2,103}=12.554, p < .0005$) as significant, with interest in research and research training environment accounting for 18% of the variance in research self-efficacy, suggesting as was anticipated the influence of the initial predictor variables. In addition, the second model was found to be ($F_{3,102}= 11.383, p < .0005$) significant as well, with the initial predictors and research mentoring experiences accounting for 23% of the variance in research self-efficacy. Furthermore, the individual research mentoring experiences regression coefficient was significant ($b = 2.15, p < .01$) thus establishing research mentoring experiences as a significant predictor of research self-efficacy (see Table 4.2 for additional statistical information). Based on the information gleaned, scores on RTE and IRQ account for 18% of the variance in racial/ethnic minority doctoral students' research self-efficacy scores. Adding research mentoring experiences increased the model's power to explain roughly 5% more of the variance in racial/ethnic minority students' research self-efficacy scores. The additional variance accounted for by research mentoring experiences was statistically significant. As such, the research hypothesis was upheld in suggesting

Table 4.3

Summary of Hierarchical Regression Analysis for Variables Predicting Research Self-Efficacy (N=106)

Variable	b	SE b	β	ΔR^2
Step 1				.20***
Research Training Environment (RTE)	1.90	1.07	.16	
Interest in Research (IRQ)	.25	.06	.40**	
Step 2				.06**
Research Training Environment (RTE)	.30	1.19	.03	
Interest in Research (IRQ)	.23	.06	.35***	
Research Mentoring Experiences (RME)	2.15	.79	.28**	

Note. *b* = unstandardized regression coefficients; *SE b* = standard error of the estimate; β = standardized regression coefficients

* $p < .05$, ** $p < .01$, *** $p < .001$

that research mentoring experiences would explain a significant proportion of variance in research self-efficacy above and beyond that previously explained by the research training environment and interest in research.

Research Question 3: Mediation of Research Mentoring Experiences on Relationship Between RTE and RSE

The researcher was interested in delineating the effect of research mentoring experiences on the relationship between the research training environment and racial/ethnic minority doctoral students' research self-efficacies. In particular, it was

of interest to discern whether students' research mentoring experiences mediated the relationship between their perceptions of their research training environment and their research self-efficacies. Baron and Kenny (1986) suggest four conditions be met to establish mediation effects. The first condition involves the establishment of a relationship between the predictor variable and the desired criterion variable; this is performed by regressing research self-efficacy scores on perceptions of the research training environment. In carrying out the regression, there was in fact a relationship demonstrated between the two variables, evidenced by the resulting $\beta = .20, p < .05$ and research training environment perceptions accounting for 4% of the variance in research self-efficacy. The second condition necessary to establish mediation is to ascertain whether a relationship exists between the predictor variable and the mediator (i.e., in this case, research mentoring experiences). This was accomplished, as the relationship between the two were shown to be at a moderate level $\beta = .50, p < .001$.

Under the third condition involved in establishing mediation, the mediator must demonstrate an effect on the outcome or criterion variable (i.e., research self-efficacy), while controlling for the effects of the research training environment. Entering perceptions of the research training environment into the regression simultaneously with the mediator, research mentoring experiences evinced a significant, positive effect on the research self-efficacy scores of racial/ethnic minority doctoral students. This step was critical to establishing mediation, as the relationship between the mediator and the outcome had to be in the presence of the initial predictor variable. The final condition for discerning a variable's mediating effect on the relationship between two other variables is for the predictor variable in the third step to be reduced to a regression coefficient of zero. In this manner, it is

stated that the mediator fully mediates the relationship between the variables of interest.

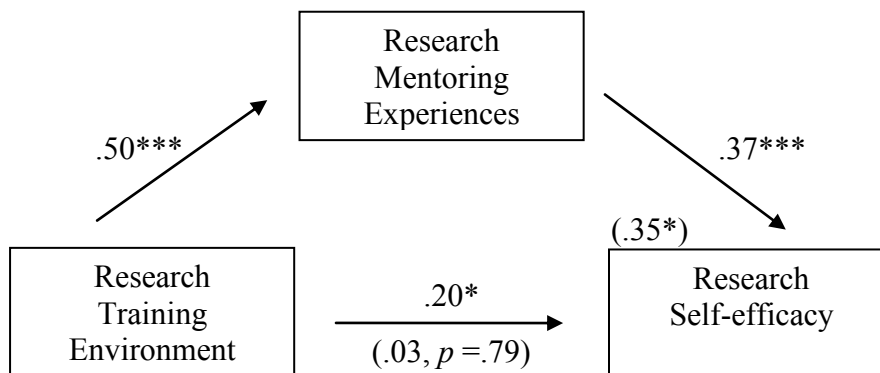


Figure 4.1. Relationships between variables in mediator model.

* $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

In the current study, the effect of the predictor (i.e., research training environment perceptions) was diminished from a regression coefficient of $\beta = .20$, $p < .05$ to $\beta = .03$, $p = .79$. Given the reduction in effect size and significance, research mentoring experiences is said to fully and positively mediate the relationship between racial/ethnic minority doctoral students' perceptions of their research training environments and their research self-efficacies. Utilizing the Sobel (1982) formula for testing the significance of the mediator effect, the researcher verified that research mentoring experiences was a significant mediator, $z = 2.77$, $p < .05$.

Table 4.4

Mediated Regression Analysis of Research Training Environment, Research Mentoring Experiences, and Research Self-Efficacy

Step & Variable	b	SE b	β	R ²
Step 1				.03
RTE \longrightarrow RSE	2.45	1.16	.20*	
Step 2				.24
RTE \longrightarrow RME	.77	1.31	.50***	
Step 3				.12
RME \longrightarrow RSE	2.74	.83	.35**	
RTE \longrightarrow RSE	.34	1.27	.03	

Note. b = unstandardized regression coefficients; $SE\ b$ = standard error of the estimate; β = standardized regression coefficients

* $p < .05$, ** $p < .01$, *** $p < .001$

Research Question 4: Optimal Combination of Variables Predictor Self-efficacy

It was anticipated that the optimal linear combination of variables predicting research self-efficacy among racial/ethnic minority doctoral students would reflect precedence in the following order: Interest in Research, Research Mentoring Experiences, and Research Training Environment. To test this hypothesis, the three predictor variables were placed into the regression using the enter method in Block 1, and their corresponding values were assessed for inclusion within the model. Upon review of the model's coefficients and significance levels, it was indicated that the β coefficient for perceptions of the Research Training Environment was not significant. Its t test

suggests that the coefficient is not much different from zero within the population and warrants its removal from the overall prediction equation. Left were the Interest in Research and Research Mentoring Experiences variables, which collectively accounted for a considerable amount of the variance within Research Self-efficacy. Establishing precedence within the model, research interest was shown the stronger predictor of research self-efficacy ($\beta=.35, p < .001$), followed by research mentoring experiences ($\beta=.28, p < .01$).

Research Question 5: Moderating Effect of Minority Congruence Status on Research Mentoring Experiences and Research Self-Efficacy

A variable is said to serve as a moderator of the relationship between two other variables when it is shown to exert influence on that relationship in such a way that it changes its direction and/or magnitude (Baron & Kenny, 1986). It was expected that, given the significance of having a minority congruent mentor as suggested within the literature, the relationship between the research mentoring experiences and research self-efficacies of minority doctoral students would be stronger for individuals within congruent minority mentoring dyads (i.e., minority student with a minority primary mentor) than for those within noncongruent minority mentoring dyads (i.e., minority student with a majority primary mentor). To assess the influence of congruence in minority mentoring status on the relationship between research mentoring experiences and research self-efficacy, regression analysis was again utilized to carry out the procedures. In particular, the researcher employed the use of moderated regression analysis with centered predictors. Centering of the predictor variable was done in order to minimize the collinearity, or redundancy within the data, given the interaction term (i.e., MatchxMentor). Using the Enter method in SPSS, the researcher input research self-efficacy as the dependent variable and input

research mentoring experiences and minority congruence status (i.e., MentorMatch) as the independent variables into Block 1 of the regression. The interaction variable was placed into Block 2 of the regression.

