AFRICAN AMERICAN GRADUATE STUDENT PERSPECTIVES OF THE ADVISORY WORKING ALLIANCE IN CROSS-RACIAL DYADS: EXAMINING CULTURAL MISTRUST AS A MODERATING FACTOR

A Dissertation in Counseling Psychology

by

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ABSTRACT

Although the representation of African Americans obtaining doctoral degrees has increased, the representation of African Americans in tenure track faculty positions has not. A potential explanation that has been offered for this disparity is the difficulty many minority students have in establishing successful programs of research. As such, faculty mentoring has been highlighted as an important resource for minority graduate students. Previous research has demonstrated links between positive graduate level advising experiences and variables such as attitudes towards research and research self-efficacy. Recently, Schlosser et al. (2011) have posited a Multiculturally Infused Model of Graduate Advising Relationships which attends to both the process and outcome of advising, with particular attention to the potential effects of multicultural variables such as cultural mistrust (Terrell & Terrell, 1981) on formation and maintenance of the advisory working alliance. The purpose of the current investigation was to explore the applicability of certain tenants the Multiculturally Infused Model of Graduate Advising Relationships for a sample of African American doctoral students from diverse fields of study. Specifically, the current study examined cultural mistrust as a moderator of the positive relationships expected between the advisory working alliance and research training outcome variables. Participants were 195 African American doctoral students attending doctoral programs at research intensive institutions. Results of the current investigation showed that variables shown to contribute variance to the Advisory Working Alliance (AWA) in previous studies were also supported in the present study (i.e., perceived availability of advisor, similarity of research interests with advisor, frequency of meeting with advisor). Variance in research self-efficacy and research outcome expectations was explained by the AWA. The AWA did not significantly
explain variance in interest in research. Cultural mistrust did not serve as a moderator for the AWA research self-efficacy or research outcome expectations link. Post hoc analyses showed that only one AWA subscale, identification-individuation, contributed to variance in the IRQ. Lastly, post-hoc analyses revealed that cultural mistrust also did not moderate between pairing method and the AWA or similarity of interests and the AWA.
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~ Dedicated to the memory of my daughter Daja 1998-2012~
Chapter 1

Introduction

Across disciplines, people of color occupy fewer tenure track faculty positions in academia than their non-minority counterparts (Evans & Cokely, 2008). The representation of African Americans in tenure track faculty positions, however, is lower in comparison to other minority groups. African American women currently represent 2.7% of tenure track faculty members, and African American men represent 2.6% (Evans & Cokely, 2008). Traditionally, the academic world has attributed this disparity to a perceived “pipeline” problem in the United States. The perception is that there are a small number of Black students who pursue graduate studies and stay on to earn a Ph.D. However, recent statistics indicate that there has in fact been an increase in the number of African American doctoral students earning Ph.D.’s. According to the US Department of Education, the number of African Americans earning doctoral degrees has doubled in the past 10 years, with 2,136 doctoral degrees awarded to African Americans in 1999 (4.8% of all doctoral degrees awarded) and 4,434 awarded in 2009 (6.5% of all doctoral degrees awarded) (National Center for Education Statistics, 2011). Although the representation of African Americans obtaining doctoral degrees has increased, the representation of African Americans in tenure track faculty positions has not. The pipeline explanation, which suggests that African Americans are not completing doctoral degrees, is clearly not supported based on the data. Therefore, other potential explanations must be explored. Another potential explanation that has been offered to explain this disparity is the difficulty many minority students have in
establishing successful programs of research (Evans & Cokely, 2008). As such, faculty mentoring has been highlighted as an important resource for minority graduate students.

While there has been research to support the importance of mentoring for African American doctoral students (Lynch, 2002; Sedlacek, 2004), there has been relatively little research on the importance of graduate advising relationships for this population of students. Although research specific to the importance of advising for African American students is sparse, there is evidence that links positive advising experiences to positive research training outcome variables such as attitudes towards research and research self-efficacy (Schlosser & Gelso, 2001; Schlosser & Kahn, 2007). The present study seeks to determine whether or not these relationships also exist within a sample of African American graduate students, and further, the level to which variables such as cultural mistrust influence the connection between advising and positive training outcome variables.

As stated, research mentoring may be particularly important for African American graduate students (Evans & Cokely, 2008). For the purposes of the present study, it is important to distinguish mentoring from advising, as these terms are often used interchangeably. An advisor is the faculty member who has the greatest responsibility for helping guide an advisee through his or her graduate program (Schlosser & Gelso, 2001). Mentoring refers to an inherently positive relationship in which the protégé learns professional skills from a more senior person (Green & Bauer, 1995). This is different from an advising relationship, which is not necessarily positive. Graduate advising relationships are an extremely important component of doctoral training (Gelso & Lent, 2000). These relationships have the potential to impact the personal and professional development of students in many ways, and have been linked to positive research training outcomes (Schlosser & Gelso, 2001, 2005).
Though literature examining this construct among underrepresented students is sparse, recent theory has emerged (Schlosser, Talleyrand, Lyons, Kim, & Johnson, 2011) which examines advising relationships as multicultural endeavors, offering theory on both the process and outcome for cross-racial advising dyads. Each of the areas highlighted above will be discussed in detail in Chapter Two. The next section briefly introduces the theoretical frameworks which will ground the present study and briefly addresses limitations in this body of literature. Finally, this section ends with the stated goals for the present study.

**Theoretical Background**

Within the literature on advising, the relationship that forms between an advisor and an advisee is captured by a construct called the Advisory Working Alliance (AWA) (Schlosser & Gelso, 2001). The advisory working alliance stems from literature on the working alliance in psychotherapy. Bordin (1975) described the working alliance as the portion of a relationship that is characterized by cooperation, collaboration, and mutuality. It provides members of a dyad a basis from which to work together on agreed-upon goals. The idea of a working alliance should be applicable to any relationship that implies change. The working alliance has been adapted for psychotherapy relationships (Horvath & Greenburg, 1989), supervisory relationships (Efstation, 1990) and advising relationships (Schlosser & Gelso, 2001, 2005). Within the advising literature there are two branches of the advisory working alliance: one from the perspective of the advisor, and one from the perspective of the advisee. From the perspective of the advisee, the components of the advisory working alliance are rapport (refers to the level of interpersonal communication), apprenticeship (refers to the degree to which the advisee feels their advisor is introducing them to various aspects of their field) and identification-individuation (the degree to which an advisee wants to be like their advisor) (Schlosser & Gelso, 2001). From the perspective of the advisor,
the components of the advisory working alliance are rapport, apprenticeship, and task-focus (which refers to the productivity of advising meetings).

Research on the advisory working alliance often examines research related to training outcomes. Of particular interest to the present study are research self-efficacy (“can I do this”), research interest (interest in activities related to conducting research), and research outcome expectations (“what will happen if I do this”). The variables are rooted in Social Cognitive Career Theory (Lent, Brown, & Hackett, 1996) and have been positively linked to the scholarly activity of current students (Kahn & Scott, 1997; O’Brien, Malone, Schmidt, & Lucas, 1998; Phillips & Russell, 1994) and post-graduates (Royalty & Magoon, 1985; Royalty & Reising, 1986); increased engagement in scholarly activities (Kahn, 2001); increased scholarly productivity; and students’ dissertation progress (Geisler, 1995). Given the advisor’s role and presence in the research development of graduate students, these are logical outcome variables to examine. The advisory working alliance has been positively correlated with numerous variables, including students’ research self-efficacy, attitudes towards research, and student perceptions of advisor trustworthiness, expertness, and attractiveness (Schlosser & Gelso 2001; Schlosser & Kahn, 2007). From the advisor’s perspective, the advisory working alliance has been positively correlated with perceived benefits of advising, satisfaction in the relationship, and advisor’s perception of student’s research self-efficacy and interest in research (Schlosser & Gelso, 2005).

Within the growing body of research on the advisory working alliance, there is a small subsection of literature which includes studies that have large samples of minority students. Rice, Choi, Zhang, Villegas, Ye, Anderson, Nesic, & Bigler (2009) found adequate psychometric properties to support use of Schlosser & Gelso’s (2001) Advisory Working Alliance Inventory – Student Version (Schlosser & Gelso, 2001) with a sample of international graduate students.
They did however find significant differences on rapport and identification-individuation when their sample was compared to a predominately White domestic comparison sample of students.

In a qualitative study of African American graduate students’ perceptions of the advisory working alliance, Brown, Bieschke, Chun-Kennedy, and Harris (2011) found that advising accounts were consistent in theoretically expected directions with advisory working alliance theory. However, other salient themes emerged, which included multicultural variables such as perceptions of advisors’ cultural competence within the relationship and experience of racial microaggressions. Recently, Schlosser et al. (2011) have posited a Multiculturally Infused Model of Graduate Advising Relationships which attends to the process and outcome of advising, with particular attention to the potential effects of multicultural variables such as racial identity (Helms & Cook, 1999), acculturation (Kim & Abreu, 2002), and cultural mistrust (Terrell & Terrell, 1981) on formation and maintenance of the advisory working alliance.

Cultural mistrust is a variable of interest for the present study. Cultural mistrust refers to the need for individuals of color to be mindful of the possibility that they may currently be victimized by acts of racism and/or prejudice. Terrell and Terrell (1981) identify four settings in which cultural mistrust of African Americans towards Whites manifests itself: education and training setting, the political and legal system, work and business interactions, and finally interpersonal and social contexts. Schlosser et al. (2011) theorize that cultural mistrust has the potential to impact the advisory working alliance. High levels of cultural mistrust are theorized to lead to difficulty in the relationship formation process. Additionally, the authors posit that inattention to cultural mistrust may impact the advisors’ ability to balance support and challenge roles. While cultural mistrust has not yet been specifically examined in relation to the advisory working alliance, its impact has been examined extensively in other contexts. High levels of
cultural mistrust have been found to be detrimental to the academic functioning of African Americans (Irving, 2002), as well as on occupational expectations (Terrell, Terrell, & Miller, 1993). Additionally, high levels of cultural mistrust have been found to impact behavior in counseling settings, being linked to lowered expectations of counseling (Austin, Carter, & Vaux, 1990) and prediction of preference for a Black counselor (Townes, Chavez-Korell, & Cunningham, 2009). These findings indicate a high likelihood that high levels of cultural mistrust have the potential to impact the behavior of African American students in cross-racial advising relationships.

While Schlosser et al. (2011) have posited the most comprehensive theory on the intersection of multiculturalism and advising, it has not yet been empirically supported. This lack of empirical support addressing the intersection of culture and advising is a glaring gap in the literature. More specifically, the unique experiences of African American graduate students involved in cross-racial advising relationships have yet to be explored quantitatively. Given the importance of the advising relationship in the personal and professional development of students, and the fact that most advisors are heterosexual, male, and white (Lasala, Jenkins, Wheeler, & Fredriksen-Goldsen, 2008), more research in this area is needed. As such, the focus of the present study is to examine the advisory working alliance among African American graduate students involved in cross-racial advisory dyads with White advisors.

**Statement of the Problem**

Although there is evidence to support that a positive relationship exists between the advisory working alliance and relevant research training outcome variables, it is not clear whether or not these relationships exist for African American graduate students. Further, it is unclear what impact cultural variables, such as levels of cultural mistrust, have on formation and
maintenance of the alliance as well as on the expected associations with research training variables. Given the sparse availability of literature on advisor-advisee relationships more generally, this gap regarding African Americans is not surprising. This area deserves increased attention. The findings of Rice et al. (2009) and Brown et al. (2011) suggest that while the core tenets of the advisory working alliance may hold across diverse populations, there are unique challenges faced by minority students and subsequently cross-racial dyads which must be addressed. Students of color who grew up in the United States are raised in a society where experiencing and internalizing racist, discriminatory, and prejudicial attitudes are not uncommon (Speight, 2007; Szymanski & Inman, 2009). This creates the potential for unique challenges to manifest within a cross-racial advising dyad. While it is possible for White students to internalize prejudicial racial attitudes, they likely internalize far fewer than minority students because they live in a society that is widely believed to bestow privilege to people with White skin (McIntosh, 1989). Further, studies have found that students of color report feeling alone and isolated in predominately White academic graduate programs (Gay, 2004).

Examining the intersection of culture and advising has the potential to provide important data about the advising relationship process and outcomes, as well as ways in which positive advising experiences can serve as a resource for under-represented students. Further, the aforementioned findings on the positive effects of a strong advisory working alliance on relevant research training outcome variables such as research self-efficacy and interest in research are important for students who are under-represented as they go into their respective career fields. This is particularly true for fields such as academia, where establishment of strong programs of research are critical.
Goals of the Current Study

The current study will examine theoretically expected relationships between the Advisory Working Alliance and relevant research training outcome variables in a large sample of African American graduate students across disciplines. Specifically, I hope to determine how much of the variance in the advisory working alliance can be explained by theoretically expected factors among African Americans. Additionally, I hope to determine whether or not the advisory working alliance has theoretically expected positive correlations with research training outcome variables. Finally, cultural mistrust will be examined as a potential moderating factor for the expected link between the advisory working alliance and research training outcome variables.

The aims of this study are not only innovative in their inclusion of a large sample of African American doctoral students from diverse areas of study, but also have the potential to be practically useful in numerous ways.

First, this study will advance the training and education literature significantly. The findings will provide empirical support for the theoretical propositions posited by Schlosser et al. (2011) with regard to advising relationship process and outcome among cross-racial dyads, and the role of cultural mistrust. Second, the findings have the potential to shed light on an important part of the graduate pipeline. The expectation is that results of this study will provide useful information for the facilitation of minority students through the graduate pipeline. In addition, this study enhances the current body of literature by highlighting the importance of advising relationships as a resource for doctoral students, particularly those who are underrepresented in their respective fields. Lastly, it is important to note that doctoral-level advising is an area in which individuals are typically not trained. It is hoped that the results of this study and similar studies to follow will provide a foundation for a movement in higher education towards the
training of competent advisors who are aware of the ways in which cultural difference can manifest within an advising context.
Chapter 2

Review of the Literature

The relationship that is formed between a doctoral level graduate student and his or her advisor has been found to be one of the most important and influential relationships that occur during graduate training (Gelso & Lent, 2000). Furthermore, the advising relationship also has the potential to profoundly affect a student’s professional development and career path. This potential is theorized to exist across disciplines (Schlosser et al., 2011), as graduate advising is thought to be important for any discipline that uses an apprenticeship model. An apprenticeship model implies that advising is used as one way to socialize students into their respective professions (Schlosser et al., 2011).

Despite the noted importance of advisor-advisee relationships within doctoral training, until recently they have remained relatively unexamined (Knox, Schlosser, Pruitt, & Hill, 2006; Schlosser & Gelso, 2001, 2005; Schlosser & Kahn, 2007). Since advising relationships have existed since the beginning of doctoral programs, the lack of research in this area is surprising. Empirical literature supports the positive outcomes associated with the advisor-advisee relationship. Though newly published guidelines for multicultural advising have advanced the content of this field even further (Schlosser et al., 2011), empirical studies which specifically examine the advising experiences of ethnic minority students are a glaring shortcoming of this body of literature.

The present chapter reviews three distinct bodies of literature. First, relevant background information on both mentoring and advising is provided and the theoretical underpinnings and
current state of literature on the advisory working alliance is reviewed. Then theory and empirical evidence related to cultural mistrust, which is theorized to impact the advising experiences of ethnic minorities, is provided. This is followed by a theoretical and empirical rationale for the research training outcome variables examined in the present study. Lastly, hypotheses will be offered.