Data from the regression output revealed that congruence in mentor-mentee minority status does in fact moderate the relationship between research mentoring experiences and research self-efficacy reports within the sample. When added to the model predicting research self-efficacy, the interaction variable (i.e., MatchxMentor, Match x Research Mentoring Experiences) accounts for an additional 4% of the variance. This increase in accounted for variance, or R^2 is significant, $F_{1,102} = 4.95$, $p < .05$. To delineate the direction and magnitude of the moderating effect of congruence status on the relationship between research mentoring experiences and research self-efficacy, the researcher examined the graph of the interaction between research mentoring experiences (i.e., high, or 1 SD above the mean and low, or 1 SD below the mean) and research self-efficacy (see Figure 4.2). As is indicated by the slope of their respective lines, the line representing the relationship between research mentoring experiences and research self-efficacy of the congruent (i.e., minority mentor – minority mentee) mentoring dyad levels out, as it progresses from low to high research mentoring experiences. The noncongruent slope steepens from low to high research mentoring experiences, suggesting the positive, stronger relationship between research mentoring experiences and research self-efficacy reports for minority doctoral students in noncongruent minority dyads. In short, the relationship between research mentoring experiences and research self efficacy is stronger for those in non-congruent mentoring relationships.

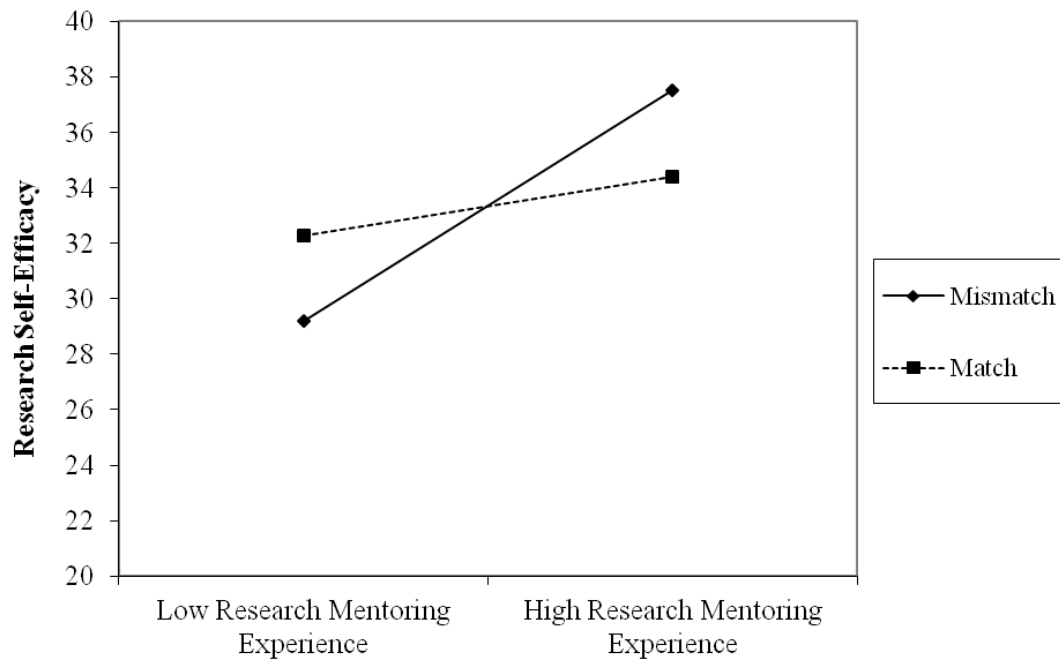


Figure 4.2. Plot of the interaction effect of research mentoring experiences, research self-efficacy and congruent and noncongruent mentoring dyads

Summary

As was indicated by the abovementioned data, the research mentoring experiences of racial/ethnic minority counseling and clinical psychology doctoral students are diverse. As was suggested by the results, racial/ethnic minority doctoral students in professional psychology (i.e., clinical and counseling psychology) appear to report high levels of research mentoring experiences ($M=3.47$, $SD=.948$). Examining the influence of research mentoring experiences of counseling psychology doctoral students ($N=194$), Hollingsworth and Fassinger (2002) reported a lower

average score ($M=3.18$, $SD=0.82$). High and low research mentoring experiences endorsed by racial/ethnic minority doctoral students reflected items within both subscales of the measure, suggesting the prevalence of both career and psychosocial mentoring experiences. No significant differences in research mentoring experiences or its subscales were found based on program type (i.e., counseling versus clinical psychology) or on gender.

The influence of research mentoring experiences on the research self-efficacies of racial/ethnic minority professional psychology doctoral students was examined in order to delineate the unique variance for which it accounted. As hypothesized, research mentoring experiences accounted for a significant portion of the variance within research self-efficacy, above and beyond that which was explained by the influence of interest in research and research training environment. Research mentoring experiences accounted for an additional 5% of the variance not shared with students' interest in research or research training environment perceptions.

Of interest to the researcher was discernment of the influence research mentoring experiences had on the relationship between perceptions of the research training environment and students' research self-efficacies. It was expected that research mentoring experiences would mediate the relationship between their perceptions of the research training environment and their resulting levels of research self-efficacy. As hypothesized, racial/ethnic minority doctoral students' research mentoring experiences mediated the relationship between their perceptions of the research training environment and their research self-efficacies.

The researcher was further interested in establishing parsimony within a model best fit to predict the research self-efficacies of racial/ethnic minority,

professional psychology doctoral students. Utilizing multivariate analysis, the optimal combination of variable predicting these students' research self-efficacies included only two of the three variables of interest (i.e., RTE, RME, and Interest in Research). The final model indicated that the research self-efficacies of minority doctoral students in professional psychology were optimally predicted by a linear combination of their interest in research (the stronger predictor) and research mentoring experiences.

Finally, the researcher was interested in investigating the moderating effect of congruence in minority status between doctoral students and their mentors on the relationship between research mentoring experiences and research self-efficacy. In so doing, the researcher anticipated adding to the literature surrounding the mentoring of minority doctoral students in psychology. Based on the data presented above, it was suggested that congruence status in mentoring dyads moderated the relationship between research mentoring experiences and research self-efficacies. As was observed within the data, the relationship between research mentoring experiences and research self-efficacy was significantly more increased for students within noncongruent minority status mentoring relationships versus those in congruent relationships.

CHAPTER V

DISCUSSION

In this chapter of the dissertation, a discussion ensues regarding the findings under the current investigation. The results are first summarized and discussed in order to provide an overview of the data. The implications of these findings are then explored. Following implications are the limitations of the study. The chapter closes with future directions for research.

Introduction

The current study has as its foundation, a cannon of prior research focused on the development and training of professional psychology doctoral students in becoming consumers, producers, and integrators of scientific knowledge (Bishop & Bieschke, 1998; Gelso, 1979, 1993; Gelso, Mallinckrodt, & Judge, 1996; Hollingsworth & Fassinger, 2002; Kahn & Scott, 1997; Mallinckrodt, Gelso, Royalty, 1990). The foundation upon which this study was built has traditionally focused its scope on the research training environment and the various permutations of its many correlates (e.g., Holland code type, interest in research, research self-efficacy, research mentoring experiences, and productivity, to name a few). This has been done in an effort to understand how best to attract, to prepare, and to graduate individuals interested in becoming scientifically-minded psychologists. The present study sought a similar end; however, the researcher was particularly interested in understanding the research mentoring experiences and research self-efficacies of racial/ethnic minority doctoral students within professional psychology. Further, the

researcher was curious as to whether previous models of research self-efficacy and research training would be upheld with a racial/ethnic minority sample. What follows are answers to these areas of inquiry.

Summary and Discussion of Findings

Research Mentoring Experiences

Research mentoring experiences of racial/ethnic minority doctoral students in professional psychology is the focus of the current study. Hypotheses raised within the present investigation give voice to an area of research, which has been often underemphasized and limited within the profession's empirical literature. As such, this study adds to existing research regarding the research mentoring of racial/ethnic minority doctoral students.

It was hypothesized that research mentoring experiences would range among individuals within the sample. As expected, racial/ethnic minority doctoral students' research mentoring experiences were diverse, encompassing aspects of both career and psychosocial mentoring, the two domains underlying the research mentoring experiences construct. A majority or roughly 60% (63 participants) of the surveyed racial/ethnic minority doctoral students reported being mentored primarily by a majority (i.e., White or Caucasian) faculty member. Forty-two respondents indicated being mentored by a minority faculty member; and one student was uncertain about or did not know his/her mentor's racial/ethnic background. These findings are encouraging, in that a sizeable amount of racial/ethnic minority students are finding racial/ethnic minority faculty members to mentor them. Albeit, it is likely that given the limited presence of minority faculty members in professional psychology, faculty are mentoring multiple racial/ethnic minority doctoral students.

Beyond the complexion of mentoring within professional psychology, research mentoring experiences were shown to vary based on specific research task functions. Among the research mentoring experiences least attended to by faculty mentors were their providing support and advice in managing students' fears about and frustrations with research, encouraging grant writing, assisting with organizing literature reviews, sharing their challenges with conducting research, and introducing mentees to professional colleagues with similar research interests. The research mentoring experiences most attended to by faculty mentors were those involving faculty mentors' expressions of enthusiasm around conducting research, constructive critiques of students' works, modeling competence in research, encouraging students to speak up in research meetings, discussing mentees' research related goals, and communicating interest in mentee's research ideas. Racial/ethnic minority doctoral students also endorsed research task functions that were neither germane to nor present in their research mentoring relationships by responding *Not Applicable (N/A)*. Among the research task functions with the most *N/A* responses were primarily career mentoring (e.g., introducing protégé to professional colleagues with similar research interests and encouraging protégé to apply for research grants) versus psychosocial mentoring tasks (e.g., discussing his/her research dilemmas with you; see Table 4.1 for a full list).

No statistically significant correlation was found between year in program and research mentoring experiences of racial/ethnic minority doctoral students, as might have been expected given duration of and opportunities for research mentoring within the program. Prior research suggests that a doctoral student's year in their program is positively related to their research self-efficacy (Deemer, 2010; Kahn & Scott, 1997). Following the logic that more exposure to research and potentially to mentored

research experiences yields higher efficacy, research mentoring experiences should increase as year in doctoral program increases. However, in this case, year in program does not reflect such an association with regard to the research mentoring experiences of racial/ethnic minority doctoral students in professional psychology.

This finding suggests a number of possibilities or confounds in explaining its nonsignificance. One explanation for the lack of association may be due, in part, to prior research experiences (e.g., a completed or in progress master's thesis, undergraduate research, etc.). Individuals who have completed or who are completing a master's thesis and who are in their first year(s) of the doctoral program may confound this relationship. Approximately 73 of the 106 (~69%) respondents were within these two categories (i.e., either have completed or are completing a master's thesis). Detailed instructions on the RMES inform participants to consider their research mentoring experiences within the doctoral process; however, it is probable that some students may have responded from a past research involvement. This could have the effect of increasing the type and attention paid to research mentoring experiences for individuals within their initial year(s) of the doctoral program.

Another plausible explanation for the discordant findings may involve limited experiences had by racial/ethnic minority doctoral students within research mentoring relationships. They may report having been in or currently being in a research mentoring relationship; however, the types and amounts of attention paid to the various research task functions might be minimal or unimportant. The literature regarding racial/ethnic minority doctoral students' experiences in predominantly White institutions is replete with examples of differential treatment and experiential challenges. One such challenge might be the difficulty in finding willing research mentors and/or finding congruence or compromise in research topics between

mentors and protégés. Racial/ethnic minority doctoral students are less likely than their White counterparts to find mentors who reflect their same racial or cultural background and are equally as unlikely to find research interests that are congruent with their own (Padilla, 1994). Despite their year in program, racial/ethnic minority students can potentially matriculate through their entire doctoral programs without encountering meaningful research mentoring experiences until having to complete their doctoral dissertations. Even at dissertation status, there is no guarantee that students will experience as meaningful or as diverse a range of research mentoring experiences assessed within the current study.

Racial/ethnic minority doctoral students report a wide range of research mentoring experiences. The average respondent is within their first few years of the doctoral program and has a primary mentor who is likely a White or Caucasian faculty member. In considering their overall research mentoring experiences, racial/ethnic minority doctoral students report having their faculty mentors pay *Some* to quite a bit of attention to their diverse research task functions. No significant correlations were found between research mentoring experiences and respondents' gender designations. Hollingsworth and Fassinger (2002) similarly reported no significant gender effects on the variables of interest in their study – to include research mentoring experiences. Moreover, no significant differences in psychosocial or career mentoring experiences were found on the basis of mentor-mentee minority congruence status.

Unique Variance in Predicting Research Self-Efficacy

Beyond the status of racial/ethnic minority doctoral students' research mentoring experiences, the researcher sought to discern the unique influence research

mentoring experiences has on research self-efficacy. Prior research on the research training of professional psychology doctoral students indicates the influence of faculty modeling on and reinforcement of research behaviors (Gelso, 1979, 1993); however, its limited coverage of the faculty role and the types of research mentoring experiences necessary to enhance research self-efficacy and research behaviors suggests its limitation as a model. Particularly, as it relates to the experiences of racial/ethnic minority doctoral students in professional psychology, the significance of the mentoring function in their successful matriculation has been well documented (Atkinson, Brown, & Casas, 1996; Chan, 2008; Hill et al., 1999). Given the centrality of the mentoring relationship in completion rates for minorities, it was imperative for the researcher to assess the unique contribution of research mentoring experiences above and beyond the contributions made by students' interests in research and their perceptions of their research training environments.

Hierarchical regression analyses evinced results which suggested the significant additive contribution of research mentoring experiences in predicting research self-efficacy, above and beyond that explained by students' perceptions of their research training environment and their interest in research. Research mentoring experiences contributed an additional 4% to the variance predicting racial/ethnic minority doctoral students' research self-efficacies. While the entire model does not explain a great deal of the variance comprising minority doctoral students' research self-efficacies, it further establishes research mentoring experiences as a vital component in its prediction.

As research regarding students' research mentoring experiences continues to mount, it is crucial to underscore the value of mentoring for racial/ethnic minority doctoral students. Particularly within the context of the research training environment,

research mentoring experiences may serve as the essential element within the research training environment to influence research self-efficacy.

Mediating Effect of Research Mentoring Experiences

Beyond the role research mentoring experiences plays in predicting research self-efficacy among racial/ethnic minority doctoral students, the researcher was curious as to the intervening role it may have on the relationship between students' perceptions of their research training environment and their research self-efficacies. An analysis of mediation was conducted in order to test this hypothesis. Findings from these analyses revealed that in fact, research mentoring experiences fully and positively mediates the relationship between the research training environment and minority doctoral students' research self-efficacies. The data corroborate findings from the Hollingsworth & Fassinger (2002) study, which established research mentoring experiences as a mediator of students' perceptions of their research training environments and their research productivity, a variable reflecting increased research self-efficacy. It further suggests that it is through research mentoring experiences that racial/ethnic minority doctoral students' perceptions of the research training environment influence their research self-efficacies.

Optimal Linear Combination of Predictor Variables

The optimal linear combination of variables among research training environment, research mentoring experiences, and interest in research was sought in order to best predict racial/ethnic minority doctoral students' research self-efficacies. It was hypothesized that the linear combination of variables contributing the most variance in predicting research self-efficacy would include all three variables of

interest in the following order of precedence: interest in research, research mentoring experiences, and research training environment. The data confirmed the hypothesized order of the variables from highest to lowest priority. Notwithstanding, perceptions of the research training environment was excluded from the final equation, as it added no significant incremental variance to the two established predictors (i.e., interest in research and research mentoring experiences).

What this means for the perceptions of the research training environment is that its influence on the prediction of research self-efficacy is not a significant one. Thus, it leaves interests in research and research mentoring experiences in the model explaining the research self-efficacies of racial/ethnic minority doctoral students. Between the two remaining predictor variables, interest in research is shown to demonstrate the most influence followed by research mentoring experiences.

For the sample surveyed, we see that perceptions of the research training environment are not a factor when predicting racial/ethnic minority doctoral students' research self-efficacies. While the researcher anticipated the influence of research mentoring experiences would surpass that of the research training environment, the exclusion of the research training environment from the model altogether was not hypothesized. Given prior theoretical and empirical evidence to the contrary (Bishop & Bieschke, 1998; Gelso, 1979, 1993; Kahn & Scott, 1997, Phillips & Russell, 1994), the lack of significant additive influence of the research training environment on research self-efficacy is unexpected but not inconceivable. Multiple explanations abound as to what may be differentiating the experiences of students within the respective studies.

An explanation for the distinction in models may lie in the differentiated research training experiences of racial/ethnic minority students versus predominantly

White students. Doctoral students of color have long commented on their experiences of oppression and unequal treatment in their doctoral programs of study. While these students may experience research connections with a faculty mentor, their experiences beyond their mentor-protégé relationship may leave much to be desired.

Moderating Effect of Minority Congruence Status

The question was posed as to whether mentor-protégé minority congruence status (i.e., match versus mismatch) moderated the relationship between research mentoring experiences and research self-efficacies of racial/ethnic minority doctoral students. It was hypothesized that congruence status would moderate the relationship between research mentoring experiences and research self-efficacy in such a manner that research mentoring experiences would further increase students' research self-efficacies for those in minority congruent relationships. Findings from the study suggest the presence of a moderation effect; however, the effect was seen in noncongruent mentoring dyads. This effect was unexpected, given the preponderance of literature supporting the benefits of same- or similar-race mentoring relationships (Alvarez, Blume, Cervantes, & Thomas, 2009; Chan, 2008).