Advisor-Advisee Relationships

Definition of an Advisor. Schlosser and Gelso define an advisor as “the faculty member who has the greatest responsibility for helping guide the advisee through the graduate program” (Schlosser & Gelso, 2001, p. 158). However, Schlosser and Gelso (2001) found that there are many different terms that are used interchangeably in doctoral programs to describe the person who takes on the role of what has been defined as advisor. Some examples of these terms include mentor, major professor, committee chair, and dissertation chair. In an effort to distinguish advising from mentoring (these two are most often used interchangeably), Schlosser and Gelso (2001) offer the following operational definition of advising: “Advising refers to a relationship that may be positive, neutral, or negative with regard to valance, and the content of said relationship will also vary based on the degree to which the advisor facilitates the advisees’ professional development.” (p. 158). This definition is particularly useful when compared to the definition of mentoring, which refers to an inherently positive relationship in which the protégé learns professional skills from a more senior person (Green & Bauer, 1995). Given these definitions, it is possible for an advising relationship to take on some of the characteristics of a mentorship, but not necessary.
While useful in distinguishing advisor from other roles, the definition offered does not fully capture the many roles that are often taken on by advisors. The role of advisors is multifaceted. Advisors typically facilitate advisees’ progress through the program, provide a link for students between academic and professional worlds (e.g., encouraging conference attendance, professional networking, etc.), and work with advisees on research requirements (i.e. dissertation) and education (Schlosser at al., 2011). As such, advisors have the potential to serve in many capacities for their advisees including teaching, supervising professional activities, providing career guidance, facilitating professional development, modeling ethical practice, and providing culturally informed education (Schlosser et al., 2011). The many roles that advisors play make clear why terms such as “mentor” are often used interchangeably. While the purpose of the present research is focused on advising, and not mentoring, empirical studies which examine the advising experiences of African American graduate students are sparse. As such, a brief discussion of the impact and importance of mentoring among African American students may help to inform the direction of the present research.

**Importance of Mentoring Among African American Students.** Advising and mentoring are in fact related constructs which fall at different points on the continuum of student-faculty relationships (Schlosser & Foley, 2008). For students of color in particular, mentoring relationships have been highlighted as a way to build a foundation for success in the face of glaring educational and career disparities. The noted underrepresentation of minorities in tenured faculty positions does not reflect the recent increase in African Americans graduating with doctoral degrees. As such, the presence of a mentor to provide direct guidance for students’ interest in academia is especially critical for these underrepresented students. In fact, research findings have suggested that the presence of a mentor is related to retention of African American
students in general across majors and type of institution (Lynch, 2002; Sedlacek, 2004).

When considering the potential for African American graduate students to form successful mentoring relationships in graduate school, there are several challenges that surface. Generally, the selection of a mentor is typically made according to shared interests, values, or traits, based on the assumption that greater commonality leads to greater ability to foster empathy (Olian, Carroll, Giannantonio, & Feren, 1988). For African American students in particular, mentor-mentee relationships are often defined racially (Collins, Kamya, & Tourse, 1997), making same-race mentoring appealing to many. Unfortunately, the low numbers of African American faculty and the increasing number of African American students enrolling in graduate programs make same race mentoring by a faculty member extremely unlikely. In fact, statistics indicate that there are only 1.6 African American faculty members available for every 100 African American students, not including Historically Black Colleges and Universities (HBCU’s) (National Center for Education Statistics, 2003). The reality is that faculty members who do not identify as African American are the most likely to be in a position to serve as a mentor to students in this population. Mentoring as a cross-cultural endeavor is a topic in the literature that has both theoretical and empirical support.

Numerous models of mentoring students with minority statuses have been articulated (Sedlacek & Brooks, 1976; Davidson & Foster-Johnson, 2002; Alvarez, Blume, Cervantes, & Thomas, 2009). The models are similar, and typically attend to the importance of awareness of cultural differences. Most recently, Alvarez et al. (2009) offered several essential elements for the successful mentoring of minority students. These include an awareness of and sensitivity to discrepancies which may exist between the students culture and the culture of academia; a shared or assumed existential posture, which at minimum should include modeling a respectful
worldview and avoiding ethnocentric power dynamics; an awareness of the impact of racial
discrimination which may occur both within and outside of academia; racial and ethnic self-
awareness and the resulting professional impact of factors such as personal stage of racial
identity; and an understanding of and willingness to discuss ethnic or racial similarities between
mentor and mentee which may influence the relationship.

As previously noted, the likelihood is extremely high that individuals who do not hold a
racial minority status will be in a position to mentor racial minority students. While there has
been limited empirical research to date examining the quality of cross-race mentorship
relationships within the field of psychology or education and training, there has been some
attention to this area in other fields. Thomas (1993) conducted a qualitative study examining
racial dynamics between African American and White pairs of junior and senior people in
developmental relationships within business and management. A key finding of this study was
that the quality of the relationships depended largely on what type of strategy the pair used in
dealing with racial differences, as opposed to the racial differences themselves (Thomas,
1993). These findings indicate that acknowledgement of cultural differences within a dyad, such
as an advising dyad are important to relationship development and maintenance.

While the present research is focused specifically on the advising experiences of African
American graduate students, the scholarly literature on mentoring within this population provides
a solid foundation for this study. While useful, however, the research on mentoring African
Americans does not specifically examine the experiences of graduate students. In this respect, a
shift to include African Americans in studies examining the advisory working alliance
specifically is needed. Specifically, the present research examines the interpersonal dynamics
which take place in cross-racial advising dyads from the perspective of the advisee. Advising
relationships have been the focus of numerous recent empirical studies that focus largely on majority status students within psychology. More recently, research has broadened to include diverse field beyond psychology (Rice et al., 2009). This research stems largely from the development of two important measures, the Advising Working Alliance Inventory Student Version (AWAI-S) and the Advising Working Alliance Inventory Advisor Version (AWAI-A). The theoretical underpinnings of the construct of the advisory working alliance, as well as development of relevant measures is now reviewed.

Advisory Working Alliance Theoretical Underpinning. Within the advising literature, the advising relationship as a construct is referred to as the advisory working alliance. The construct of the advisory working alliance is adapted from previous work on the working alliance within the psychotherapy relationship. Bordin (1975) defined the working alliance in the psychotherapy relationship as “the portion of the relationship characterized by the cooperation, mutuality, and collaboration in regard to the work being conducted which provides the basis for the members of the dyad to work together toward agreed upon goals” (Bordin 1975). The main components of the working alliance proposed by Bordin are: agreement on goals, collaborative work to reach goals (also known as tasks), and emotional bonds that are developed within the relationship. In theory, the core construct of a “working alliance” should be applicable to any relationship that induces change (i.e., teacher-student, supervisor-supervisee, advisor-advisee, therapist-client; Bordin, 1983, Horvath & Greenberg, 1989). The construct of the working alliance was developed into a measure for the psychotherapy relationship by Horvath and Greenberg (1989), and since then has been one of the most researched topics in psychotherapy literature (Safran & Muran, 2006).
The working alliance within the therapeutic relationship has been consistently linked to positive therapeutic outcomes (Horvath & Symonds, 1991; Horvath & Bedi, 2002; Martin, Garske, & Davis, 2000). Further, numerous research studies have shown a significant relationship between total therapeutic alliance ratings and treatment outcomes across modalities, with more variance attributed to the alliance than to the exact treatment method itself (Wampold, 2001, Norcross, 2002; Webb, DeRubeis, Barber, 2010, Hatcher, 2010; Norcross, 2011). Shortly after the introduction of the working alliance model within the therapeutic relationship, Bordin (1983) adapted a model delineating the working alliance within the counseling supervisory relationship. The supervision model consists of the same core components (goals, tasks, and bonds) that were originally introduced in the therapeutic working alliance model. An instrument for measuring the strength of the supervisory working alliance was developed by Efstation (1990), in which three core areas of the relationship are measured: rapport, task focus, and identification-individuation. Research has demonstrated positive outcomes associated with a strong supervisory working alliance, such as supervision satisfaction (Inman, 2006) and counselor self-efficacy (Hanson, 2006). Most recently, the construct of the working alliance was adapted for advising relationships and developed into a measure by Schlosser and Gelso (2005).

**Measurement of the Advisory Working Alliance.** Similar to the working alliance instruments developed within the psychotherapy and counseling supervision fields, the theory grounding the concept of the advisory working alliance inventory is multidimensional, looking at the same three major areas used by Efstation: rapport, task focus, and identification-individuation (Schlosser & Gelso, 2001, Efstation et al., 1990). Rapport refers to the amount of perceived support and encouragement an advisee feels from their advisor, as well as the emotional bond that is perceived to exist. Task focus refers to the advisee’s perception of their advisors role in
helping guide them through tasks, goals, and the overall process of being a graduate student.

Identification refers to the level of admiration the advisee feels for their advisor, or how much they want to be like their advisor. Based on this general framework, Schlosser and Gelso (2001, 2005) have developed two measures which examine the advising working alliance, one from the perspective of the advisee, and the other from the perspective of the advisor: the Advising Working Alliance Inventory – Student Version (AWAI-S) and the Advising Working Alliance Inventory – Advisor Version (AWAI-A). Since the purpose of this study is to examine the relationship from the perspective of the advisee, the AWAI-S is described in more detail. The AWAI-S is a 30-item paper and pencil self-report measure that is meant to assess the strength of the working alliance between the advisor and the advisee from the perspective of the advisee. There are three subscales: rapport, which measures the degree of interpersonal connection between advisor and advisee; apprenticeship, which measures the tasks of the advising relationship and the degree of advisee professional development on the part of the advisor; and identification-individuation, which measures how much the advisee wants to or does not want to be like his or her advisor. The development and validation of this measure is briefly described, followed by a review of empirical evidence linking the advising working alliance to relevant training variables.

**Development of the Advisory Working Alliance Inventory – Student Version.** In their instrument development study, Schlosser and Gelso (2001) recruited 281 graduate students. The sample consisted of 202 females and 79 males. With regards to race/ethnicity, it is important to note that even though non-majority students represented about a third of the sample, African American graduate students represented less than 10% of the total sample (the development sample included 194 Caucasian, 35 Asian, 28 African American, 20 Latin American, and 2
Native American participants). All students were enrolled in counseling psychology doctoral programs. The students completed the AWAI-S, as well the Counselor Rating Form-Short version (CRF-S), Research Attitudes Measure (RAM), and Attitudes Towards Research Scale (ATR). Through the use of an exploratory factor analysis, Schlosser and Gelso (2001) found a three-factor solution that accounted for 57% of the variance (rapport accounted for 22% of the variance, apprenticeship 21%, and identification individuation, 14%). During instrument validation, correlations were noted in theoretically expected directions between the total AWAI-S score and the CRF-S, in addition to each of the subscales (rapport, apprenticeship and identification-individuation). Positive correlations were found between the AWAI-S and advisee’s research self-efficacy and current attitudes towards research. A notable finding of the development and validation studies of the AWAI-S is students who had been working with their advisors for 13-24 months showed significantly stronger correlations than those who had been working with their advisor for less than 6 months or between 7 and 12 months. This finding highlights the potential importance of length of time with advisor as a function of strength of the advisory working alliance.

The development of this measure sparked the relatively recent emergence of empirical research, both qualitative and quantitative, addressing the strength of the advising alliance and associated outcome variables. However, it is important to note that even prior to the recent development of the AWAI-S, advising and mentoring relationships had been positively correlated with relevant training variables in the literature. Research mentoring experiences have been shown to mediate the effects of research training environment on research productivity for students (Hollingsworth & Fassinger, 2002). In addition, significant correlations have been previously noted between the quality of the advising relationship and dissertation progress.
(Faghihi, 1998; Peacock, 1996). The recent development of measures specifically aimed at ascertaining the strength of the advisory working alliance has led to an increased interest in this area of research. Quantitative researchers have examined the advisory working alliance and its relation to relevant training variables such as research self-efficacy, interest in science and practice, and attitudes towards research. Qualitative methods have been used to achieve a greater depth of the understanding of relationship dynamics that occur between advisor and advisee. The following section reviews in detail the small body of literature devoted to exploring the advisory working alliance. Research specifically aimed at exploring the experience of minority advisees is then reviewed.

**Empirical Support for Outcomes Associated with the Advisor-Advisee Alliance.** As previously noted, initial validation on the AWAI-S (Schlosser & Gelso, 2001) indicated that there were positive correlations between the advisory working alliance and student research self-efficacy, attitudes towards research, and perceptions of the advisor’s expertness, attractiveness, and trustworthiness. These initial findings offer great insight into the ways in which the strength of the alliance can impact an advisee’s perspective not only of themselves and their abilities, but of their advisor’s character and capabilities as well. While the focus of the present research and this review is based on the perspective of the advisee, empirical research stemming from a second instrument which attends to the perspective of the advisor is included. Findings from the development and validation studies of the Advisory Working Alliance Inventory-Advisor Version (AWAI-A) (Schlosser & Gelso, 2005) offer insight into advisor perspectives of the research training outcome variables of interest to the present study.

In 2005, Schlosser and Gelso constructed the above-mentioned advisor version of the AWAI. In their study, 236 faculty members from APA-accredited counseling psychology
programs were included. Each faculty member completed the AWAI-A, Research Attitudes Measure (RAM), Session Evaluation Questionnaire, Scientist-Practitioner Inventory – 20 (SPI-20), Cost and Benefits of Being an Advisor Scale (CBAS), and the Satisfaction Index. Participants were instructed to complete each form with a specific advisee relationship in mind. Subsequent validation of the AWAI-A indicated that there were significant positive correlations between the advisory working alliance and advisor benefits from advising, satisfaction with the advising relationship, and ratings of advisor-advisee meeting smoothness and positivity. More germane to the current study, this study showed that advisors’ perceptions of the advisory working alliance were positively correlated to students’ research self-efficacy and interest in science and practice as rated by their advisor (Schlosser & Gelso, 2005). Schlosser and Kahn (2007) then used both the AWAI-S and the AWAI-A to determine the degree to which advisors and advisees saw their relationships similarly. The results yielded a moderate level of agreement between students and faculty. More importantly, this study also found that student ratings of a positive advisory alliance were associated with students having greater research self-efficacy, research competence, and positive attitudes towards research (Schlosser & Kahn, 2007).

Overall, the empirical investigations which have examined the advisory working alliance in relation to relevant training variables provide useful information on the potential impact of the advising relationship on professional development. The advisory working alliance has predicted variance in research self-efficacy and attitudes towards research, as well as variance in the advisor’s perception of the advisee’s self-efficacy and interest in research. In addition to the quantitative studies described above examining specific training variables, qualitative methods have been used to examine the advisee relationship and its potential impact in greater depth.
A qualitative study conducted by Schlosser, Knox, Mosokovitz, and Hill (2003) explored themes related to student satisfaction with their advising relationship. Sixteen 3rd-year counseling psychology students were interviewed regarding their perspectives of their relationship with their advisor. Using consensual qualitative research (CQR) (Hill et al., 2005), a process of data analysis which involves identifying domains and coding the raw data from interviews into these domains, the researchers found data consistent with the quantitative studies described above. The themes that emerged from the data revealed that there were interpersonal, instructional, and professional components to satisfaction. Satisfied and unsatisfied students were found to differ on factors such as the ability to choose their advisor, frequency of meetings with their advisor, benefits and costs associated with their advising relationship, and how conflict was dealt with in their advising relationship (Schlosser et al., 2003). Specifically, having chosen to work with their advisor and frequent meetings were classified as typical in satisfied relationships, but not in dissatisfied relationships. Additionally, an open style of working through conflict was typical of satisfied relationships, but not of dissatisfied relationships. Satisfied students also described their relationships as being akin to mentor-protégé relationships where they felt respected, encouraged, and supported. In contrast, dissatisfied students described their advising relationships as harmful and often felt ignored, unimportant, and neglected. The theme of self-efficacy also emerged within this study, with dissatisfied students reporting a lowered sense of self-efficacy for professional activities. Perceptions of the advising relationship have also been examined qualitatively from the perspective of the advisor. Knox et al. (2006) interviewed advisors, finding that positive advising relationships were characterized by mutual respect, open communication, lack of conflict, and similarity in career path between advisor and advisee. In
contrast, negative or difficult relationships were characterized by lack of respect, communication problems, and avoidance of conflict.

The quantitative and qualitative findings described above provide a strong foundation for understanding the dynamics of advising relationships, as well as the potential impact of the advising relationship on specific areas of training. The findings to this point suggest that positive ratings of the advisory working alliance from the perspective of the advisee are correlated with advisee research self-efficacy, current attitudes towards research, and perceptions of the advisor’s expertness, attractiveness and trustworthiness (Schlosser & Gelso, 2001; Schlosser & Kahn, 2007). Length of time with advisor has also emerged as an important variable, with higher ratings of the alliance being linked with longer relationships (Schlosser & Gelso, 2001). From the perspective of the advisor, positive ratings of the advisory working alliance are positively correlated with perceived advisor benefits to advising, satisfaction with the advising relationship, ratings of meeting smoothness and positivity, and student’s research self-efficacy and interest in science and practice as rated by their advisor (Schlosser & Gelso, 2005). The qualitative findings have highlighted the differences noted between relationships characterized as positive and relationships characterized as negative, both from the perspective of the advisor and the advisee. From the perspective of the advisee, themes emerged which suggest that frequency of meetings, the ability to choose one’s advisor, and open strategies for dealing with conflict are characteristic of satisfied advisees. From the perspective of the advisor, positive advising relationships were characterized by mutual respect, open communication, lack of conflict, and similarity in career path between advisor and advisee. More recent research on the advising alliance has shifted in focus to include a deeper examination of the interpersonal interactions that occur between advising dyads. Two such studies are now reviewed.
Using a mixed method design, Inman, Schlosser, Ladany, Howard, Boyd, Altman, & Stein (2011) examined advisee non-disclosures and the relationship of these non-disclosures to the advising alliance as well as overall advising satisfaction in a sample of 109 clinical and counseling psychology students (African American students represented 8.3% of the total sample). The authors posited that advisors must be aware of their advisee’s goals and areas of growth in order to adequately fulfill their role as advisor. As such, advisee disclosures are a critical component of the relationship. Further, given the power structure that is inherent in most advising dyads, it was hypothesized that advisees may be selective regarding the frequency with which they disclose as well as the content of said disclosures. Inman et al. (2011) anticipated that non-disclosures would fall into six main areas for advisees: personal issues and concerns of the advisee; interactions with advisor; personal issues and concerns of advisor; advisee professional issue and concerns; program and other faculty/peer concerns; and multicultural issues and concerns (negative or positive). This research is notable, as it is one of the few empirical studies related to the advisory working alliance in which multicultural issues and concerns are addressed. Interestingly, the descriptive analysis revealed that no participant gave more than one example in the area of multicultural issues. Additionally, positive multicultural issues were not included in the larger analysis, as they did not meet normality standards.

Quantitative analysis of open-ended responses from participants revealed that on average, participants provided 6.16 (SD = 3.2, N = 109) content-based non-disclosures (these are non-disclosures for which participants indicated reasons related to the content of the information as being influential on their decision not to disclose). Personal issues of the student (1.03), problems with the program environment not related to the advisor (1.06), and expectations of their advisor being unclear/mixed/unreasonable (1.69) were the most reported. Negative
multicultural issues only accounted for .32 of the content-based non-disclosures. With regard to reasons for non-disclosures, on average participants provided 6.39 (SD 4.44, N = 108) reasons for non-disclosures. Lack of support (1.42), worry about reaction of advisor (1.43), and insignificant issue (1.79) were the most reported. In addition, content of non-disclosures were examined in relation to the advisory working alliance, revealing that weaker alliances were related to non-disclosures based on the advisee’s fear of being perceived as unprofessional. The findings of Inman et al. (2011) provide valuable insight into the dynamics of advisor-advisee relationships, and the potential for non-disclosures by advisees to negatively impact the formation of the advisory working alliance. As stated, this is one of the few empirical studies related to the advisory working alliance in which multicultural issues and concerns are addressed. Despite this inclusion of multicultural issues, this article does not add to the understanding of the way in which multicultural concerns impact advising due to limited data that were not included in the larger analysis. This is likely due to the low-representation of minority students within the sample.

Another recent example of the noted shift within the literature to examine interpersonal interactions comes from Huber, Sauer, Mrdjenovich, & Gugiu (2010). This study examined the effects of three important variables on the advising working alliance: advisee attachment orientation, pairing methods of dyads (advisees who chose their advisor vs. those who were assigned by the department), and frequency of advising meetings. Attachment orientation is based on theory that examines individual’s experiences of close relationships, and is measured on a continuum with security at one and insecurity on the other end. Secure attachment implies trust and confidence in close relationships and insecure attachment suggests anxiety/avoidance of others in close relationships (Brennan, Clark, & Shaver, 1998). Several key findings are noted.
First, the study revealed that lower attachment avoidance scores and advisees’ ability to choose their advisors both contributed to higher advisory working alliance scores. Interestingly, pairing method was significantly related to the alliance for students who had been working with their advisor for less than six months, but was not related to those who had been working with their advisors for more than six months. These findings highlight the importance of certain personality/temperament traits of the advisee as well as the ability to choose one’s advisor on the formation and maintenance of the advisory working alliance. Frequency of meetings, however, was not found to be significantly related to students’ perceptions of the advisory working alliance, as would be expected based on the qualitative findings of Schlosser et al. (2003) which indicated that frequency of meeting distinguished satisfied advisees from dissatisfied advises. The importance of frequency of meetings is of particular interest to the present study due to mixed findings previous studies have yielded, and will be examined with the present sample. Schlosser et al. (2011) later theorized that perceived availability may in fact be more important than frequency of meetings, suggesting that the quality of the relationship itself may be more important than the amount of time spent together. This will also be examined in the present study.

Though the body of research reviewed above examining the advisory working alliance is small, the empirical findings consistently show positive correlations between the strength of the advisory alliance and relevant training variables, such as research self-efficacy and interest in research (Schlosser & Gelso, 2001, Schlosser & Kahn, 2007). Further, studies have also highlighted important interpersonal factors which can potentially contribute to or hinder the development of a strong advisory alliance (Inman et al., 2011, Huber et al., 2010). Within this small body of literature, there is an even smaller body of literature which focuses on the
intersection of multicultural factors and advising, as well as the formation of the advising alliance in cross-cultural dyads. Since race and ethnicity, among other factors, have been identified as key factors with regard to ethical issues in multicultural student-faculty mentoring relationships in higher education (Schlosser & Foley 2008), this is an area that warrants further examination. Within cross-racial dyads, there may be unique factors that have the potential to affect the strength of the alliance, which in turn may affect the professional and personal development of minority advisees. Examining cross-racial advisory dyads in more detail has the potential to provide information which may lead to better training for advisors, which will hopefully aid in the facilitation of minority students through the graduate school pipeline and into academia. Literature examining the advisory working alliance among non-white graduate students is reviewed next, followed by a review of the recently published Multiculturally Infused Model of Advising (Schlosser et al., 2011).

**Gaps in the literature – Implications for Ethnic Minorities.** Although the advisory working alliance has been the focus of recent research within education and training, there is a lack of empirical research that has examined the advisory working alliance from the perspective of advisees in cross-racial or cross-ethnic dyads. Although cross-racial advising studies have not been adequately represented in the literature, cross-racial dyads have in fact been included in the larger sample of dyad studies, but not investigated specifically. For example, Schlosser and Kahn (2007) examined level of agreement between advising dyads on the strength of their advisory working alliance. Within this dyad study, although 86 percent of the advisors in the study were European American and 35 percent of the advisees identified as minorities of some type, cross-racial dyads were not looked at specifically. One notable exception to the lack of empirical research examining the alliance among minority students is a mixed-methods study conducted by
Rice et al. (2009). The purpose of this study was to build on the current body of literature on the advisory working alliance in a way that was inclusive of international students. No such literature existed prior to this study, and no empirical studies examining the advisory working alliance with minority populations have been conducted since. In addition, this study examined the validity of the factor structure of the AWAI-S with a population of minority students. As such, this study merits an in-depth description for the purposes of the present research.

The study had one main research question: Do international graduate students enrolled in diverse colleges within one university have different perceptions of the advisory working alliance or advising satisfaction? The researchers wanted to know if experiences reported by international graduate students were consistent with dimensions described in the original model proposed by Schlosser and Gelso (2001). Rice et al. (2009) recruited 399 international graduate students attending the University of Florida to serve as participants for the study. There were 66 countries represented in the sample, as well as 15 different colleges of the University, with engineering (33%); agricultural and life sciences (23%); and liberal arts and science (22%) being the most represented areas (representative majors within these colleges included: agricultural and biological engineering, chemical engineering, civil engineering, electrical engineering, industrial systems engineering, animal science, botany, entomology, microbiology, plant medicine, chemistry, geography, history, mathematics, political science, and psychology). This diversity of program of study is notable, as the majority of the research in this area has focused exclusively on psychology doctoral programs. Students completed an online survey that had three sections. Information about the present advising relationship the students were involved in was gathered in the first section (length of relationship, nature of issues discussed, average time spent per week, etc.). In the second part of the survey, the students completed Schlosser and Gelso’s (2001)
AWAI-S. Additionally, the researchers also included eight items taken from the Survey on Doctoral Education and Career Preparation that measured the advising experience from the perspective of the student. The third part of the survey consisted of a qualitative component. A subsample of about 230 students (just under 50% of the total sample) answered three open-ended questions.

Results of the exploratory factor analysis indicated that the AWAI-S did in fact have psychometric qualities that supported its use with international students. On the AWAI-S overall score, the average score was 3.53, indicating that students in this sample were, on average in the neutral to positive range when it came to their feelings of satisfaction with their advising experiences. Seventeen percent of students, however, did have scores that indicated an overall dissatisfaction with advising. When the scores of the international students were compared with the scores of 268 domestic US graduate students, the results indicated that students in the international sample had significantly lower scores on rapport and identification, but were not significantly different from the comparison group on apprenticeship. The qualitative analysis revealed that with regard to international graduate students’ perceptions of advisors and advising, four major themes emerged: 1) when advising was perceived as poor, the reasons were inaccessibility, lack of guidance, poor feedback, and excessive demands; 2) students reported interpersonal issues such as feeling that their advisors were impersonal, unsupportive, disrespectful, or abusive; 3) a perceived mismatch of interests; and 4) a lack of financial support. Based on these findings, an “ideal” model of advising for international students was proposed based on responses given by students. Within this model, cross-cultural empathy emerged as a key component to the interpersonal aspects of the relationship. These findings are particularly useful in understanding not only the appropriateness of using the AWAI-S with a sample of
minority graduate students, but in understanding the unique challenges faced by these students, challenges which have the potential to impact rapport as well. In addition, this study demonstrates the theoretically expected application of the construct of the advisory working alliance across disciplines, rather than just within the field of psychology.

With regard to the present population of interest, African American graduate students, there are currently no published empirical studies examining the construct of the advisory working alliance within this population. A recent presentation, based on a qualitative study conducted by Brown et al. (2011), however, offers preliminary findings in this area. While Rice et al. (2009) yielded findings that suggested that international students had needs unique to their experience that could be addressed within the advising relationship, Brown et al. (2011) sought to build on this research by examining cross-racial advisory dyads (specifically African American advisees with White advisors) from the perspective of the advisee. It was hoped that the results of this and future studies would highlight factors which might lead to the improvement of cross-racial advisory relationships, and facilitate the navigation of minority students through the graduate school pipeline and into academia.

Participants for this qualitative study were 12 doctoral students attending a large East Coast state university. Of the 6,202 graduate students at this university, approximately 184 identified as African American or Black. All participants in the study self-identified as African American or Black (6 men and 6 women). They ranged in age from 26-41 (M = 31.25). Year in program ranged from 1st year to 6th year and beyond (1st year = 1; 2nd year = 2; 3rd year = 6; 5th year = 2; and 6th year or beyond = 1). Participants represented seven different colleges and eight different majors across colleges. Specific majors and colleges are withheld to protect the identity of participants (the majority of study participants indicated that they were the only African
American student in their departments, and most expressed fear or concern about content disclosed in their interviews getting back to their advisors). Of the 12 participants interviewed, 11 were used (one interview was not used because the participant reported that their advisor was Native American). All 11 participants were currently in an academic advising relationship with an advisor whom they perceived as White. Three participants spoke of two distinct advising relationships due to switching advisors, resulting in 14 relationship cases to be examined.

Interviews were analyzed using Consensual Qualitative Research (CQR) methodology. This process of data analysis involves identifying domains and coding the raw data from interviews into these domains. In the above study, core ideas were then developed for each interview, and cross-analysis was then used to identify categories or themes that emerged across multiple interviews. From the participants’ overall descriptions of their advising relationships, three major categories emerged: perceptions of the advising relationship, perceptions of multicultural issues, and coping strategies within the relationship. In addition to the relevant categories described above, there were other noteworthy findings. Of the 14 relationship cases analyzed by the team, eight were categorized as negative, and six were categorized as positive based on advisee narratives. Relationships viewed as positive had similarities as well as differences from those viewed as negative, and the presence of rupture or conflict within the relationship was present in both positive and negative relationships.

Within the category “perceptions of multicultural issues,” several themes emerged. Although the majority of students were aware of their solo status as African Americans in their respective departments, those with negative relationships with their advisors were more likely to question their academic worth or place in the department, and wonder if they were a token. In addition, access to institutional supports specifically geared towards minority students emerged
as an important resource for a majority of students in the study. However, in relationships categorized as negative, it was rare that these supports were suggested by advisors.

Within the category identified by the research team as “Perceptions of the advising relationship,” rapport, apprenticeship, and identification emerged as core components of perceptions of the relationship, consistent with previous findings (Schlosser & Gelso, 2001). Of the three components of the advisory working alliance, the presence of factors associated with good rapport seemed to be most closely linked with relationships perceived as positive. Aspects of high and low apprenticeship and identification seemed to be present in both positive and negative relationships. Participants could report a low perception of apprenticeship and identification and still view their relationship as positive if the rapport was positive, specifically if they felt a strong sense of support.

Finally, within the category of “Coping strategies within the relationship,” environmental concerns emerged. Information related to participants’ perceptions of the overall environment revealed that the transition into a predominantly white institution (185 African American graduate students out of over 6,000 total student enrollment) proved to be challenging for all participants. The majority of participants, regardless of the way in which they perceived their advising relationship, considered leaving the school at some point as a result of difficulty transitioning into the overall environment. In very few cases did participants indicate that their advisor helped them through or even noticed that the transition was challenging; however, when this did occur, it was within the context of a relationship viewed as positive.

In sum, the preliminary findings of Brown et al. (2011) are similar to the findings of Rice et al. (2009). While the basic components of the advisory working alliance (Schlosser & Gelso, 2001) hold true for minority graduate students in diverse fields, cultural factors have the
potential to impact the alliance. Brown et al. (2011) represents the only study to examine these constructs in a sample of African American graduate students. Shortly after this study was conducted, new theory emerged which directly addresses the potential challenges that may surface within a cross-racial advising dyad. Schlosser et al. (2011) proposed a comprehensive theory of Multiculturally Infused Model of Advising which highlights multicultural concerns not only of ethnic minority students in graduate advising relationships, but gender and sexual minorities as well.

**Multiculturally Infused Model of Advising**

Schlosser et al. (2011) proposed a multiculturally infused model of graduate advising relationships, which characterizes the advising relationship as a multicultural endeavor. Within their model, the authors articulate both the process and outcome of advising relationships, and offer eight theoretical propositions. Each proposition addresses advising from a broad and general frame, while also highlighting the potential impact of cultural issues related to race, gender, and sexual orientation. For the purposes of the present research, focus will center on the theorized intersection of advisee racial minority status and advising. The first five of the eight theoretical propositions to be reviewed address interpersonal and instructional aspects of advising. The last three theoretical propositions, which address the advising relationship process, are then described. Lastly, the distal and proximal outcomes that are theoretically expected to result from the advising relationship are summarized.