The results from the current investigation raise questions as to the successful research mentoring of racial/ethnic minority doctoral students within professional psychology. In the current study, research mentoring and research self-efficacy are operationalized by majority researchers and instrument developers. What is missing from the models and instruments assessing the research process are tools which evaluate the appropriateness of research tasks associated with students' communities of origin or cultural reference groups. Development and adaptation of such scales were unavailable for use within the current protocol; however, they are valuable

research measures and procedures necessary for assessing research tasks within communities of color. Other aspects of the research mentoring experiences and research self-efficacies of minority doctoral students might focus on the measurement of more qualitative methods of inquiry, which often provide depth to the study of phenomena versus the breadth often capitalized upon by quantitative methods.

Several unaccounted for factors may influence the differentiation in type, frequency, duration, and quality of research mentoring experiences for racial/ethnic minority doctoral students in minority congruent versus noncongruent relationships. Among these aspects of research mentoring are: the availability of minority faculty research mentors, the research mentoring experiences of minority faculty, the myriad responsibilities of minority faculty, matching of racial/ethnic identity attitudes between mentors and protégés, research anxieties among doctoral students, prior research preparation of minority doctoral students, and institutional resources which reinforce research productivity. Each aspect presents unique challenges for the relationships between racial/ethnic minority faculty mentors and their protégés.

The availability of racial/ethnic minority faculty for mentoring doctoral students of color has been a major concern within professional psychology graduate education. The benefits associated with having minority faculty mentor minority doctoral students are numerous, ranging from reflecting and modeling behaviors associated with minority research productivity to communicating sensitivity surrounding shared experiences of oppression (Padilla, 1994), to name a few. Given their low numbers, faculty of color often bear the brunt of serving as mentors for the majority, if not, all racial/ethnic minority doctoral students – among other student advisees. The impact of their low numbers can trickle down to their protégés given their overextended advisee loads, limiting time for qualitatively rich mentoring

experiences.

Another factor that may exact a toll on the research mentoring of racial/ethnic minority doctoral students is the research mentoring of racial/ethnic minority faculty. Research suggests that minority faculty struggle to find mentoring themselves by senior, more established faculty researchers within their academic departments and within the profession at large (Evans & Cokley, 2008; Shavers, Fagan, Lawrence, McCaskill-Stevens, McDonald, Browne, McLinden, Christian, & Trimble, 2005). With the constant struggles associated with research, advising, teaching, and other service requirements, it can prove challenging to find time and support for research mentoring. Moreover, given the devaluation of minority faculty's research interests by their majority counterparts (Shaver et al., 2005), concerns of tenure and promotion may contribute to these stressors associated with minority faculty status.

For both faculty and students, racial/ethnic identification can play a critical role in establishing congruence in the mentoring relationship and can subsequently influence research self-efficacy. Though not examined within the current investigation, due to power and sample size considerations, the use of racial/ethnic identification as a variable of interest warrants discussion. In her conception of the Social Interaction Model (SIM), Helms (1990) described two major types of relationships – that is, parallel and crossed – that develop when racial dynamics exist in both same- and cross-race dyads. Parallel dyads are established when mentors and their protégés share similar statuses of racial identity; in crossed dyads, the two exhibit discordant racial identity statuses. Within a crossed dyadic context, the relationship can either be regressive or progressive. A regressive dyad is established when the protégé is more advanced (i.e., at least by one higher status) in his/her racial identity development than their mentor. The opposite is the case when crossed dyad

relationships are deemed progressive, the mentor is further along in his/her racial identity development.

When minority-congruent mentoring relationships lack complementarity in racial and/or ethnic identity beliefs, dissonance may exist within the relationship. For example, a pre-encounter racial/ethnic minority doctoral student, who believes White researchers are more informed or are superior to minority researchers, may discredit or question his/her minority faculty mentor's capabilities and as a result question their own learned research skill development. A faculty mentor who has cycled back into an encounter stage, due to racist or prejudicial treatment by colleagues, might perceive the student as a "sellout" or a threat and unwittingly sabotage the relationship. Similarly, the roles could be reversed and the student could feel frustrated regarding the lack of racial/ethnic authenticity within their research mentoring relationship and desire more culturally-relevant approaches to research. Either way, it is imperative to assess racial identity attitudes and beliefs within mentoring dyads, because the feelings of contentment, frustration, or discord within such relationships may be a function of this dynamic – at times, unbeknownst to either member of the relationship.

Beyond racial/ethnic identity beliefs, racial/ethnic minority doctoral students bring other challenges to their research mentoring relationships as well. Similar to their White counterparts, racial/ethnic minority doctoral students express reticence regarding conducting research (Gelso, 1979, 1993, 1997). Moreover, they enter doctoral programs with varying levels of research preparation. Despite the current sample's prior research experience with having completed master's theses, they remain susceptible to fluctuations in their research self-efficacies. For instance, the student might have employed one research method or statistical analysis in their prior

research experience; however, learning or adapting a new research technique or protocol may prove anxiety-provoking or challenging. This and other challenges in research skill development can serve to lessen research self-efficacy among students.

Additional student factors may include racial/ethnic minority doctoral students' expectations of research mentoring relationships with racial/ethnic minority faculty, interpersonal clashes with minority faculty, and variable research skill/ability. These aspects of a minority congruent relationship may often prove nonexistent for minority noncongruent relationships, given minimal to no expectations (i.e., by racial/ethnic minority doctoral students) of care and/or concern by majority mentors. Majority faculty mentors are often less inclined to working with racial/ethnic minority students who they deem as having considerable deficiencies in their research abilities and with whom they experience interpersonal differences.

In addition to faculty and student variables, institutional factors may contribute to the disparate mentoring experiences and resulting self-efficacies of minority congruent and non-congruent faculty-student dyads. Institutional type and prestige, institutional resources for research, and departmental resources (and their allocation) may also contribute to the differences between mentoring dyads. Each of these factors exacts a distinct toll on mentoring relationships between faculty and students and can contribute to varying levels of research self-efficacy among minority doctoral students.

Institutional type and prestige across research institutions with varied research infrastructures may influence the research self-efficacies of minority doctoral students through the limited availability of resources for grant competition, intramural research funding support, and institutional commitment to the research enterprise. For instance, teaching colleges with research aspirations or designations may not have the

depth of institutional supports (i.e., grants administration, financial, etc.) as major research institutions to nurture the research programs and agenda of minority faculty. Laboratory start-ups, graduate student funding, and other university financial incentives and supports for research are part and parcel of an institution's commitment to supporting all faculty members' research. Institutions without such commitments and financial resources may experience difficulty supporting minority researchers' efforts at developing strong research programs (Shavers et al., 2005). Within-institution cronyism and discrediting of racial/ethnic minority faculty members' research are yet other means of affecting racial/ethnic minority doctoral students' research self-efficacies.

The finding that minority doctoral students in noncongruent mentoring dyads experience a greater increase in their research self-efficacies as a function of their research mentoring experiences supports some prior research (Atkinson et al., 1996; Atkinson, Neville, & Casas, 1991; Hill et al., 1999), suggesting the need for majority faculty's involvement in the collective mentoring of minority doctoral students of color. This body of research also emphasizes the realities associated with the low numbers of available minority faculty mentors in providing mentoring across the board to doctoral students of color in professional psychology (Atkinson, Brown, Casas, & Zane, 1996; Hammond, 1987; Pruitt & Isaac, 1985). Literature focused on cross-cultural mentoring of minority doctoral students suggests that despite low minority faculty numbers, it is often preferred that racial/ethnic minority doctoral students be paired with same- or similar-race faculty (Hill et al., 1999). Further, the literature provides guidelines for helping faculty become more multiculturally-competent when working with racial/ethnic minority students (Alvarez et al, 2009; Brown et al., 2009).

In sum, there appear to be a host of factors at play when examining the finding that racial/ethnic minority doctoral students who are mentored by White faculty mentors experience increased research self-efficacies as a function of their research mentoring experiences. Taken together, such factors suggest the need for further examination of the mentoring of racial/ethnic minority doctoral students by both minority and majority mentors.

Implications of the Findings

Findings from the study have several implications for the research mentoring, training, and self-efficacy of racial/ethnic minority doctoral students. The findings regarding the effects of research mentoring experiences on research training environment perceptions and on research self-efficacies suggest a need for another update and revision to research training environment theory. Research mentoring experiences needs to be integrated as more of a critical component to the research training environment construct. This component should not be relegated to two functions (i.e., modeling behavior and reinforcement effects) associated with the research training environment, as it involves much more – at least for racial/ethnic minority doctoral students.