**Interpersonal and Instructional Aspects of Advising.** The first five theoretical propositions outlined by Schlosser et al. (2011) address the interpersonal and instructional aspects of an advising relationship. The first proposition is related to advisor-advisee similarity. The authors posit that as the degree of similarity between advisor and advisee increases, ease of
relationship formation will increase as well, which will lead to strength of the advising relationship. Schlosser et al. (2011) identify several advisor-advisee matching variables that may foster a feeling of similarity, which include but are not limited to research and career interests, personality characteristics, values, and racial identity. Theorizing specifically on cultural aspects of the similarity proposition, the authors posit that the level of advisee-perceived shared worldview between an advisee of color and a European American advisor is a function of advisee acculturation and enculturation levels (Helms & Cook, 1999). Therefore, perceived similarity with regard to the degree of biculturalism or marginalization should contribute to the strength of the initial attraction, which in turn will increase the likelihood that a quality advising relationship will form.

The second theoretical proposition outlined by Schlosser et al. (2011) is related to the role of support and challenge within the advising relationship. The authors posit that within a good advising relationship, an advisor provides an advisee with an appropriate balance of support and challenge. Advisors have the difficult task of being a supporter to their advisees, while simultaneously serving as a gatekeeper for the profession (Vacha-Hasse, Davenport, & Kerewsky, 2004). While the amount of support versus challenge needed varies by student, quality advising is fostered through a balance of the two. With regards to potential cultural aspects of the support and challenge proposition, the authors posit that it is incumbent on the advisor to consider their advisees in a holistic manner when providing support and challenge, taking into account such variables as personality, stage of racial identity, level of acculturation, and potential for the presence of cultural mistrust.

The third theoretical proposition outlined by Schlosser et al. (2011) addresses role perceptions within the advising relationship. The authors posit that as advisors increasingly view
their role as one in which they are intentionally preparing advisees for their careers both professionally and personally, the more satisfying and effective the relationship will be perceived by both the advisee and the advisor. This is based in part on research findings which indicated that when faculty members see themselves as mentors they are more engaged with students and more satisfied with the relationship (Kram, 1985). In addressing potential cultural influences to the role and perceptions proposition, Schlosser et al. (2011) posit that the likelihood that multicultural advising relationships will take on the properties of a mentorship may be dependent on the predominance of hierarchal relationships in the cultural or gender socialization of the advisee. Lastly, minority students’ assessments of the advisor as open to and valuing diversity will facilitate the evolution from advising to mentoring.

The fourth and fifth propositions related to interpersonal and instructional aspects of the advising relationship outlined by Schlosser et al. (2011) address advising tasks/functions and task-related empathy. Regarding advising tasks and functions, the authors posit that as the number of advising career functions increases in an advising relationship, so will satisfaction and effectiveness. Research on the advisory working alliance shows that strength of apprenticeship (number of tasks and advisor behaviors focused on developing the advisee professionally) is positively correlated with positive outcomes for advisees (Schlosser & Gelso, 2001). Considering cultural aspects of the task/function proposition, the authors highlight that while the career function aspect is critically important for advisees of color, as there is a concern that this population of students may not be receiving the full spectrum of advising functions compared to their White peers. This may be due to a variety of reasons, including advisees of color waiting in vain for a same-race advisor or cautiously avoiding a cross-race advisor to whom they are assigned, which results in advisees missing out on salient advising tasks. In addition, the
presence of a model minority stereotype, often applied to Asian students (Tewari & Alvarez, 2009) may result in advisors mistakenly assuming that a minority advisee requires or desires fewer advising functions.

Regarding task-related empathy, Schlosser et al. (2011) posit that good advising relationships will be characterized by the advisee being encouraged to pursue her or his own ideas as opposed to being encouraged or coerced into following his/her advisor’s ideas. Regarding cultural implications for the task related empathy proposition, the authors further postulate that minority students of color may have a heightened sensitivity to faculty efforts at coercion. In fact, the authors predict a negative correlation between this and advising satisfaction for advisees of color. The authors also highlight the potential implications for students of color who are sensitized with the need to act or “pass” as White, which include a discounting of their own needs and values (Helms & Cook, 1999). Therefore, if an advisee of color feels that his or her adviser may “force” ideas of a culturally discrepant worldview, this may lead to early detachment or withdrawal from the advising relationship.

The five theoretical propositions outlined above address both interpersonal and instructional aspects of advising relationships. The authors offer predictions for advising in general, as well as potential caveats for minority advisees. The final three propositions offered by Schlosser et al. (2011) address the advising relationship process. These are outlined next, followed by a description of the theorized advising relationship outcome variables.

**Advising Relationship Process.** Schlosser et al. (2011) offer three propositions related to the advising relationship process. These propositions address aspects of relationship formation, relationship maintenance, and the advisory working alliance. The first proposition, relationship formation, posits that advising relationships are more likely to be satisfying if both parties
perceive having had choice in their decision to enter the relationship. This proposition is supported by the extant literature (Johnson, Rose, & Schlosser, 2007; Ragins, 1999; Schlosser et al., 2003). Specific to culture, Schlosser et al. (2011) make several predictions, the first being that culturally competent advisors are more likely to attract and retain culturally different advisees. Secondly, specifically among advisees of color, high levels of cultural mistrust (Terrell & Terrell, 1981) will likely lead to difficulty in the relationship formation process.

The second proposition related to the advising relationship process is relationship maintenance. Schlosser et al. (2011) review the findings regarding the importance of frequency of meetings, and posit that advising relationships are likely to be more positive and productive when the advisee perceives the advisor as available. The authors highlight the fact that while frequency of meetings is an important factor, perceived availability of advisor may in fact be more salient (Schlosser et al., 2003). Regarding the potential impact of culture on the relationship maintenance proposition, the authors highlight that perceived availability is of critical importance to cross cultural dyads. In addition to being more proactive with their students and addressing issues of privilege, trust, and microaggressions at the outset of their work together, Schlosser et al. (2011) highlight that advisors may also need to respect culture based preferences for infrequent interaction, informal meetings, and a task focus in the advising relationship.

The third and final proposition related to the advising relationship process is the advisory working alliance, which was explored in detail in a previous section. Schlosser et al. (2011) posit that as the level of rapport or interpersonal connection between advisor and advisee increases, the relationship will be more satisfying and effective. Within multicultural advising relationships, the quality and value of the alliance is viewed as a function of the level of
agreement on strategies for addressing cultural differences (Thomas, 1993). Therefore, whatever strategy is chosen (e.g., open dialogue versus denial and avoidance) will have little effect on relationship quality and value, providing the strategy is preferred by both members of the dyad. Lastly, Schlosser et al. (2011) predict that racial identity status will influence the level of advisory working alliance, and that dyads matched in terms of racial identity status, regardless of race, will experience a more beneficial advisory relationship.

**Advising Outcomes.** Schlosser et al. (2011) identify two types of measurable advising relationship outcomes: proximal (short term) and distal (long term). Proximal outcomes fall into two categories: research outcomes and practice outcomes. Research outcome variables include research self-efficacy and competence, attitudes toward and interest in research, research productivity, increased autonomy in conducting research, and frequency of both presenting and publishing with one’s advisor. Practice outcome variables include practitioner self-efficacy and competence, attitudes toward and interest in practice, positive supervisory evaluations and successful completion of practicum training. Distal outcomes are more long term, but also include research and practice categories, as well as career and graduate program related outcomes. Distal research outcome variables include timely completion of dissertation; publication and/or presentation dissertation research; continuing to value and consume research; and making ongoing contributions to literature. Distal practice outcome variables include such things as obtaining licensure, certification and/or advanced credentialing and confidence and competence as a practitioner. In addition, there are career-related distal outcomes, such as timely degree completion; prestige or quality of first job; rate of promotion; perceived career success; work satisfaction; reputation/career eminence; decreased role stress and role conflict; competence serving as an advisor/supervisor; and professional citizenship behaviors. There are
distal outcome variables which are related specifically to one’s advisor, such as maintaining a mentoring relationship with advisor beyond completion of program or enhancing advisor’s reputation. There are also distal variables related specifically to one’s graduate program, such as enhanced program prestige/reputation, post-graduation service to the program, and involvement in alumni activities.

The theory outlined above offers a comprehensive theoretical framework from which to understand the intersection of culture and advising. The model not only offers theoretical propositions regarding the process of advising in general, but includes consideration of potential cultural influences on advising. Most importantly, the theory suggests several proximal and distal outcomes of advising relationships to be tested empirically. The full model of advising is depicted below in Figure 2.1.
Figure 2.1

MODEL OF THE ADVISING RELATIONSHIP

Interpersonal Aspects
- Advisor-Advisee Similarity
- Support and Challenge
- Role Perceptions

Instructional Aspects
- Support and Challenge
- Advising Tasks and Functions
- Task Related Empathy

Relationship Formation
Relationship Maintenance
Proximal and Distal Outcomes
Advisory Working Alliance
For the purposes of the present study, the focus is on proximal research development outcomes, specifically research self-efficacy, interest in research, and research outcome expectations. These variables are of particular interest given the importance of research not only for successful completion of most doctoral programs (timely completion of dissertation), but for embarking on a career path in academia (publications, etc.) as well. A brief review of the theoretical underpinnings and empirical evidence related to the chosen outcome variables will be presented in a subsequent section. In addition to highlighting the important outcome variables, such as the ones described above, Schlosser et al. (2011) have also highlighted several important cultural variables to be considered when engaging in cross cultural/racial advisory relationships. Of particular interest for the present research is the potential impact of level of cultural mistrust on the advisory working alliance and related proximal research outcomes. As noted above, Schlosser et al. (2011) posit that among advisees of color, high levels of cultural mistrust (Terrell & Terrell, 1981) will likely lead to difficulty in the relationship formation process. As such, this is an important variable for both members of the dyad to be aware of, in the hopes of reducing or eliminating the potential negative effects. The theoretical underpinnings and related empirical research of this important variable will now be discussed.

**Cultural Mistrust**

**Theoretical Background.** Cultural mistrust is a concept which is based on Grier and Cobb’s (1968) concept of cultural paranoia, which was defined as a healthy paranoia in which Blacks develop and maintain a high degree of suspicion towards Whites to protect themselves. Cultural mistrust (Terrell & Terrell, 1981) is the belief acquired by African Americans, due to past and/or ongoing mistreatment related to ethnic group membership, that Whites cannot be trusted (Terrell, Taylor, Menzise, & Barrett, 2009). Put simply, cultural mistrust refers to the
need for individuals of color to be mindful of the possibility that they may currently be
victimized by acts of racism and prejudice (Terrell & Terrell, 1981). Both cultural paranoia and
cultural mistrust can be described as an attitudinal response to a history of oppression (Ogbu,
1991). Blacks who do not trust Whites have a tendency to avoid sharing information with and
interacting with Whites, largely for fear of being exploited. Cultural mistrust describes the
tendency for African Americans not to trust White Americans in both institutional and personal
cultural mistrust of African Americans towards Whites manifests itself: education and training
settings, the political and legal system, work and business interactions, and finally interpersonal
and social contexts.

Since the initial development of the Cultural Mistrust Inventory (CMI), this construct has
been widely studied. Cultural mistrust has been empirically examined in many diverse contexts
and has been found to be useful in explaining behavior, in particular avoidant behavior among
African Americans. These contexts include: counselor preference in psychotherapy (Grant-
Thompson Atkinson, 1997; Nickerson, Helms, & Terrell, 1994; Poston, Craine, & Atkinson,
1997; Terrell & Terrell, 1984; Thompson, Worthington, & Atkinson, 1994; Townes, Chavez-
Korell, & Cunningham, 2009; Watkins & Terrell, 1988; Watkins, Terrell, Miller, & Terell,
1989); IQ test performance (Terrell & Terrell, 1983; Terrell, Terrell, & Taylor, 1981);
educational value and achievement motivation (Caldwell & Obasi, 2010); occupational
expectations (Terrell, Terrell, & Miller, 1993); antisocial behavior (Biafora et al., 1993); and
knowledge of AIDS transmission (Klonoff & Landrine (1997). Additionally, Whaley (2001)
compared the findings of more than 20 independent studies that used the CMI in relation to
different behaviors among Black Americans. The 20 studies utilized in this meta-analysis
examined the associations with CMI scores with a number of psychosocial domains ranging from psychotherapy utilizations to career aspirations. This meta-analysis suggested that the negative effects of Blacks’ cultural mistrust in interracial situations were, in fact, not unique to counseling and psychotherapy, but rather representative of a broader perspective.

Two controversial issues have surrounded the construct of cultural mistrust and similar constructs in the past. The first is surrounding the terminology used to describe this phenomenon, and the second is the argument that the tendency to mistrust Whites indicates pathology. Early terms, such as “cultural paranoia” have been rejected by many due to the implied pathology which is inherent in the name (Terrell, Taylor, Menzise, & Barrett, 2009). Scholars, however, argue that the tendency of Blacks to mistrust Whites is a normal, protective function (Sanders, 1997). In addition, Whaley (2002) demonstrated that cultural mistrust and clinical paranoia are distinctly different phenomena. Further, Terrell and Terrell (1981) highlight the fact that cultural mistrust of Whites by African Americans has the potential to be either protective or counterproductive depending on the context. Sanders (1997) posited that many African Americans gain resilience through experiences of discrimination, and that as a result it is possible for high levels of cultural mistrust to coexist with positive outcomes such as belief in the value of education and positive outcome expectations. This alternative, more positive view of responses to discrimination is typically not addressed in the literature to the extent that negative outcomes associated with discrimination are (Caldwell & Obasi, 2010). Cultural mistrust is currently a widely used research variable across many disciplines, largely due to the development of the Cultural Mistrust Inventory (CMI).

**Measurement and Empirical Support.** The construct of cultural mistrust was introduced by Terrell and Terrell in 1981, and developed into an inventory. The Cultural Mistrust
Inventory (CMI) is intended to provide a global measure of the extent to which Blacks mistrust Whites, as well as the extent of mistrust in the four settings described above: education and training settings, the political and legal system, work and business interactions, and finally interpersonal and social contexts. Prior to the development of this construct, no empirical studies existed which measured level of cultural mistrust and the subsequent effects of cultural mistrust on behavior. Since the development of the CMI several other mistrust inventories have been developed (Landrine & Kloniff, 1994; LaVesit, Nickerson, & Bowie, 2000). The CMI, however, remains the most widely used. For the purposes of the present literature review, the focus will be on research examining cultural mistrust as measured by the CMI within education and training settings as well as in counseling settings. The consideration of this variable within the counseling setting in addition to education and training is theoretically indicated, as the Advisory Working Alliance (AWA) is rooted in the working alliance in psychotherapy. As such, there are interpersonal similarities across these two contexts.

Overall, high levels of cultural mistrust have been found to be detrimental to academic functioning (Irving, 2002). Black students having high levels of cultural mistrust were found to perform at a lower level on intelligence tests administered by a White examiner when compared with Black students with similar levels of cultural mistrust whose test was administered by a Black examiner (Terrell, Terrell, & Taylor, 1981). Terrell, Terrell, and Miller (1993) examined levels of cultural mistrust as a function of educational and occupational expectations among Black students. No significant correlation was found between educational expectations and cultural mistrust. The study did however find that students who had lower occupational expectations had higher levels of mistrust. Caldwell and Obasi (2010) examined cultural mistrust in conjunction with achievement motivation, value of education, and academic performance
using a Social Cognitive Career Theory (SCCT) framework. Results indicated that cultural mistrust was negatively correlated with both academic achievement and the value of education. Further, within the SCCT model, cultural mistrust functioned as a perceived barrier to success. Irving and Hudley (2005) found that Black college students with higher levels of mistrust had lower outcome expectations for their college experience. Lastly, Lee (2003) found that black undergraduate students with higher levels of cultural mistrust tended to express higher feelings of alienation and were less willing to seek academic help. These findings indicate that level of cultural mistrust has the potential to impact African Americans in an educational setting, and may be particularly impactful in an advising setting.