The central role of research mentoring experiences in the development of racial/ethnic minority doctoral students as scientists has significance for every phase of doctoral student matriculation, from recruitment and admission to graduation. When recruiting racial and ethnic minorities for entrance into a doctoral program in professional psychology, discussions regarding opportunities for research mentoring should be placed at the forefront. Training programs and their staff must make plain the nature and application of their research agenda in relation to the experiences of

racial and ethnic minority doctoral students (Bernal & Padilla, 1982; Liu, Sheu, & Williams, 2004). This necessitates a multi-pronged approach, requiring training programs to put in place several programmatic functions, including but not limited to: the presence of racial and ethnic minority faculty, White or Caucasian faculty willing and capable of research mentoring, curriculum infused with multicultural and race-specific theories and applications, and activities that support successful mentor-protégé pairings (Alvarez et al., 2009; Brown, Daly, & Leong, 2009).

In mentoring minority doctoral students to persist and to thrive throughout the doctoral research training environment, it is incumbent upon training programs to not only involve them in research early, but it is also imperative that the integration of their racial identification be seamlessly interwoven into their identities as researchers. This requires both racial self-awareness and ability on the part of faculty mentors to foster racial identification development within their protégés. It also mandates that faculty mentors (i.e., from minority and majority backgrounds) are acutely aware of not only multiculturally-competent ways of conducting research, but also how to manage students' parallel (i.e., as racial beings and as scientists) identification processes.

Degree completion by racial/ethnic minority students requires the successful management of the doctoral dissertation, the final research requirement in the doctoral process. The establishment of research self-efficacy within racial/ethnic minority doctoral students and the prior exposure to research mentoring experiences can augment completion rates by lessening the anxieties and frustrations associated with research long before commencement of the dissertation stage. Their consistent and relevant involvement in research can facilitate increased self-efficacy around conducting research, which can in turn impact scientific integration into their clinical

practice and/or academic careers.

Besides training environment-at-large implications, the current study's findings suggest the importance of mentors providing diverse research mentoring experiences. Results revealed a lack of exposure of some racial/ethnic minority doctoral students to the dilemmas that faculty experience in conducting research and to the grant writing process. It is therefore incumbent upon research faculty to develop the appropriate level of closeness and vulnerability to racial/ethnic minority doctoral students to share with them their research mishaps and to prepare them to become major research investigators. Establishing this type of working relationship benefits not only the protégé, but also the research mentor in multiple ways. In this type of relationship, mentors are freed from the press of having to present themselves flawless as researchers. Further, the generativity established in involving diverse students within faculty members' research agenda enhances research conceptualization, execution, interpretation, and applicability.

Another implication of the findings relates to the research behaviors of racial/ethnic minority doctoral students. As more attention is given to the research mentoring experiences of racial/ethnic minority doctoral students, opportunities for increased research self-efficacy may effectuate increased research productivity (e.g., publication, presentation, etc.). Although not a variable under the current study, research productivity has been shown to increase as a function of increased research self-efficacy (Hollingsworth & Fassinger, 2002; Kahn, 2001). As racial/ethnic minorities are more likely to conduct research germane to their minority statuses, it is imperative that their varied perspectives are provided an avenue by which science can inform practice within professional psychology and within their respective communities. Venues for these types of perspectives might be best suited through

book publication, journal articles, or via community workshops. In any case, culturally-relevant research may find its way to the communities and contexts in which they are most needed and embraced.

Limitations

Limitations of the current study are worth mentioning and provide support for future research in this area. The study made use of a correlational design, which employed the use of online surveys for data collection. The essential nature of the study limits the ability of the researcher to interpret associations made within the study as causal, given the nature of the data captured and the lack of random selection of participants for involvement in the study. Moreover, given the format of the data collection process, which was through an online platform, limitations may exist regarding individuals feasible and savvy enough to take the survey. Given training programs' requirements for their students to do more online research and to manipulate ever-sophisticated computer software, it is likely that a good majority may express an ease of use. Notwithstanding, individuals who typically do not spend their downtime online or who are discomforted by online web use may have found the survey to be inaccessible. Future research may consider use of direct-mailing questionnaires or protocols to participants, either in addition to or instead of online web use, allowing for an extension of return rate. The obscurity and considerable inaccessibility of the population of interest necessitated a tool to reach as wide an audience as possible with expedience, which provides a valid justification of the method used; however, future research may limit its scope by focusing more deeply versus broadly in addressing racial/ethnic minority doctoral students' experiences.

Another set of limitations associated with the current study involves its

reliance on solely participants' self-reports of their research mentoring experiences, a variable open to considerable interpretation based on one's side of the relationship. Gathering information regarding faculty mentors' perceptions or reports of their own research mentoring behaviors and the behaviors of their protégés may provide a fuller picture of the types of research mentoring experiences provided and the areas of divergence and agreement surrounding the amount of attention paid to research task functions. In a similar fashion, programmatic feedback from students' research training environment may provide additional information regarding how and at which frequencies racial/ethnic minority doctoral students actively engage their environments. Discrepant views from both levels of informants may be elucidating as to either the depths of marginalization students may feel in research unfriendly environments or the approach-avoidance students may exhibit, which the training environment and its constituents might in turn perceive as disinterest or aloofness.

Another limitation of the study relates to the researcher's use of measures and scales typically normed on representative samples of doctoral students in professional psychology for use with a solely racial/ethnic minority sample. The measures used for the current study were employed to assess the applicability of the research mentoring experiences and research self-efficacy constructs to the chosen sample. In particular, the researcher was interested in assessing the utility of the research mentoring experiences construct. Given its restricted scope due to limited inclusion of research mentoring experiences germane to research with communities of color and its lack of mixed approaches to knowing, findings from the scale may not fully capture the sum total of research mentoring experiences for racial/ethnic minority doctoral students. Future work in this domain should be undertaken to expand the scope of the measure to include more inclusive ways of knowing.

Future Directions

Future research in the area of racial/ethnic minority doctoral students' research mentoring experiences and research self-efficacies need take a mixed methods approach to understanding students research experiences, behaviors, and beliefs. In this manner, more nuanced questions regarding the cultural salience of mentored research experiences can be ascertained. In so doing, the breadth as well depth of knowing about their lived experiences as it pertains to research can be captured.

Additional research efforts at better understanding the research mentoring experiences of racial/ethnic minority doctoral students might involve other respondents to include individuals on the faculty mentor, training staff, and university-wide levels. Including others' perspectives in gaining a fuller glimpse into the experiences of racial/ethnic minority doctoral students in professional psychology can serve the joint purposes of gaining richer data and triangulation.

Further research into racial/ethnic minority's research mentoring experiences might also benefit from scale development and factor analysis of varied approaches to research mentoring. Scale development that takes this into account might expose other areas of research not popularized within professional psychology. From this stance, minority faculty mentors can contribute expertise to culturally-salient measures, which strengthen in psychometric properties over time.

Finally, future research might be more focused on the experiences of specific racial/ethnic minority groups. For instance, better understanding the experiences of Blacks within professional psychology might diminish the press to account for the various forms and experiences of oppression differentiated among racial/ethnic minorities. The current study did not delineate the degrees of oppression and/or relative experiences of acculturation experienced by minority groups within the study.

However, for future work focused on monoracial groups, these experiences can be spoken to more explicitly and addressed accordingly.

In closing, the current study provides credence to the effects of research mentoring experiences on the research self-efficacies of racial/ethnic minority doctoral students in professional psychology. Further, it is the first of its kind to provide a window into the research experiences and beliefs of racial/ethnic minorities without drawing comparisons or conclusions about this group's standings with their White or Caucasian counterparts. Additionally, the study suggests the role of research mentoring experiences as a critical element mediating the relationship between minority doctoral students' perceptions of their research training environments and their research self-efficacies. Moreover, the study lends evidence to the precedence given to interest in research and research mentoring experiences as optimal predictors of racial/ethnic minority doctoral students' research self-efficacies. Finally, the study indicates the moderating effect of congruence status on the relationship between research mentoring experiences and research self-efficacies such that students in the noncongruent category experience greater increases in research self-efficacy as a function of their research mentoring experiences.

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Appendix A
Human Subjects Institutional Review Board Approval Letters

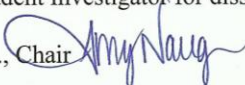
WESTERN MICHIGAN UNIVERSITY



Human Subjects Institutional Review Board

Date: January 24, 2012

To: Lonnie Duncan, Principal Investigator
Donald Knight, Student Investigator for dissertation

From: Amy Naugle, Ph.D., Chair 

Re: HSIRB Project Number 12-01-01

This letter will serve as confirmation that your research project titled "Examining the Role of Research Mentoring in the Prediction of Research Self-Efficacy among Minority Professional Psychology Doctoral Students" has been **approved** under the **exempt** category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note that you may **only** conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: January 24, 2013

WESTERN MICHIGAN UNIVERSITY



Human Subjects Institutional Review Board

Date: March 1, 2012

To: Lonnie Duncan, Principal Investigator
Donald Knight, Student Investigator for dissertation

From: Amy Naugle, Ph.D., Chair

A handwritten signature in blue ink that reads "Amy Naugle".