Cultural mistrust has also been examined in the field of counseling with regard to cross-racial counseling dyads, and the impact of cultural mistrust. Given that the theoretical underpinnings of the advisory working alliance are rooted in working alliance literature in psychotherapy, these findings are relevant to review. In general, mistrust of Whites has been found to contribute to underutilization and lowered expectations of counseling (Austin, Carter, & Vaux, 1990; Watkins & Terrell, 1988). Terrell and Terrell (1984) also found that higher levels of cultural mistrust correlated with higher rates of premature termination among Black clients being seen by White counselors. Individuals with high levels of cultural mistrust have also been found to be less willing to self-disclose to their counselors (Thompson, Worthington, & Atkinson, 1994). Townes, Chavez-Korell, and Cunningham (2009) examined the relationships between racial identity, cultural mistrust, help seeking attitudes, and preference for a Black counselor, finding that high levels of cultural mistrust significantly predicted preference for a Black counselor. Given that advising relationships take place in an educational setting and have interpersonal components, similar to counseling, the research cited above is highly relevant.
Cultural mistrust is clearly relevant in educational and counseling settings, and is theorized to impact graduate-level advising relationships (Schlosser et al., 2011). Despite the theorized importance of considering this variable in the context of advising experiences of ethnic minorities, a review of the extant literature found no empirical articles which examined the influence of this variable in a sample of African American graduate students. Although they do not pertain specifically to graduate students, the research described above examining cultural mistrust in educational and counseling contexts is still extremely relevant. While the tasks and challenges faced by undergraduate students and graduate students differ, the data indicating the negative impact of cultural mistrust on educational, occupational, achievement motivation and academic performance for undergraduates are still useful. Graduate students’ development in each of the above areas has the potential to impact the way in which they view themselves, and they ways in which they are viewed by their advisor. In addition, given the documented importance of the working alliance in both counseling and advising relationships, the data regarding the impact of cultural mistrust in counseling settings are useful in the proposed research as well. Lowered expectations, underutilization, and aversion to self-disclosure are all particularly relevant within the formation of an advisory working alliance. As such, an empirical study examining the effects of level of cultural mistrust on the advisory working alliance as well as relevant training outcome variables is a logical extension of the existing literature. In addition, an examination of the potential moderating effect of cultural mistrust on research training outcome variables theorized to be positively correlated with the advisory working alliance is warranted. As stated previously, the research training outcome variables of interest for this study are proximal rather than distal. A brief review of the theoretical underpinnings and evidence related to the chosen outcome variables follows.
Research Training Outcome Variables

Theoretical Background. The training outcome variables of interest for the present research fall into the proximal category described above. They are research self-efficacy, interest in research, and research outcome expectations. These variables have been discussed within the present review thus far in relation to research on the advisory working alliance, which is minimal. The following section provides a brief theoretical background, as well as overview of other relevant empirical evidence on these constructs. The proximal research outcome variables of interest are drawn from Social Cognitive Theory (SCT; Bandura, 1986) and Social Cognitive Career Theory (SCCT; Lent, Brown, & Hackett, 1994). Social Cognitive Theory focuses on the way in which people, their behavior, and their environments mutually influence one another. Social Cognitive Career Theory, an extension of SCT, was developed to help understand how individuals develop vocational interests, make and remake occupational choices, and achieve varying levels of career success as well as stability. In addition, SCCT incorporates a focus on theoretical elements that may promote, or hinder effective career behavior.

As stated, SCCT is rooted in Bandura’s (1986) Social Cognitive Theory, which focuses on the interplay between people, their behaviors, and their environments. Social Cognitive Career Theory drew from Bandura’s model of triadic reciprocality, where person attributes, environmental factors, and overt behaviors all affect one another in a bi-directional manner (Bandura, 1986). Social Cognitive Career Theory looks specifically at the interplay among three person variables that are, according to the theory, critical in a person’s ability to exercise agency in his or her career development (Lent et al., 1994). These three variables are: self-efficacy beliefs, outcome expectations, and personal goals. For the present research, we focus on self-efficacy beliefs and outcome expectations and their influence on the development of interest.
The first person variable, self-efficacy beliefs, refers specifically to people’s “judgments of their capabilities to organize and execute a particular course of action that is required to attain specific types of performances” (Bandura, 1986, p. 391). Self-efficacy can be viewed as a person’s perspective related to the question “Can I do this?” A person’s beliefs about his or her capabilities are not static, but fluid. These beliefs about personal capabilities are also very responsive to environmental conditions. Bandura (1977) identified four primary learning experiences which have the potential to condition and reinforce self-efficacy beliefs: personal performance accomplishments, vicarious learning, social persuasion, and physiological affective states. For example, if an individual has success in an endeavor, such as getting a good grade, this can raise his or her self-efficacy, whereas if an individual repeatedly fails at an endeavor, such as a class, this can lower his or her self-efficacy for that particular endeavor. Vicarious learning is particularly relevant to the advising relationship, as advising is one of the many ways in which doctoral students are socialized into their respective professions.

Outcome expectations are also drawn from Bandura’s (1986) social cognitive theory, and refer specifically to an individual’s beliefs about the outcomes that will occur if he/she performs specific activities or engage in certain behaviors. Outcome expectations can be viewed as a person’s perception of the question “If I do this, what will happen?” According to both Social Cognitive Theory (1986) and Social Cognitive Career Theory (1994), outcome expectations develop from three main areas: perception about the outcome an individual has attained based on the outcome he or she has gotten from past endeavors, second-hand information acquired from career fields, and self-efficacy beliefs. For example, an individual can have high self-efficacy and low outcome expectations. An example of this would be students of color who feel quite confident in his or her abilities and intelligence, but may feel unsure or negative about the
outcome expectations, perhaps about how he or she will be treated or perceived. Outcome expectations can be positive or negative. Bandura (1986) viewed self-efficacy beliefs and outcome expectations as being critical in determining aspects of human behavior, including what activities people choose to pursue and avoid.

Self-efficacy and outcome expectations, along with four other variables (personal goals, person inputs, distal influences, and proximal influences; for a full review see Lent, Brown, & Hackett, 1994) are the major components of the three interlocking models of career development posited by Lent et al. (1994): model of interest development, model of career choice, and model of performance. These three models operate in a reciprocal manner; however, since the interest in research is a proximal outcome variable for the present study, we will focus on the model of interest development.

The model of interest development proposed by Lent et al. (1994) provides a clear theoretical path to explain the way in which career interests develop. Individuals are exposed to and reinforced to pursue particular activities by their environments. These experiences become the sources of self-efficacy and outcome expectations. These learning experiences are influenced by person inputs and distal environmental influences, which also effect the development of self-efficacy and outcome expectations. Interests are then formed by individuals in areas where they view themselves to be self-efficacious and where they espouse positive and valued outcome expectations. The reverse is also true, meaning that individuals can develop aversions to activities where they have not developed self-efficacy or positive outcome expectations. Once an interest is developed, it influences goals or intentions. Goals in turn produce an increase in involvement or practice in those interest areas. Once the choice to pursue an activity has been made, the outcome of involvement or practice in a particular activity can then influence self-
efficacy and outcome expectations in a positive or negative way. Based on the outcome of involvement in an area of interest, self-efficacy and outcome expectations can be revised. The cycle of interest development can begin again, and choices can be retained or reevaluated. In this model, self-efficacy and outcome expectations directly affect interests, and indirectly affect goals, activity selection, and performance.

Given the involvement of advisors in the research training and professional development of graduate students, at minimum in the form of dissertation guidance, these variables are highly relevant. Research specifically connecting the above-mentioned research training outcome variables with the advisory working alliance is limited, but compelling. As described previously, the advisory working alliance has been positively correlated with advisee research self-efficacy (Schlosser & Gelso, 2001; Schlosser & Kahn, 2007), positive attitudes towards research (Schlosser & Gelso, 2001; Schlosser & Kahn, 2007), research competence (Schlosser & Kahn, 2007), and student research self-efficacy and interest in research as rated by their advisor (Schlosser & Gelso, 2005). While research outcome expectations have not been specifically examined related to the advisory working alliance, the theoretical connectedness of self-efficacy, interest, and outcomes expectations as described above makes inclusion of outcome expectations in the current study a logical extension. The following section provides a brief review of additional relevant empirical research related to research self-efficacy, research interest, and research outcome expectations.

**Empirical Support.** Research self-efficacy, outcome expectations, and research interests have consistently been found to predict the scholarly activity of current students (Kahn & Scott, 1997; O’Brien, Malone, Schmidt, & Lucas, 1998; Phillips & Russell, 1994) and post-graduates (Royalty & Magoon, 1985; Royalty & Reising, 1986). Research self-efficacy and interest in
research have also been positively linked with increased engagement in scholarly activities (Kahn, 2001), as well as increased scholarly productivity. Additionally, research self-efficacy has been found to be a significant contributor to doctoral students’ dissertation progress (Geisler, 1995). Overall, studies have typically found that active participation in research as well as high personal investment (e.g., dissertation) positively influence both research skills and interest for current students. Additionally, activities that contain an interpersonal element (e.g., research team) positively impact research interest for current students (Gelso, Raphael, Black, Rardin, & Skalkos, 1983; Royalty & Reising, 1986; Mallinckrodt, Gelso, & Royalty, 1990). Though not explicitly measured as outcome expectations, the view that research is poor quality or irrelevant has been found to negatively influence research interest (Royalty & Reising, 1986). More recent research has examined the interplay between these three variables: research self-efficacy, research outcome expectations, and research interest.

Bieschke, Bishop, and Herbert (1995) examined research interest among rehabilitation counseling doctoral students. This study examined the degree to which research self-efficacy and research outcome expectations, as well as the research training environment (RTE), predicted interest in research. Multiple regression analyses found that RTE, research self-efficacy, and research outcome expectations together contributed to 46% of the variance predicting interest in research, and that research outcome expectations accounted for 43% of the unique variance. This may suggest that self-efficacy beliefs could indirectly impact research interest through outcome expectations more so than directly influencing interest. Bishop and Bieschke (1998) also found that research outcome expectations and research self-efficacy directly predicted interest in research. Research self-efficacy was found to have indirect effects on interest in research as mediated by research outcome expectations. These results suggests that students must not only
believe that they are capable of performing research tasks but that they must also believe that it
will be rewarding to engage in these tasks.

Given the documented importance of research self-efficacy, interest in research, and
research outcome expectations in increasing scholarly activity, the identification of factors, such
as the advisory working alliance, which might contribute to these variables is logical. Kahn and
Scott (1997) introduced a model based largely on SCCT and research training involvement
literature which included self-efficacy and interest in research (among other things) as part of a
model that predicted scholarly activity. While important factors such as a student’s relationship
with his/her mentor and outcome expectations were not originally included in the model, an
extended model of scholarly activity (Kahn, 2001) included these important variables. Aspects of
the environment were hypothesized to be direct predictors of research self-efficacy and research
outcome expectations, and research interests. Most importantly, within this extended model, a
student’s relationship with his/her mentor was included as an indicator of environment.
Interestingly, in his test of fit for the extended model, Kahn (2001) did not find that the
mentoring relationship was a significant factor, which conflicts with the findings related to the
advisory working alliance. Adequacy of the mentoring relationship was not a significant
predictor of self-efficacy, outcome expectations, or interest in research.

It is important to note that mentoring relationship within this context was based on the
terminology used on the Mentoring Functions Scale (MFS) (Noe, 1998), which states “your
mentor is not necessarily your advisor but the faculty member that you feel is most responsible
for your growth as a psychologist.” This is distinctly different from the definition of advisor
which is used within the advisory working alliance literature. However, these conflicting
findings demonstrate the utility of the current study in examining exactly how important the
advising relationship is to the research training outcome variables of interest. In addition, it is
noted by this researcher that much of the scholarly work on these research training variables has
taken place in counseling psychology due to a movement in counseling psychology to increase
the scholarly activity of students (Kahn, 2001). As such, in this particular field, there has been a
strong desire to understand what factors influence student involvement in scholarly activities. It
is important to note, however, that these research training variables have the potential to be
important across disciplines, as the completion of a research dissertation is a requirement across
many fields.

**Overall Summary, Critiques, Rationale, and Goals**

The preceding review of the extant literature provides a sound rationale and framework
for the proposed study. The components that comprise a strong working alliance within an
advising relationship are clearly articulated and empirically supported. Further, the factors which
make up this construct have been supported in a diverse sample of non-white students. The
importance of the advisory working alliance to both the personal and professional development
of graduate students is demonstrated quantitatively and qualitatively. Additionally, empirical
evidence supporting the potential impact of the advisory working alliance on relevant proximal
research training variables is provided. Though not empirically supported, the theory articulating
the potential impact of cultural variables on the formation of the working alliance is clear. In
particular, the potential impact of cultural mistrust on the formation and maintenance of the
AWA is compelling. Despite the rich theoretical foundation and growing body of empirical
literature regarding advising relationships, there are several limitations within the existing
literature, and these are discussed in further detail.
The representation of African American graduate students in any of the empirical studies addressing the advisory working alliance is relatively low, consistently falling below 10%, and in some cases being nonexistent. In the initial development and validation studies of the AWAI-S, African Americans represented 7% of the total sample. Subsequent studies report also report low representation of participants who identify as African Americans: 0% (Schlosser, Knox, Moskivits, & Hill, 2003); 8% (Schlosser & Kahn, 2007); 8% (Inman et al., 2011); and 4.6% (Huber et al., 2010). With the exception of Brown et al.’s (2011) qualitative examination, a review of the extant literature found no published studies with a sample comprised solely of African Americans. As the goal of the present research is to further explore the experiences of African Americans to facilitate their navigation through graduate school, a concerted effort must be made to increase the presence of African American graduate students within the sample or to conduct a study focused only on African Americans. In making efforts to increase the representation of African American participants it is important to note that there is currently no empirical evidence which supports the use of the AWAI-S in samples of African American graduate students. The results of Rice et al. (2009) and Brown et al. (2011), however, strongly suggest that the instrument may be valid across groups. Additionally, efforts to include a large sample of African American students would likely necessitate recruiting participants beyond psychology. The number of African American students enrolled in clinical or counseling psychology students in 2010 as reported by APA was 1,630 (this represents 7% of entire sample). The numbers of African American students enrolled in doctoral programs in general, however is more than twice that, with 4,434 doctoral degrees awarded to African Americans in 2009 (National Center for Education Statistics, 2011). As such, the present study will recruit a sample of African American doctoral students across disciplines. This will not only increase the
likelihood of obtaining a large enough sample to perform the necessary statistical analyses, but will also broaden the applicability of the results to diverse fields. This strategy has been utilized in previous studies which attempted to recruit large numbers of non-White students.

All of the empirical studies which examine the impact of the AWA draw samples from counseling and clinical psychology programs, as well as Psy.D. programs (Schlosser & Gelso, 2001; Schlosser, Knox, Moskivits, & Hill, 2003; Schlosser & Kahn, 2007; Sauer, Mrdjenovich, & GuGiu, 2010; Inman et al., 2011). A notable exception is Rice et al. (2009). The study was inclusive of 16 major across three different colleges within one university. Since the purpose of this study was to examine the experiences of particular group, international students, it is logical to assume that limiting the sample to psychology alone would not have provided an adequate sample for the study. The expansion of the research outside of psychology fields to include other majors will increase the ability to have a more diverse sample of minority participants. Further, such an inclusion is theoretically supported, as advising relationships are theorized to be important for any major which utilizes and apprenticeship model to socialize students into their professions (Schlosser et al., 2011). A final limitation of the literature reviewed in this chapter is the lack of attention paid to the interpersonal dynamics that occur within cross-racial advising dyads. Cross-racial dyads have been explored extensively in other areas including mental health care settings (Sue et al., 2009) and medical care settings (Weissman et al., 2005). In addition, training in most of these fields includes some level of attention to cultural awareness of trainees. Advising is different in that not only is there a lack of empirical research examining cross-cultural advising, but there is also a lack of standardization in the training that advisors receive. The present research seeks to address the limitations in this body of literature noted above through several key goals. First, the present research aims to recruit a large sample of African
American graduate students representative of various fields of study. This will be accomplished through recruitment strategies developed for the present study, which will be detailed in a subsequent chapter. Second, the present study aims to confirm whether or not variables that have been shown to predict a strong advisory working alliance in largely White samples hold true for the population of interest. Third, the present study aims to determine whether or not the advisory working alliance is positively correlated with the research training outcome variables of interest for the present study within this population. Finally, cultural mistrust will be examined as a potential moderating variable for the relationship between the advisory working alliance and the research training outcome variables. It is hoped that information will be gained that will significantly advance the literature in this area by providing empirical support for the Multiculturally Infused Model of Advising (Schlosser et al., 2011). Further, the results of this study, and future studies in this area, will provide valuable information regarding the advising experiences of African American graduate students, which will lead to the training of culturally compassionate and competent advisors. As such, the following hypotheses are offered for the present study.

Present Study: Specific Hypotheses and Proposed Models of Data Analysis

The current study seeks to examine the role of cultural mistrust as it relates to the advisory working alliance among African American graduate students across disciplines. Listed below are the specific hypotheses for the current investigation.

**Hypothesis 1**: It is expected that the ability to choose one’s advisor, length of time with advisor, similarity of research interests, frequency of meetings, and perceived availability will predict a significant portion of the variance in ratings of the advisory working alliance. It is expected that pairing method will have a stronger association for students who have been
working with their advisors for six months or less. Based on the above review of the extant theoretical and empirical literature (Schlosser et al., 2001, 2003, 2005; Knox et al., 2003; & Huber et al., 2010), it is hypothesized that the variables stated above will be positively associated with ratings of the AWA. Given the mixed findings related to the importance of frequency of meetings (Huber et al., 2010), and the theoretical supposition that perceived availability is actually more important (Knox et al., 2003), both of these variables will be examined in an effort to provide clarity. Findings from Huber et al. (2010) suggest that it is expected that pairing method will have a stronger association for students who have been working with their advisors for six months or less.

**Hypothesis 2, 3, and 4.** It is expected that the advisory working alliance will explain a significant portion of variance in students’ ratings of research self-efficacy, over and above that accounted for by variables that characterize the relationship. It is expected that the advisory working alliance will explain a significant portion of variance in students’ ratings of research outcome expectations, over and above that accounted for by variables that characterize the relationship. It is expected that the advisory working alliance will explain a significant portion of variance in students’ ratings of research interest, over and above that accounted for by variables that characterize the relationship. Based on the extant theoretical and empirical literature (Schlosser et al., 2001, 2003, 2005; Knox et al., 2003) it is expected that once variables expected to influence the advisory working alliance are controlled for, students’ ratings of the advisory working alliance will explain a significant portion of the variance in students’ self-report ratings of research self-efficacy, research outcome expectations, and research interest.

**Hypothesis 5, 6, and 7.** It is expected that cultural mistrust will moderate the relationship between the advisory working alliance and research self-efficacy. It is expected that cultural
mistrust will moderate the relationship between the advisory working alliance and research outcome expectations. It is expected that cultural mistrust will moderate the relationship between the advisory working alliance and research interests. Based on the literature (Terrell & Terrell, 1981; Lee, 2003; Townes et al., 2009) regarding the impact of cultural mistrust on the behavior of African Americans in educational/interpersonal settings, it is expected to emerge as a moderator between the expected association between the advising working alliance and training outcome variables.
Proposed Models of Data Analysis

Step 1: Simultaneous Regression

Background Variables → Advisory Working Alliance

Step 2: Hierarchical Regression

Background Variables → Advisory Working Alliance → Research Self-Efficacy
Background Variables → Advisory Working Alliance → Research Outcome Expectations
Background Variables → Advisory Working Alliance → Research Interests

Step 3: Moderation Analysis

Background Variables → Advisory Working Alliance → Research Self-Efficacy
  Cultural Mistrust

Background Variables → Advisory Working Alliance → Research Outcome Expectations
  Cultural Mistrust

Background Variables → Advisory Working Alliance → Research Interests
  Cultural Mistrust
Chapter 3

Methods

Chapter Two presented a synthesis of the theoretical and empirical literature on the advisory working alliance, relevant proximal training outcome variables (research self-efficacy, interest in research, and research outcome expectations), cultural mistrust, and the multiculturally infused model of advising. The specific implications of the above constructs for African American graduate students were discussed. This chapter presents the method for exploring the hypotheses of the current investigation. In addition, information describing participants, recruitment of participants, data collection procedures, and a description of the measures that were utilized are presented.

Participants

Participants included in the current study were 195 doctoral students who met the following inclusion criteria: self-identified as African American, were enrolled in a full-time doctoral program which required a dissertation for program completion, were paired with a doctoral advisor whom the participant viewed as White, and were attending either a Committee on Institutional Cooperation (CIC) member institution or an American Association of Universities (AAU) member institution. A total of 519 students attempted to take the survey; however, 290 students were disqualified for not meeting criteria based on their responses to an initial screening survey. Table 3.1 illustrates the reasons for the disqualification of these participants based on eligibility criteria. Two hundred twenty-nine participants completed the study. This number was reduced to 195 following data cleaning which included casewise deletion of several cases following an assessment of missing data and removal of univariate and multivariate outliers.
Table 3.1

Reasons for Participant Disqualification from Survey

<table>
<thead>
<tr>
<th>Reason for Disqualification</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did not Consent to Study</td>
<td>2</td>
</tr>
<tr>
<td>Not a Full-Time Student</td>
<td>60</td>
</tr>
<tr>
<td>Non-African American Identity</td>
<td>10 (4 White, 4 Asian/Asian American, 1 American Indian, 1 Native Hawaiian)</td>
</tr>
<tr>
<td>Did not have Doctoral Advisor</td>
<td>26</td>
</tr>
<tr>
<td>Advisor is not White</td>
<td>136 (91 African American, 19 Asian/Asian American, 1 American Indian/Alaska Native, 22 Biracial, 3 Hispanic/Latino/a)</td>
</tr>
<tr>
<td>Attended non CIC or AAU</td>
<td>30</td>
</tr>
<tr>
<td>Other (did not complete screening, or qualified but did not continue to survey)</td>
<td>26</td>
</tr>
<tr>
<td>Total Participants Disqualified Based on Screening Section</td>
<td>290</td>
</tr>
</tbody>
</table>

Participants who met criteria for the study ranged in age from 22-58 ($M=29.97$, $SD = 6.02$). Sixty-seven percent of participants identified as female and 32.3% identified as male.

Participants reported their current year of doctoral education as 1st year (14.9%); 2nd year (14.4%); 3rd year (17.4%); 4th year (23.6%); 5th year (14.4%); and 6th year and beyond (15.4%). Participants represented diverse colleges, including Liberal Arts (25.7%), Education (19.6%), Science (17.6%), Health and Human Development (9.5%), Engineering (8.5%), Nursing (2%), Earth and Mineral Science (2%), Agricultural Science (1.5%), Information and Science Technology (1.5%), Arts and Architecture (1%), Communications (1%), and Business (.5%). Approximately 9.6 percent of participants chose not to provide this information (a full listing of specific departments reported by participants can be found in Appendix A). Approximately 16.9% of participants reported having attended a Historically Black College or University for
their undergraduate education, while 83.1% reported that they had not. With regard to dissertation status, the largest group (49.2%) reported being in a pre-proposal status. Detailed information dissertation status of participants as well as data regarding likelihood of pursuing a career in academic is detailed in Table 3.2.

Table 3.2

*Dissertation Standing and Likelihood of Career in Academia*

<table>
<thead>
<tr>
<th>Dissertation Standing</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Proposal</td>
<td>96</td>
<td>49.2</td>
</tr>
<tr>
<td>Proposed, but haven’t collected data</td>
<td>28</td>
<td>14.4</td>
</tr>
<tr>
<td>Data collected but not analyzed</td>
<td>44</td>
<td>22.6</td>
</tr>
<tr>
<td>Data collected and analyzed, ready to defend</td>
<td>20</td>
<td>10.3</td>
</tr>
<tr>
<td>Defended</td>
<td>7</td>
<td>3.6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Likelihood of career in academia</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all likely</td>
<td>30</td>
</tr>
<tr>
<td>Somewhat likely</td>
<td>51</td>
</tr>
<tr>
<td>Likely</td>
<td>51</td>
</tr>
<tr>
<td>Highly likely</td>
<td>53</td>
</tr>
<tr>
<td>Unsure</td>
<td>10</td>
</tr>
</tbody>
</table>

While all participants reported that they perceived their advisor as racially white, 15.4% of participants also reported that they viewed their advisor as holding international status. Full demographic information about participants’ views of advising relationships including pairing method, length of relationship, frequency of meetings, perception of availability, degree of similarity, and importance of advising relationship is reported in table 3.3.
Table 3.3

Participants’ Views of Advising Relationship

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pairing Method</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chose advisor</td>
<td>148</td>
<td>75.9</td>
</tr>
<tr>
<td>Assigned to advisor</td>
<td>47</td>
<td>24.1</td>
</tr>
<tr>
<td><strong>Length of Time with Advisor</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 6 months</td>
<td>24</td>
<td>12.3</td>
</tr>
<tr>
<td>More than 6 months</td>
<td>5</td>
<td>2.6</td>
</tr>
<tr>
<td>6 months – 1 year</td>
<td>13</td>
<td>6.7</td>
</tr>
<tr>
<td>1-2 years</td>
<td>41</td>
<td>21.0</td>
</tr>
<tr>
<td>2 years or more</td>
<td>112</td>
<td>57.4</td>
</tr>
<tr>
<td><strong>Frequency of Meetings</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekly</td>
<td>63</td>
<td>32.3</td>
</tr>
<tr>
<td>Every other week</td>
<td>27</td>
<td>13.8</td>
</tr>
<tr>
<td>Monthly</td>
<td>52</td>
<td>26.7</td>
</tr>
<tr>
<td>Once a semester</td>
<td>20</td>
<td>10.3</td>
</tr>
<tr>
<td>Other (as needed)</td>
<td>33</td>
<td>16.9</td>
</tr>
<tr>
<td><strong>Perception of Advisor Availability</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rarely available</td>
<td>5</td>
<td>2.6</td>
</tr>
<tr>
<td>Sometimes available</td>
<td>29</td>
<td>14.9</td>
</tr>
<tr>
<td>Usually available</td>
<td>101</td>
<td>51.8</td>
</tr>
<tr>
<td>Always available</td>
<td>60</td>
<td>30.8</td>
</tr>
<tr>
<td><strong>Degree of Similarity with Advisor</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not at all similar</td>
<td>12</td>
<td>6.2</td>
</tr>
<tr>
<td>Somewhat similar</td>
<td>76</td>
<td>39.0</td>
</tr>
<tr>
<td>Similar</td>
<td>67</td>
<td>34.4</td>
</tr>
<tr>
<td>Very similar</td>
<td>40</td>
<td>20.5</td>
</tr>
<tr>
<td><strong>Importance of Advising Relationship</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not at all important</td>
<td>2</td>
<td>1.0</td>
</tr>
<tr>
<td>Somewhat important</td>
<td>25</td>
<td>12.8</td>
</tr>
<tr>
<td>Important</td>
<td>62</td>
<td>31.8</td>
</tr>
<tr>
<td>Very important</td>
<td>106</td>
<td>54.4</td>
</tr>
</tbody>
</table>
Procedures

Recruitment. The recruitment procedures were developed by the author specifically for the present study. Recruitment began in the fall of 2012, and took place over a 6-month period. Initial recruitment began by contacting the 13 member universities of the Committee on Institutional Cooperation (CIC). Given the research-intensive nature of CIC member universities, it was theorized that doctoral students at these institutions would be more likely to be engaged in research training activities. A comprehensive internet search was conducted to identify relevant individuals or organizations at each institution that might be willing to distribute the recruitment notice. Offices identified included Black Graduate Student Association; Office of the Provost for Research and Minority Issues; Office for Recruitment and Diversity Affairs; Office of Multicultural Affairs; Graduate Student Association; Office of Affirmative Action; Office of the Vice President for Diversity, Equity, and Multicultural Affairs; Black Student Union; Office of Diversity; Equity, and Inclusion; and the Office of Diversity Programming. Any such individuals or organizations identified at the 13 CIC member schools were contacted via email with a distribution request (See Appendix B). Those that agreed to distribute the survey were then sent the student recruitment notice which contained an electronic link to the survey (see Appendix C). Follow-up emails were sent after two weeks. After two email attempts at contact with each school, this method of recruitment yielded 79 eligible participants for the survey.

The second wave of recruitment began at the start of 2013 following the winter break period and included recruitment from 60 member institutions of the Association of American Universities (AAU; the AAU has 62 member universities; however two universities were not contacted due to being located in Canada). The AAU universities were specifically targeted for
the same reasoning described above for CIC member universities. Institutions that were both CIC and AAU members were not contacted in the second wave of recruitment. The same procedures described above for identifying appropriate individuals and offices and timeline for follow-up emails were followed. Because the survey was designed to maintain participant privacy, a breakdown of the number of students from particular institutions is not available; however, Table 3.4 presents a list of all universities that were contacted. An email communication was also sent to the National Black Graduate Student Association (NBGSA), with a request to distribute the recruitment notice on their national listserv. Lastly, the student recruitment notice was distributed twice on the CIC minority graduate student listserv, which was comprised of doctoral students across CIC universities who participated in a CIC summer research program while they were undergraduates. A snowball sampling method was used in that students were encouraged to forward the recruitment notice to other Black graduate students via email, Facebook, Twitter, and word of mouth. Participants were offered an incentive for participation in the study, in that a $20 gift card to amazon.com was randomly awarded to one out of every 20 participants (a receipt for purchase of the gift cards can be found in Appendix D).
### Table 3.4