Re: HSIRB Project Number 12-01-01

This letter will serve as confirmation that the changes to your research project titled "Examining the Role of Research Mentoring in the Prediction of Research Self-Efficacy among Minority Professional Psychology Doctoral Students" requested in your memo dated February 29, 2012 to (to modify demographic survey to clarify exclusion criteria; to add document to acknowledge excluded participants; to remove option to enter lottery for excluded participants) have been approved by the Human Subjects Institutional Review Board.

The conditions and the duration of this approval are specified in the Policies of Western Michigan University.

Please note that you may **only** conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: January 24, 2013

Appendix B
Email Solicitation to Training Directors

Greetings Dr. [Last Name]:

My name is Donald E. Knight and I am a doctoral candidate in the Counseling Psychology program at Western Michigan University. I am writing to request your assistance in identifying racial/ethnic minority doctoral students in your program for participation in my doctoral dissertation research. As a researcher, I seek to better understand the confidence racial/ethnic minority doctoral students have in their research abilities as explained by their respective research mentoring experiences. I am enlisting your support in forwarding the attached invitation email to students in your program who are members of groups (i.e., Black/African American, Latino/Hispanic American, Asian American, or Native American) within the population of interest. This study has been approved by the WMU Human Subjects Institutional Review Board.

Students are being asked to fill out an online survey, taking approximately 15-25 minutes in length. All data will be kept confidential, and only aggregate data will be reported. In return for their time and commitment to the survey, participants will be entered into a lottery for a chance to win one of four gift cards to Best Buy and Target.

I appreciate your willingness to support the forward progression of this important work. Should you have any questions of clarification or curiosity, please do not hesitate to contact me (donald.knight@wmich.edu) or my dissertation advisor, Lonnie E. Duncan, PhD (lonnie.duncan@wmich.edu).

Sincerely,
Donald

Donald E. Knight, MA
Counseling Psychology Doctoral Candidate
Western Michigan University

Lonnie E. Duncan, Ph.D.
Dissertation Chair
Counseling Psychology
Western Michigan University

Appendix C
Email Solicitation to Study Participants

Greetings Fellow Doctoral Student:

My name is Donald E. Knight and I am a doctoral candidate in the Counseling Psychology program at Western Michigan University (WMU). I am writing to invite you to participate in my doctoral dissertation research, which seeks to investigate the research self-efficacies of racial/ethnic minority doctoral students in clinical and counseling psychology programs as explained by their respective research mentoring experiences. This study has been approved by the WMU Human Subjects Institutional Review Board. As a participant in the study, you will be asked to fill out an online survey, taking approximately 15-25 minutes in length. All data will be kept confidential, and no personally identifiable information will be collected as part of this study. Only aggregate data will be reported. For your time and effort in completing the survey, you will have the option to be entered into a lottery for a chance to win one of four gift cards (i.e., in the amount of \$25) to Best Buy or Target.

Should you have any questions regarding the survey – at any point in the process – please do not hesitate to contact me (donald.knight@wmich.edu) or my dissertation advisor, Lonnie E. Duncan, PhD (lonnie.duncan@wmich.edu). Also, feel free to express your thoughts or concerns about the survey or its subject matter in the Comments section at the end of the survey.

Below is a link to the survey. Your participation is greatly appreciated!

<http://bit.ly/y3pCVL>

Onward and Upward,
Donald

Donald E. Knight, M.A.
Doctoral Candidate
Counseling Psychology
Western Michigan University

Lonnie E. Duncan, Ph.D.
Dissertation Chair
Associate Professor & Co-Training Director
Counseling Psychology
Western Michigan University

Appendix D
Informed Consent Form and Online Survey

Western Michigan University
Department of Counselor Education & Counseling Psychology
Examining the Role of Research Mentoring in Predicting Research Self-Efficacy
Among Minority Professional Psychology Doctoral Students
Lonnie E. Duncan, PhD, Principal Investigator
Donald E. Knight, MA, Student Investigator

You have been asked to participate in a research study. Nonetheless, prior to your consenting to be a volunteer, we would like you to read the following and to ask as many questions as necessary to be certain you understand what your participation will involve. This research is Donald E. Knight's dissertation project and is being supervised by Dr. Lonnie E. Duncan.

PURPOSE OF THE RESEARCH

The purpose of the study is to better understand the research mentoring experiences of minority doctoral students in professional psychology programs.

INSTRUCTIONS FOR PARTICIPATION

If after reading this consent documentation, you have questions regarding the nature of this research project, please feel free to email the primary and/or student investigator with any concerns or issues. Should you be willing to continue on with the research protocol, you will have the opportunity to express your consent electronically by clicking on the button at the bottom of this page. After which, you will be taken directly to the survey, where you will be asked to respond to several questions by selecting the appropriate responses. Completion time for this questionnaire ranges from 15-25 minutes from start to finish. At any time during this protocol, you may withdraw your participation from the study simply by leaving the website prior to submitting your responses. There will be no negative consequences for withdrawing your participation. If you decide to continue through to the end of the survey, you may submit your responses by clicking the 'Submit' button.

BENEFITS

You may benefit from your participation in this study by sharing your perspectives and experiences on the doctoral training of minority students in professional psychology. In sharing your experience, you may become aware of areas of personal growth or programmatic change. You may then spend more time in personally developing this area or in becoming involved in training reform as a result. More importantly, your added perspective will inform research and practice in counseling and clinical psychology on mentoring minorities to conduct research.

RISKS

The potential risks involved with your participation in this study are minimal. However, on occasion, feelings may arise as a result of your discussing these issues. In this case, we ask that you make every effort to speak with a trained professional – either on your campus, at your internship site, or within your community – in order to address your concerns.

CONFIDENTIALITY

Your responses to this survey will be kept completely confidential. Your name will not be associated with any part of the survey; in place of names, a unique identification number will be used to protect your anonymity. All data files will be maintained and secured (i.e., firewalled and otherwise protected by a comprehensive security application) on the student investigator's personal computer, until the conclusion of the study. At which point, the data will be transferred to the principal investigator's university computer, which is secured and backed up by the university's computing services. Any information obtained in connection with this research that can be identified with you will remain confidential and will not be disclosed without your permission.

COMPENSATION FOR PARTICIPATION

As compensation for your participation in this study, your name will be entered into a lottery for a chance to win one of four \$25 gift certificates to Best Buy or Target. Lotteries will be drawn after the completion of the data collection; and contact information for the lottery will be discarded after lottery participants have all received their prizes.

QUESTIONS ABOUT THE RESEARCH

If you have any questions or concerns regarding the study, you can contact Donald E. Knight at 301.256.4688 (also donald.knight@wmich.edu) or Lonnie E. Duncan, PhD at 269.387.5152 (or lonnie.duncan@wmich.edu), at any time. Please include the following in the subject line of your message, "RESEARCH SELF-EFFICACY STUDY QUESTION." You may also contact the Chair, Human Subjects Institutional Review Board (269.387.8293) or the Vice President for Research (269.387.8298) if questions or problems arise during the course of the study.

PARTICIPANT RIGHTS AND RESEARCH WITHDRAWAL

Your participation in this study is completely voluntary. You may refuse to participate or withdraw once the study has started by leaving the survey website. You will neither lose any benefits to which you are otherwise entitled nor will you be penalized.

Having been informed of the details associated with your participation in this study, you should feel free to contact the student investigator with additional questions.

BY CLICKING ON THE BUTTON BELOW, I CERTIFY THAT I HAVE HAD THE OPPORTUNITY TO READ THE ABOVE INFORMATION AND HAVE HAD A CHANCE TO INQUIRE FURTHER ABOUT MY PARTICIPATION WITHIN THIS STUDY. FURTHER, I AGREE TO PARTICIPATE IN THE STUDY UNTIL I DECIDE OTHERWISE – AT WHICH POINT I WILL NOT BE PENALIZED FOR MY WITHDRAWAL.

Demographic Questionnaire

Please answer the following questions about your demographic information.

1. In what type of doctoral program are you currently enrolled?
 clinical counseling combined other
2. What type of doctorate are you currently pursuing?
 PhD PsyD EdD Other: Please indicate
3. Please indicate the country location of your doctoral program:
 U.S. Canada Other: Please indicate
4. Is your current doctoral program APA-accredited?
 Yes No Not Applicable
Please specify 'not applicable':
5. Year in the doctoral program:
 1st 2nd 3rd 4th 5th 6th + Internship
 Post-internship
6. Have you completed a master's thesis?
 Yes Currently working on it en route No - not applicable
7. Indicate number of statistics classes taken during graduate school:
 0 1 2 3 4 5 6 or more
8. Indicate number of research methods classes taken during graduate school:
 0 1 2 3 4 5 6 or more
9. What is your gender?
 Female Male Transgendered
10. In what year were you born?
 (Select year)

11. Which of the following best describe your race/ethnicity? Please select all that apply.
- American Indian or Alaska Native
 - Asian American
 - Black or African American, non-Hispanic
 - Hispanic or Latina/o
 - Native Hawaiian or Other Pacific Islander
 - White or Caucasian, non-Hispanic
 - Other (please indicate):
12. Faculty mentor's racial/ethnic background (choose one primary mentor):
- Minority
 - Non-minority
 - Don't know/unsure
13. Are you a first-generation college attendee? (i.e., No prior generations – like your parents' or grandparents' – of your family attended college)
- Yes
 - No
 - Don't know/unsure
14. Describe your family of origin's socioeconomic background.
- Lower Class
 - Lower-Middle
 - Middle
 - Upper-Middle
 - Upper Class
 - Don't know/unsure
15. Please indicate your citizenship status:
- U.S. citizen
 - Canadian citizen
 - Other

Shortened Version of Self-Efficacy in Research Measure

Instructions: The following items are tasks related to research. Please indicate your degree of confidence in your ability to successfully accomplish each of the following tasks.

	Total Confidence			No Confidence	
1. Keeping records during a research project.	4	3	2	1	0
2. Designing an experiment using traditional methods, e.g., experimental, quasi-experimental designs.	4	3	2	1	0
3. Writing the introduction and literature review for a thesis or dissertation	4	3	2	1	0
4. Writing the introduction and discussion sections for a research paper for publication.	4	3	2	1	0
5. Formulating hypotheses.	4	3	2	1	0
6. Writing the method and results sections of a thesis or dissertation.	4	3	2	1	0
7. Utilizing resources for needed help.	4	3	2	1	0
8. Understanding computer printouts.	4	3	2	1	0
9. Defending a thesis or dissertation.	4	3	2	1	0
10. Using multivariate statistics, e.g., multiple regression, factor analysis, etc.	4	3	2	1	0
11. Using statistical packages, e.g., SPSS, SAS, etc.	4	3	2	1	0
12. Operationalizing variables of interest.	4	3	2	1	0

Research Mentoring Experiences Scale

Faculty often play an important role in students' research training and research experiences. Some students receive their most significant research experiences with their formally assigned advisor, while others receive their most important research mentoring through more informal faculty relationships. If you do not have anyone that you consider as a faculty mentor, please consider the faculty relationship that has been most important in your research training while in your current doctoral program, and use the following items to describe your current perceptions of this relationship. It is important that you consider your relationship with only one faculty member in completing this survey. Not all of these behaviors are important to all students or faculty, so please indicate "N/A" for those behaviors that are not present in your relationship.

You will need to provide a response to the stem in each column, circling the appropriate number in each column.

Research Task Functions	IN YOUR RESEARCH RELATIONSHIP WITH A SPECIFIC FACULTY MEMBER, TO WHAT EXTENT DOES HE OR SHE PAY ATTENTION TO THE FOLLOWING:					
	A Great Deal		Some		Very Little	N/A
1. discussing your research-related goals?	5	4	3	2	1	N/A
2. helping you develop research ideas?	5	4	3	2	1	N/A
3. involving you in one or more specific research projects?	5	4	3	2	1	N/A
4. exposing you to different research methods?	5	4	3	2	1	N/A
5. reminding you that flaws in research projects are inevitable?	5	4	3	2	1	N/A
6. suggesting additional resources, such as people or literature, you can consult to improve your research?	5	4	3	2	1	N/A
7. helping you organize a review of the literature?	5	4	3	2	1	N/A

Research Task Functions	IN YOUR RESEARCH RELATIONSHIP WITH A SPECIFIC FACULTY MEMBER, TO WHAT EXTENT DOES HE OR SHE PAY ATTENTION TO THE FOLLOWING:					
	A Great Deal		Some		Very Little	N/A
8. helping you to identify weaknesses in a research project?	5	4	3	2	1	N/A
9. helping you develop a realistic timetable for research projects?	5	4	3	2	1	N/A
10. encouraging you to apply for research-related grants?	5	4	3	2	1	N/A
11. encouraging you to attend important professional conferences?	5	4	3	2	1	N/A
12. introducing you to her/his professional colleagues who have similar research interests?	5	4	3	2	1	N/A
13. encouraging you with presentations of research at professional conferences?	5	4	3	2	1	N/A
14. collaborating with you on joint research projects?	5	4	3	2	1	N/A
15. encouraging you to express your ideas in research meetings?	5	4	3	2	1	N/A
16. using his/her power to motivate you to complete research tasks?	5	4	3	2	1	N/A
17. offering positive feedback about your research work?	5	4	3	2	1	N/A
18. constructively criticizing your research work?	5	4	3	2	1	N/A
19. encouraging you to talk openly about anxieties or fears that interfere with research?	5	4	3	2	1	N/A

Research Task Functions	IN YOUR RESEARCH RELATIONSHIP WITH A SPECIFIC FACULTY MEMBER, TO WHAT EXTENT DOES HE OR SHE PAY ATTENTION TO THE FOLLOWING:					
	A Great Deal		Some		Very Little	N/A
20. providing advice about how to manage feelings of frustration with research?	5	4	3	2	1	N/A
21. communicating interest in your ideas when you talk about research?	5	4	3	2	1	N/A
22. communicating respect regarding cultural differences in your relationship?	5	4	3	2	1	N/A
23. expressing appreciation for your contributions to research?	5	4	3	2	1	N/A
24. modeling competence in research-related skills?	5	4	3	2	1	N/A
25. observing connections between research and practice?	5	4	3	2	1	N/A
26. describing research as rewarding?	5	4	3	2	1	N/A
27. discussing his/her research dilemmas with you?	5	4	3	2	1	N/A
28. expressing enthusiasm for research?	5	4	3	2	1	N/A

Research Training Environment Scale – Revised

Below is a series of statements concerning research training.

Please note: We define research broadly. “Research” when used in this survey includes the following types of activities: designing and executing research projects, preparing manuscripts of a theoretical nature or a critical review of literature, conducting program evaluations or needs assessments, making presentations at professional conferences, participating as a member or a research team engaged in any of the above activities, and advising the research projects of others. Please respond to the following statements in terms of the doctoral program in which you are currently receiving your training. (Note: If you are currently on internship, please rate the graduate program in which you were previously trained.) Consider each statement using the following scale:

	1	2	3	4	5
	disagree	somewhat disagree	neutral	somewhat agree	agree
<u>Rating</u>	<u>Item</u>				
1. _____	My graduate program rarely acknowledges the scholarly achievements of the students.				
2. _____	The faculty does what it can do to make research requirements such as the thesis and dissertation as rewarding as possible.				
3. _____	I feel that my advisor expects too much from my research projects				
4. _____	There is informal sharing of research ideas and feelings about research ideas in my program.				
5. _____	Faculty members often invite graduate students to be responsible collaborators in the faculty members’ own research projects.				
6. _____	I was encouraged to get involved in some aspects of research early in my graduate training.				
7. _____	In my graduate training program there are opportunities to be a part of research teams.				
8. _____	I have felt encouraged during my training to find and follow my own scholarly interests.				

	1	2	3	4	5
	disagree	somewhat disagree	neutral	somewhat agree	agree
	<u>Rating</u>	<u>Item</u>			
9.	_____	The research climate here is one in which students can get in touch with their own curiosity and with the research questions they themselves want to ask.			
10.	_____	I have gotten the impression in my graduate training that my research work has to be of great value in the field to be worth anything.			
11.	_____	The faculty in my graduate training program is involved in the conduct and publication of high-quality research (or theory).			
12.	_____	The statistics courses we take do a good job, in general, of showing students how statistics are actually used in psychological research.			
13.	_____	There is a sense around here that being on a research team can be fun, as well as intellectually stimulating.			
14.	_____	My graduate training program has enabled me to see the relevance of research to clinical service.			
15.	_____	The faculty members of my graduate program encourage me to pursue the research questions in which I am interested.			
16.	_____	Faculty members in my program use an extremely narrow range of research methodologies.			
17.	_____	It is unusual for first-year students in this program to collaborate with advanced students or faculty on research projects.			
18.	_____	There seems to be a general attitude here that there is one best way to do research.			
19.	_____	I have the feeling, based on my training, that my thesis (or dissertation) needs to be completely original and revolutionary for it to be acceptable to the faculty.			