**Institutions contacted during recruitment**

<table>
<thead>
<tr>
<th>University</th>
<th>Type of Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boston University</td>
<td>AAU</td>
</tr>
<tr>
<td>Brandeis University</td>
<td>AAU</td>
</tr>
<tr>
<td>California Institute of Technology</td>
<td>AAU</td>
</tr>
<tr>
<td>Carnegie Mellon University</td>
<td>AAU</td>
</tr>
<tr>
<td>Case Western Reserve University</td>
<td>AAU</td>
</tr>
<tr>
<td>Columbia University</td>
<td>AAU</td>
</tr>
<tr>
<td>Cornell University</td>
<td>AAU</td>
</tr>
<tr>
<td>Duke University</td>
<td>AAU</td>
</tr>
<tr>
<td>Emory University</td>
<td>AAU</td>
</tr>
<tr>
<td>Georgia Institute of Technology</td>
<td>AAU</td>
</tr>
<tr>
<td>Harvard University</td>
<td>AAU</td>
</tr>
<tr>
<td>Indiana University</td>
<td>AAU and CIC</td>
</tr>
<tr>
<td>Iowa State University</td>
<td>AAU</td>
</tr>
<tr>
<td>Johns Hopkins University</td>
<td>AAU</td>
</tr>
<tr>
<td>Massachusetts Institute of Technology</td>
<td>AAU</td>
</tr>
<tr>
<td>Michigan State University</td>
<td>AAU and CIC</td>
</tr>
<tr>
<td>New York University</td>
<td>AAU</td>
</tr>
<tr>
<td>Northwestern University</td>
<td>AAU and CIC</td>
</tr>
<tr>
<td>The Ohio State University</td>
<td>AAU and CIC</td>
</tr>
<tr>
<td>The Pennsylvania State University</td>
<td>AAU and CIC</td>
</tr>
<tr>
<td>Princeton University</td>
<td>AAU</td>
</tr>
<tr>
<td>Purdue University</td>
<td>AAU and CIC</td>
</tr>
<tr>
<td>Rice University</td>
<td>AAU</td>
</tr>
<tr>
<td>Rutgers, The State University of New Jersey</td>
<td>AAU</td>
</tr>
<tr>
<td>Stanford University</td>
<td>AAU</td>
</tr>
<tr>
<td>Stony Brook University</td>
<td>AAU</td>
</tr>
<tr>
<td>Texas A&amp;M University</td>
<td>AAU</td>
</tr>
<tr>
<td>Tulane University</td>
<td>AAU</td>
</tr>
<tr>
<td>The University of Arizona</td>
<td>AAU</td>
</tr>
<tr>
<td>University at Buffalo</td>
<td>AAU</td>
</tr>
<tr>
<td>University of California, Berkeley</td>
<td>AAU</td>
</tr>
<tr>
<td>University of California, Davis</td>
<td>AAU</td>
</tr>
<tr>
<td>University of California, Irvine</td>
<td>AAU</td>
</tr>
<tr>
<td>University of California, Los Angeles</td>
<td>AAU</td>
</tr>
<tr>
<td>University of California, San Diego</td>
<td>AAU</td>
</tr>
<tr>
<td>University of California, Santa Barbara</td>
<td>AAU</td>
</tr>
<tr>
<td>University of Chicago</td>
<td>CIC</td>
</tr>
<tr>
<td>University of Colorado Boulder</td>
<td>AAU</td>
</tr>
</tbody>
</table>
University of Florida          AAU
University of Illinois        AAU and CIC
University of Iowa           AAU and CIC
University of Kansas         AAU
University of Maryland       AAU
University of Michigan       AAU and CIC
University of Minnesota      AAU and CIC
University of Missouri-Columbia AAU
University of Nebraska-Lincoln CIC
University of North Carolina at Chapel Hill AAU
University of Oregon         AAU
University of Pennsylvania   AAU
University of Pittsburgh     AAU
University of Rochester      AAU
University of Southern California AAU
University of Texas at Austin AAU
University of Virginia       AAU
University of Washington     AAU
University of Wisconsin-Madison AAU and CIC
Vanderbilt University       AAU
Washington University       AAU
Yale University             AAU

**Data Collection.** The data was collected using an Internet web-based survey on psychdata.net ([www.psychdata.net](http://www.psychdata.net)). Following receipt of Penn State’s Institution Review Board’s approval, instructions, participant consent form, and measures were uploaded onto this website. The website was piloted by a team of psychology doctoral students to determine length of time for completion of survey, which averaged 20-30 minutes for completion. The student recruitment notice contained an electronic link to the survey notice and was distributed via the contacts made during the initial relationship-building phase of recruitment described above. The electronic recruitment notice briefly explained the purpose of the study, ensured anonymity, and asked for voluntary participation. An electronic hyperlink to access the website where the surveys were located was provided in the recruitment notice. Participants were provided access to an online webpage on www.psychdata.net which briefly explained the nature of the study,
confidentiality, the length of the study, and a voluntary informed consent statement. (A copy of
the consent form can be found in Appendix E.) Participants were informed that they could
withdraw from the study at any time. Informed consent was indicated when the participants
clicked the “Continue” button at the bottom of the informed consent page. Once participants
indicated consent, they were asked to complete a brief screening measure to ensure eligibility.
Once eligibility was determined, participants were randomly assigned to one of four groups.
While each group completed the Advisory Working Alliance Inventory (Schlosser & Gelso,
2001), the Self-Efficacy in Research Measure, short version (Kahn & Scott, 1997; Phillips &
Russell, 1994), the Research Outcome Expectations Questionnaire short form (Bieschke, 2000),
the Interest in Research Questionnaire (Bishop & Bieschke, 1994), the Cultural Mistrust
Inventory, (Terrell & Terrell, 1981), and a brief demographic measure created for the purposes
of this survey, the order of presentation of the instruments within each group varied to minimized
order effects. At the end of each measure participants submitted their responses electronically.
Table 3.5 illustrates the four ways instruments were counterbalanced, along with the number of
participants that were randomly directed to each. A decision was made by the committee to
always end with the Cultural Mistrust Inventory and the demographic form to prevent any
priming of potential responses.
Table 3.5

Order of surveys by group

<table>
<thead>
<tr>
<th>Order Number</th>
<th>Order of Measures</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>Advisory Working Alliance Inventory</td>
<td>54</td>
<td>23.58</td>
</tr>
<tr>
<td></td>
<td>Self-Efficacy in Research Measure</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Research Outcome Expectations Questionnaire</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interest in Research Questionnaire</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cultural Mistrust Inventory</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Demographic Questionnaire</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group 2</td>
<td>Interest in Research Questionnaire</td>
<td>57</td>
<td>24.89</td>
</tr>
<tr>
<td></td>
<td>Research Outcome Expectations Questionnaire</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Self-Efficacy in Research Measure</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Advisory Working Alliance Inventory</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cultural Mistrust Inventory</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Demographic Questionnaire</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group 3</td>
<td>Self-Efficacy in Research Measure</td>
<td>61</td>
<td>26.63</td>
</tr>
<tr>
<td></td>
<td>Advisory Working Alliance Inventory</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interest in Research Questionnaire</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Research Outcome Expectations Questionnaire</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cultural Mistrust Inventory</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Demographic Questionnaire</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group 4</td>
<td>Research Outcome Expectations Questionnaire</td>
<td>57</td>
<td>24.89</td>
</tr>
<tr>
<td></td>
<td>Interest in Research Questionnaire</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Advisory Working Alliance Inventory</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Self-Efficacy in Research Measure</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cultural Mistrust Inventory</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Demographic Questionnaire</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Measures

Participant Eligibility Screening Questionnaire (see Appendix F). A brief screening questionnaire created by the author for the purposes of this research was administered which assessed full-time doctoral student status, dissertation requirements of program, Hispanic origin (if applicable), racial group identity, country of origin, presence of a doctoral advisor, perceived race of advisor, and type of institution attended.
Demographic Questionnaire (see Appendix G). A brief demographic questionnaire created by the author for the purposes of this research was administered which assessed gender, age, year in program, department, degree sought, perception of advisor’s international status, method of pairing with current advisor, length of time with current advisor, frequency of meetings with current advisor, perception of advisor’s availability, degree of similarity between advisor’s interest and own interest, level of importance of advising relationship, current standing of dissertation, likelihood to pursue a career in academia, and type of undergraduate institution attended (HBCU vs. non- HBCU).

Advisory Working Alliance Inventory-Student Version (see Appendix H). The AWAI-S (Schlosser & Gelso, 2001) is a self-report measure intended to assess the advisor-advisee working alliance from the perspective of the student/advisee. The construct of the working alliance in advising is based on the psychotherapy alliance (Bordin, 1979; Horvath & Greenberg, 1989) and the supervisory alliance (Efsation, Patton, & Kardash, 1990). The 30-item, 5-point Likert scale measures three factors: Rapport, Identification-Individuation, and Apprenticeship. The 11-item Rapport subscale measures the part of the advising relationship that reflects the advisee’s perception of the advisor’s support and encouragement of the advisee (Schlosser & Gelso, 2001). This factor also includes the emotional bond between the advisor and advisee that emerges from the work together. Higher scores on this subscale signify an alliance where there is a strong interpersonal connection, and where the advisee feels respected, encouraged, and supported by his or her advisor (Schlosser & Gelso, 2001). The 5-item Identification-Individuation subscale is intended to measure part of the emotional bond between the advisor and the advisee reflecting the advisee’s admiration of the advisor (Schlosser & Gelso, 2001). Low scores on this subscale indicate that the advisee does not want to be like his or her
advisor. The 14-item Apprenticeship subscale measures the advisee’s perception of the portion of the relationship where the advisor promotes the advisee’s understanding of the tasks, goals, and process of graduate school (Schlosser & Gelso, 2001). Higher scores on this subscale indicate a relationship where the advisee learns from his or her advisor, feels like the advisor facilitates his or her development, and reflects a mentor-protégé quality of the working alliance. Lower scores may indicate an instructional disconnection (Schlosser & Gelso, 2001).

Internal consistency for the AWAI-S total and subscale scores was demonstrated in Schlosser and Gelso’s research with 281 counseling psychology doctoral students in three separate studies. Specifically, the Cronbach’s alphas were .95, .90, and .93 for the AWAI total scores, .93, .84, and .89 for the Rapport subscale, .91, .85, .90 for the Apprenticeship subscale, and 77, .57, .63 for the Identification-Individuation subscale. More recent internal consistency for the total scores was found to be .93 with a population of 115 psychology doctoral students (Inman et al., 2011). Inman et al. reported coefficient alphas of .93 for Rapport, .91 for Apprenticeship, and .74 for Identification. Two-week test-retest reliability coefficients were .92 for the total scores, .89 for Rapport, .92 for Apprenticeship, and .75 for Identification-Individuation. Evidence of convergent validity was demonstrated through positive correlations between the AWAI-S and the Counselor Rating Form. The CRF contends that positive counseling working alliances are indicative of a relationship where the client perceives his or her counselor as expert, attractive, and trustworthy. This was also demonstrated by Schlosser and Gelso (2001) regarding the advisory working alliance. Additional evidence for validity has been demonstrated by significant theoretically expected correlations with research self-efficacy (total score r=.32, p<.001; subscales Rapport r=.36, Apprenticeship r=.29, Identification-Individuation, r=.20 all p<.001) and research attitudes (r=.28, p<.001).
This measure has typically been used in majority White samples from psychology doctoral programs. While this measure has not been utilized with a homogeneous sample of African American graduate students, some evidence does exist supporting the use of this measure with international students from diverse programs of study. Rice et al. (2009) conducted a confirmatory factor analysis (CFA) of the AWAI-S using a sample of 399 international students from 15 different colleges within one university. Overall, the AWAI-S was found to have adequate psychometric qualities supporting its use with international students. Specifically, the authors tested two models, one in which correlations between the three factors of the AWAI-S (rapport, apprenticeship, and identification-individuation) were permitted to be freely estimated, and one in which the factors were constrained to be orthogonal. The initial model which permitted correlations between factors was found to yield a good fit for the data (CFI = .97, SRMR = .057, RMSEA = .055; 90% confidence interval [CI]: .043, .060). Item factor-pattern coefficients ranged from .59 - .87 for the Rapport subscale, from .44 - .84 for the Apprenticeship subscale, and from .35 - .92 for the Identification-Individuation subscale. In the second model tested, in which the correlations between the three factors were constrained to be orthogonal, results were varied. While some statistics suggested a reasonable fit for the data (CFI = .95; RMSEA = .071; 90% CI: .066, .076), the SRMR of .35 suggested a poor fit for the data. As such, the initial model which allowed factor correlations to be free estimated was used for the study. Internal consistency Cronbach coefficients for Rice et al. (2009) were similar to the initial findings by Schlosser and Gelso (2001), with overall scores at .95, rapport at .93, apprenticeship at .90, and identification individuation at .74.

For the present study the total score was reported at .93. The internal consistency Cronbach coefficients for the subscales were found to be similar to the initial findings by
Schlosser and Gelso (2001), and by Rice et al. (2009), with rapport at .93, apprenticeship at .91, and identification individuation at .74. This provides further evidence that the AWAI-S maintains its internal consistency when used with homogeneous samples of minority students.

**Self-Efficacy in Research Measure Brief Version (see Appendix I).** The Self-Efficacy in Research Measure (SERM) Brief Version is a 12-item version of the SERM which was adapted by Kahn and Scott in 1997 from the original 33-item self-report measure. The measure assesses four distinct areas of research self-efficacy: research design skills (e.g., formulating hypotheses), practical research skills (e.g., keeping records during a research project), quantitative and computer skills (e.g., understanding computer printouts), and writing skills (e.g., writing the introduction and literature review for a dissertation). Each domain is assessed by three questions. Participants are asked to indicate their confidence either in successfully performing each task or in their belief that they currently possess the skill for performing each item. Confidence is measured on a scale from 0 to 9 where 0 indicates “no confidence” and 9 indicates “complete confidence” for that particular task. Total scores range from 0 to 108 (each factor can include up to 27), with higher scores reflecting greater research self-efficacy.

The original measure was created by Phillips and Russell (1994) using a sample of 219 counseling psychology students. The SERM was based on the Survey of Research Training (SORT; Royalty & Reising, 1986). In their study, Phillips and Russell (1994) found good internal consistency for the total score with a Cronbach’s alpha of .96. In Kahn and Scott’s (1997) revision of the original instrument, the authors sampled 287 counseling psychology doctoral students. Kahn and Scott’s brief version proved to have generally acceptable internal consistency for the total score, with a Cronbach’s alpha of .90. More recent research has found similar results reporting total strong internal consistency alpha=.90 (Kahn, 2001; Szymanski,
Ozegovic, Phillips, & Briggs-Phillips, 2007). For the present study, the total scores were used, and internal consistency was reported at .84.

**Research Outcome Expectations Questionnaire-Short Form (see Appendix J).** The ROEQ-R (Bieschke, 2000; Bieschke & Bishop, 1994) is an 8-item short version of the original 20-item scale used to measure a student’s self-report of the expected consequences or outcomes associated with conducting research. Participants are asked to respond on a 5-point Likert scale ranging from “strongly disagree” (1) to “strongly agree” (5). Items include statements such as “Involvement in research will enhance my job/career opportunities” and “Research involvement will lead to a sense of satisfaction.” Coefficient alpha coefficients for the longer version of the ROEQ have been reported to range from .88 (Kahn, 2001) to .90 (Bieschke, Bishop, & Herbert, 1995).

Bieschke (2000) conducted both an exploratory and confirmatory factor analysis on the original 20-item ROEQ. A one-factor model was identified which seems to assess positive outcome expectations that one might believe if one engages in research activities. Bieschke (2000) suggested that high scores on this scale reflect the belief that participation in research activities may result in contributions to the field, professional development, and increased respect from others. The confirmatory factor analysis confirmed the one-factor structure of the ROEQ and indicated that eight items represent an excellent fit to the data. The item-total correlation coefficients and the coefficient alphas for the 8-item scale were found to be comparable to the longer versions. Specifically, coefficient alpha for the one-factor model was reported as .90 and item-total correlation coefficients ranged from .50 to .80 (Bieschke, 2000). Symanski et al. (2007) reported an alpha coefficient at .93. In addition, Deemer, Martens, Haase, and Jome (2009) reported a Cronbach’s alpha of .91 for use of the 8-item version of the ROEQ.
Validity was also supported by examining the ability to predict research interest over and above research self-efficacy beliefs (Bieschke, 2000). For the present study, the total score was used, and internal consistency was reported at .89.