	1	2	3	4	5
	disagree	somewhat disagree	neutral	somewhat agree	agree
<u>Rating</u>	<u>Item</u>				
20. _____	We get high-quality training here in the use of statistics in applied research, e.g., counseling research.				
21. _____	Our faculty seems interested in understanding and teaching how research can be related to counseling practice.				
22. _____	Most faculty do not seem to really care if students are genuinely interested in research.				
23. _____	During our coursework, graduate students are taught a wide range of research methodologies, e.g. , field, laboratory, survey approaches.				
24. _____	There is a prevalent viewpoint in my training program that research findings can be used to improve clinical practice.				
25. _____	Our statistics instructors are generally sensitive to students' anxieties and feelings about statistics.				
26. _____	Students here seem to get involved in thinking about research from the moment they enter the program.				
27. _____	The faculty members of my graduate program show excitement about research and scholarly activities.				

Interest in Research Questionnaire

Directions: Using the 5-point scale provided, please indicate the degree of interest you have in the activities listed as part of **your professional (post-Ph.D.) career**. Please remember that the term research encompasses both quantitative and qualitative approaches.

<u>Very Disinterested</u>		<u>Indifferent</u>		<u>Very Interested</u>
1	2	3	4	5

1. Reading a research journal article.
2. Being a member of a research team (remember, the term research encompasses both quantitative and qualitative approaches).
3. Conceptualizing a research study.
4. Conducting a literature review.
5. Developing funding proposals.
6. Having research activities as part of every work week.
7. Conducting research at site of counseling practice.
8. Taking a research design course.
9. Taking a statistics course.
10. Developing a data analysis.
11. Analyzing data.
12. Discussing research findings.
13. Writing for publication/presentation.
14. Leading a research team.
15. Designing a study.
16. Collecting data.

Appendix E
Consent Emails from Measure Authors

Donald Knight

From: Jef Kahn [jkhahn@ilstu.edu]
Sent: Wednesday, October 17, 2007 7:20 PM
To: Donald E. Knight
Subject: Re: Self-Efficacy in Research Measure (SERM) Short Form Availability
Attachments: ForesterKahnHesson-McInnisJCA.pdf

Donald E. Knight wrote:

>
 > Dr. Kahn,
 >
 > My name is Donald Knight, and I am a doctoral candidate in Counseling
 > Psychology at Western Michigan University. I am in the dissertation
 > proposal stage of my program and am interested in looking at the
 > research training experiences of early career counseling psychologists
 > and their primary employment settings upon graduating. As part of this
 > research, I wanted to include a measure of research self-efficacy and
 > came across your name in association with the short form for the SERM.
 > Please let me know, if you would be willing to make a copy of this
 > measure available to me, as it would add tremendously to my project.
 > In addition, I would appreciate any advice concerning this topic area
 > given your extensive prior work.
 >
 >
 > Sincerely,
 >
 > Donald

>
 >
 > *****
 >
 > The manner in which you carry out a deed is more important than the
 > actual deed itself. It is the driving force that determines the
 > consequences. Assuming this kind of posture inclines you toward a
 > deeper education - - a path of wisdom and compassion that is far
 > superior to any curriculum that any school can offer. The way we do
 > anything is the way we do everything.
 >

Hi Donald,

Congratulations on getting to your proposal stage. I'd be very interested in hearing how your study unfolds.

Below I've attached the full-length SERM as well as the brief version of the SERM that I used in my dissertation. I've also attached an article that describes a factor analysis of research self-efficacy items that may help to inform your study. What I learned from that study is it's best to measure research self-efficacy at a global level and not try to measure specific subscales of research self-efficacy. Hopefully that fits with your plans.

I wish you the best of luck with your dissertation. Let me know if I can be of help along the way.

Donald Knight

From: merrish@UDel.Edu
Sent: Monday, October 15, 2007 3:21 PM
To: donald.knight@wmich.edu
Subject: RMES
Attachments: RMES.doc

Donald,
The RMES is attached. Let me know if you have any difficulty with the format or need further information. Scoring information included at the end. Good luck with your work!
Merris

Merris Hollingsworth, Ph.D., ABPP
Psychologist II
Assistant Director
Coordinator, Predoctoral Internship

Center for Counseling and Student Development
261 Perkins Student Center
University of Delaware
Newark, DE 19716
(302)831-2141

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Donald Knight

From: Charles Gelso [Gelso@psyc.umd.edu]
Sent: Wednesday, August 30, 2006 11:28 AM
To: Donald E. Knight
Subject: RE: Research Training Environment Scale
Attachments: RTES-R Measure and scoring.doc; RTES-R Subscales.doc

How about if I attach it. Here it is.
 CG

Charles J. Gelso
 Professor of Psychology
 University of Maryland, College Park
 Editor, Psychotherapy: Theory, Research
 Practice & Training
 Phone: 301-405-5909

>>> "Donald E. Knight" <donald.knight@wmich.edu> 08/30/06 11:06 AM >>>

Dr. Gelso,
 Thank you for your prompt reply. I would appreciate receiving a copy of the RTES-R at your earliest convenience. My mailing address is as follows:

Donald E. Knight
 Dept. of Counselor Education &
 Counseling Psychology
 3102 Sangren Hall
 Western Michigan University
 Kalamazoo, MI 49008

Sincerely,
 Donald

-----Original Message-----

From: Charles Gelso [<mailto:Gelso@psyc.umd.edu>]
 Sent: Wednesday, August 30, 2006 10:15 AM
 To: Donald E. Knight
 Subject: Re: Research Training Environment Scale

Dear Donald,

If you decide to use the RTES-R, I'll be happy to send you a copy free of charge. There is no cost for using it, except of course the cost of making copies.

Sincerely,
 Charlie Gelso

Charles J. Gelso
 Professor of Psychology
 University of Maryland, College Park
 Editor, Psychotherapy: Theory, Research
 Practice & Training
 Phone: 301-405-5909

>>> "Donald E. Knight" <donald.knight@wmich.edu> 08/29/06 8:49 AM >>>

Donald Knight

From: Kathleen Bieschke [kxb11@psu.edu]
Sent: Wednesday, October 08, 2008 10:06 AM
To: donald.knight@wmich.edu
Subject: RE: Interest in Research Questionnaire (IRQ)
Attachments: IRQ.doc

Hi Donald,

Attached is the information on the IRQ. You have my permission to use this in your study. Feel free to contact me if you have any questions.

Best, Kathy

Kathleen J. Bieschke, Ph.D.
 Professor
 Counselor Education, Counseling Psychology, and Rehabilitation Services
 Pennsylvania State University
 University Park, PA 16802
 814.865.3296 (work)
 814.863.7750 (fax)
kbieschke@psu.edu

From: donald.knight@wmich.edu [<mailto:donald.knight@wmich.edu>]
Sent: Tuesday, September 30, 2008 2:16 PM
To: kbieschke@psu.edu
Subject: Interest in Research Questionnaire (IRQ)

Dr. Bieschke,

Hello again. My name is Donald Knight, and I am doctoral student in Counseling Psychology at Western Michigan University; and I am interested in securing a copy of your Interest in Research Questionnaire (IRQ). If you would be willing to part with it, I would greatly appreciate it. I am working on my doctoral dissertation and examining minority students' research self-efficacy as it relates to a combination of other variables, of which Interest in Research is one.

I realize you're a busy lady, so whenever you could get back with me on this, I'd greatly appreciate it.

Thanks,
 Donald

The manner in which you carry out a deed is more important than the actual deed itself. It is the driving force that determines the consequences. Assuming this kind of posture inclines you toward a deeper education - - a path of wisdom and compassion that is far superior to any curriculum that any school can offer. The way we do anything is the way we do everything.

Appendix F
Notification Letter of Lottery Winners



WESTERN MICHIGAN UNIVERSITY

[Date]

[First Name] [Last Name]

[Address Line 1]

[Address Line 2]

Greetings Doctoral Student,

In the Spring of 2012, you were invited to partake in Donald E Knight's doctoral dissertation research study regarding the research mentoring experiences of minority doctoral students in professional psychology. As you may remember, the prizes associated with your involvement within the study included a one-in-four chance of winning a \$25 gift card at either Target or Best Buy. We are writing to notify you of the results of the dissertation study lottery and to inform you that your name was randomly selected to receive one of these prizes!

Per your request, please find your Best Buy gift card for \$25 enclosed. It has already been activated, and it is ready to be used.

Congratulations again on your being selected in the lottery.

Onward and Upward,

Donald E Knight, MA
Doctoral Candidate
Counseling Psychology
Western Michigan University

Lonnie E Duncan, PhD
Associate Professor & Co-Training Director
Counseling Psychology
Western Michigan University