**Interest in Research Questionnaire (see Appendix K).** The Interest in Research Questionnaire (IRQ; Bishop & Bieschke, 1998) is a 16-item self-report scale which requires participants to indicate degree of interest in particular activities on a 5-point Likert scale ranging from 1 “very disinterested” to 5 “very interested”. Research activities included on this measure are inclusive of both qualitative and quantitative approaches. Sample research activity items include “discussing research ideas with my colleagues,” “conducting a literature review,” and “being a member of a research team.” Total scores can range from 16 to 80 where higher scores reflect greater research interest. Reported internal consistency has been reported as good, with coefficient alphas of .89 (Bieschke & Bishop, 1994), .90 (Bieschke et al., 1995), .91 (Bishop & Bieschke, 1998; Kahn, 2001), and .94 (Szymanski et al., 2007). Additionally, validity has been supported by correlating the IRQ scores with measures assessing research training environment \((r=.40, p<.05; \text{Kahn & Scott}, 1997)\), research outcome expectations \((\beta=.64, p<.001; \text{Bishop & Bieschke}, 1998)\), and research self-efficacy \((\beta=.17, p<.01; \text{Bishop & Bieschke}, 1998)\).

Psychometric soundness of the IRQ has also been demonstrated (Jones, 2006; Love et al, 2007).

While the original IRQ has demonstrated sound psychometrics, an altered version of the IRQ was piloted and utilized for the present study. Specifically, question 7 of the measure which asks participants to rate their level of interest in “conducting research at site of counseling practice” was removed from the measure. This question was removed due its specific reference to a particular professional field: counseling. As stated before, the present study made a concerted effort to recruit students from diverse fields of study, making this question
inappropriate. The removal of this question required additional analysis to test for psychometric quality of the adapted IRQ measure. This was done through a pilot study. Students were recruited from counseling, clinical, and school psychology programs via listservs at a large east coast research university, as well as via the Council of Counseling Psychology Training Programs (CCPTP) listserv. A snowball technique was used, in that participants were encouraged to forward the recruitment notice to peers. After providing consent, participants first completed the original IRQ followed by the adapted IRQ.

Eighty-six students attempted the survey. One student was removed due to being in a master’s degree program, and 11 students were removed due to enrollment in counselor education programs. The 74 remaining participants were similar demographically to the participants in Bishop and Bieschke’s (1998) study on the validation of the original IRQ scale. Specifically, White psychology graduate students comprised 80% of Bishop and Bieschke’s (1998) sample, and in the current study, the percentage of White psychology graduate students was 78% ($n = 58$). In regard to the ethnicity of the remaining 16 students, 7 (10%) students were Asian American, 6 (8%) did not disclose their ethnicity, 2 (3%) were African American, and 1 (1%) was Native American. The majority ($n = 35, 47\%$) were in counseling psychology graduate programs, while 20 (27%) were clinical psychology graduate students and 14 (19%) were school psychology graduate students. Four (6%) students did not disclose their type of psychology graduate program and 1 (1%) was a graduate student at another type of psychology program (not specified). The mean age of the students was $M = 27.91$ years ($Md = 27.00, SD = 4.12$).

Students completed both the original IRQ and the adapted IRQ. The original and adapted IRQ scales were examined in regard to their respective inter-item reliability via Cronbach’s alphas. The adapted IRQ scale displayed slightly better inter-item consistency, with $\alpha = .926$,
than the original IRQ scale, which had an $\alpha = .917$. The two scales were then tested for conceptual overlap. The original and adapted IRQ scales were significantly correlated with each other, $r(63) = .97, p < .001$. Lastly, for the present study the overall internal consistency of the altered version of the IRQ was demonstrated with a Cronbach alpha of .86.

**Cultural Mistrust Inventory (see Appendix L).** The Cultural Mistrust Inventory (CMI; Terrell & Terrell, 1981) is a 48-item measure intended to assess levels of mistrust Blacks have towards White Americans on a global scale, as well as in four relatively specific areas: education and training settings, interpersonal relations, business and work situations, and politics and law. The 48 items are scored on a 7-point Likert scale which ranges from strongly disagree to strongly agree. Items include statements such as “Blacks should be suspicious of a White person who tries to be friendly,” and “White teachers teach subjects so that it favors Whites.” Scores range from 48-336, with higher scores indicating a tendency for Blacks to be more distrustful of White Americans.

In a study which utilized a sample of psychiatric patients, results of a principal-component factor analysis (Whaley, 2002) support the use of the total score, rather than the scores from separate subscales, with a five-factor solution which explained 35.9% of the variance in item scores. As such, the total score will be used in the present study. Whaley (2002) reported good discriminant validity with measures of self-esteem (-.03) and social desirability (.12); this study also yielded coefficient alphas for the CMI which were reported at .85 for the total score. Of particular interest, Whaley (2002) demonstrated that cultural mistrust and clinical paranoia are distinctly different phenomenon. Discriminant validity of this point was demonstrated by significant correlations between cultural mistrust and the continuum of paranoia; the more severe the level of paranoia within the psychiatric population, the weaker the
correlation was with the CMI (Distrust, .28; Perceived Hostility of Others, .08, and False Beliefs and Perceptions, .09).

Coefficient alpha coefficients for the CMI have been reported as .89 (Nickerson et al., 1994), and .79 (Caldwell & Obasi, 2011). Validity of the CMI has been ascertained through the use of a meta-analysis. Whaley (2001) compared the findings of more than 20 independent studies that used the CMI in relation to different behaviors among Black Americans. The 20 studies utilized in this meta-analysis examined the associations with CMI scores with a number of psychosocial domains ranging from psychotherapy utilizations to career aspirations. A medium effect size across the studies was found (r = .30) for the correlation of cultural mistrust with measures of attitudes and behaviors across diverse psychosocial domains. Simple contrasts revealed that the effect sizes in studies of cultural mistrust in the mental health context were not significantly different than those studies in other psychosocial domains (ps > .10). This finding is particularly important in that much of the research utilizing the CMI has been conducted within a mental health context, and the present study is interested in examining the effect of this variable in an educational context. These findings indicate that the influence of African Americans cultural mistrust on attitudes and behaviors in a mental health context is no different than their response to other social situations (Whaley, 2001). For the present study, the total score was used, and the coefficient alpha coefficient for the CMI was .96.
Chapter 4

Results

The purpose of this study was to investigate African American graduate students’ perspectives of the advisory working alliance in cross-racial dyads, with specific emphasis on cultural mistrust as a moderating factor. SPSS 20.0 was used for all data analysis. In the current investigation, cultural mistrust is examined as a moderator of the advisory working alliance – research training outcome link. This chapter opens with a presentation and discussion of preliminary data analyses, including testing and adjusting for (a) missing data, (b) outliers, and (c) violations of assumptions for multiple linear regression. A discussion of significant associations among study variables resulting from Pearson bivariate correlation analyses is then presented. The chapter concludes with hypothesis testing via simultaneous multiple regression, hierarchical linear regression, and regression for moderation in accordance with Kenny and colleagues (e.g., Baron & Kenny, 1986; Judd, Kenny, & McClelland, 2001; Judd & Kenny, 2010). Finally, results of post-hoc analyses are presented.

Preliminary Analysis

A total of 519 individuals attempted to take the survey. An initial screening survey was given to ensure that participants met the eligibility/inclusion criteria outlined in Chapter 3. There were 290 participants who did not meet study criteria who did not continue to the survey, resulting in an initial sample size of 229.

Missing data. A visual scan and specific statistical computations were performed to identify missing data and make adjustments for missing data in alignment with research
recommendations (Allison, 2001; Haukoos & Newgard, 2007; Howell, 2007; Schlomer, Bauman, & Card, 2010). The initial screening of the data showed that 15 participants had incomplete data in that they did not answer over 50% of the survey questions. To examine whether data were missing not at random (MNAR), the data were examined for anomalies using SPSS. No anomalies per item were found in the data, suggesting that the data were missing at random (MAR). There are several options regarding procedures for handling missing data. Case-wise deletion is an option in which cases with missing data are simply “dropped” from the analysis (whereas step-wise deletion is an option in which entire variables are removed) (Tabachnick & Fidell, 2007). The deletion procedures of step-wise and case-wise deletion both have limitations: data are often biased estimators of the population when a majority of the cases have missing data (Allison, 2001; Schlomer at al., 2010). A majority of cases with missing data was not evident in this study. As such, the case-wise procedure was used to remove those 15 participants who did not complete over 50% of the study survey, leaving 214 participants.

Upon completion of the case-wise procedure, a visual screening of the items and a summary report of missing variables in SPSS for the AWAI-S (Schlosser & Gelso, 2001); the adapted SERM (Kahn & Scott, 1997); the ROEQ-R (Bieschke, 2000; Bieschke & Bishop, 1994); the IRQ (Bishop & Bieschke, 1998); and the CMI (Terrell & Terrell, 1981) scale were performed. The range of missing data points across all study variables was 0 to 13. The 13 missing data points emerged for only one item (the CMI [Terrell & Terrell, 1981] item, “Since whites can’t be trusted in business, the old saying ‘one in the hand is worth two in the bush’ is a good policy to follow”). In contrast, the frequency rates of missing data were between 0-2 for 70% of the remaining study variables. The low frequency rate of missing data precluded the use of complicated missing data techniques such as multiple imputation (Schlomer et al., 2010). A
more appropriate data technique was linear interpolation. Linear interpolation is an appropriate means to replace missing data when less than 5% are missing (Haukoos & Newgard, 2007). In this dataset, the average percentage of missing data was 3%. Linear interpolation utilizes a linear regression model to create random imputation of item scores and can be used for MAR data (Haukoos & Newgard, 2007). Linear interpolation, then, was used to replace the missing data.

**Outliers.** The data were then examined for univariate and multivariate outliers. Univariate outliers are cases with an extreme value on one variable, while multivariate outliers are cases with an unusual combination of scores on two or more variables (Tabachnick & Fidell, 2007). The univariate outlier function in SPSS 20.0 identified extreme scores, which were further validated by the interquartile range (IQR) boxplots. Cases that were above the quartile by one and a half IQRs were considered univariate outliers (Howell, 2010). Moreover, an anomaly variable impact score (VIS) was computed via SPSS 20.0: a VIS score can range from .00 to .99 and is an index as to the degree that the variable contributes to the “unusualness” of the case (Vogt, 2007). Ten univariate outliers were identified through these processes. Based on indicators mentioned above, (a) one case had an extremely low interest in research score and two cases had extremely high interest in research scores; (b) one case had an extremely high research self-efficacy score while one case had an extremely low one; and (c) five cases had extremely low research outcome expectations scores. The advisory working alliance and cultural mistrust scale did not have any univariate outliers.

Multivariate outliers were identified via Mahalanobis distance scores and DFBETA influence scores (Howell, 2010). A case is an outlier if the Mahalanobis distance (MD) scores is greater than the MD critical value at the \( p < .001 \) level (Rosenthal & Rosnow, 2008). DFBETA scores greater than one for any variable are considered outliers (Rosenthal & Rosnow, 2008).
Using these indicators, nine cases were found to be multivariate outliers, with (a) three cases being outliers due to the advisory working alliance and cultural mistrust relationship; (b) two cases being outliers due to the advisory working alliance and interest in research scale relationship; (c) two cases being outliers due to the advisory working alliance and research self-efficacy relationship; and (d) two cases being an outlier due to the advisory working alliance and cultural mistrust relationship and the advisory working alliance and research self-efficacy relationship. The advisory working alliance and research outcome expectations relationship did not have any multivariate outliers. After careful consideration, the 10 univariate outlier cases and the nine multivariate outlier cases were removed from analyses.

Preliminary Analyses Summary. A total number of 519 individuals attempted to take the survey. Of those 519 individuals, 290 (56%) were eliminated because they were not eligible to participate in the study. This resulted in an initial sample size of 229 participants. After removing the 15 cases wherein more than 50% of the survey was not completed and removing the 19 cases that represented univariate and multivariate outliers, the final sample size was 195, 85% of the eligible sample of 229 eligible participants.

Testing Assumptions

Inherent in linear and multiple regression analyses are the assumptions that (a) there is sound measurement reliability (i.e., scales show strong inter-item reliability); (b) scale data are normally distributed; (c) there is a lack of multicollinearity among predictor variables; (d) scale data show homoscedasticity (i.e., data have equivalent error variances); and (e) regression residuals errors are independent (Howell, 2008). Scale data were analyzed to test for any violations of assumptions for linear and multiple regression.
**Measurement reliability.** Measurement reliability was determined via Cronbach’s alpha, an indicator of inter-item consistency, for each scale (see Table 4.1). A Cronbach’s alpha (α) of .70 or higher denotes adequate inter-item reliability (DeVellis, 2003). All of the scales used in this study evidenced strong inter-item reliability. The AWAI-S scale of the advisory working alliance and the AWAI-S subscales of rapport, apprenticeship, and identification-individuation displayed strong internal consistency, with Cronbach’s alphas in the .90s. Internal consistency was also strong for the CMI, the measure of cultural mistrust, with a Cronbach’s alpha of .94. The research scales also displayed good inter-item reliability, with Cronbach’s alphas ranging from α = .85 for the adapted SERM, a measure of research self-efficacy, to α = .89 for the ROEQ-R, a measure of research outcomes expectations.

**Normality.** The assumption of normality requires that each of the variables and each combination of variables be normally distributed (Tabachnick & Fidell, 2007). Normality is an underlying assumption for most multivariate analysis and can be assessed using a combination of statistical and graphical analysis. Normality of scale scores was determined by skewness and kurtosis values and was further validated by Kolmogorov-Smirnov (K-S) Z tests. A significant K-S Z-value signifies that data are not normally distributed (Berry, 1993). Skewness refers to the asymmetry or symmetry of the distribution of scale scores around the scale mean score and determines whether scores show a normal distribution (Berry, 1993). A skewness value > +/- .90 indicates significant skewness (Berry, 1993). Kurtosis is a measure of peakedness or flatness of the distribution of scores and is an indicator of the normality of variance of scale scores (Berry, 1993). Kurtosis is very sensitive to values of scores around the mean and in the tails of the distribution (Berry, 1993). A negative kurtosis value indicates that the distribution of scale scores is sharply peaked, whereas a positive kurtosis score indicates a flat distribution of scale scores.
scores (Berry, 1993). The kurtosis significance value is computed by dividing the kurtosis value by the kurtosis value standard error (SE); if the kurtosis significance value is greater than equal to 2, kurtosis is evident (Berry, 1993).

As seen in Table 4.1, the skewness and kurtosis values were within acceptable limits for the AWAI-S scale and the AWAI-S subscales of apprenticeship and identification-individuation. Kolmogorov-Smirnov (K-S) Z tests further validated that the AWAI-S and these AWAI-S subscale scores were normally distributed: AWAI-S working alliance scale, $Z(195) = 1.17$, $p = .13$; AWA-S apprenticeship subscale, $Z(195) = 1.27$, $p = .08$; and AWAI-S identification-individuation subscale, $Z(195) = 1.18$, $p = .13$. The AWAI-S rapport subscale, however, displayed significant non-normality, $Z(195) = 1.93$, $p = .001$. As seen in Figure 4.1 the AWAI-S rapport subscale was negatively skewed (i.e., the distribution of scale scores most predominant in the extreme scores) and, as indicated by the negative kurtosis value, was very peaked at the extreme scores. To eliminate the non-normality of the distribution of scale scores, the AWAI-S rapport subscale was transformed into a new variable. In accordance with recommendations from Howell (2010), the AWAI-S rapport subscale was reflected to eliminate the negative skewness and data were transformed into log probabilities via loglinear transformation. After this transformation, the AWAI-S rapport subscale data displayed normality in their distribution (see Table 4.1).
The CMI cultural mistrust scale displayed normality in the distribution of scores, $Z(195) = .45$, $p = .99$, as did the SERM research self-efficacy scale, $Z(195) = .92$, $p < .36$, and the IRQ interest in research scale, $Z(195) = .84$, $p = .48$. While the ROEQ-R scale (which measured research outcome expectations) did not display significant kurtosis (kurtosis value of 1.09), it did violate the normality assumption as evidenced by a skewness value of -.90 and a significant Kolmogorov-Smirnov (K-S) score, $Z(195) = 2.40$, $p < .001$. The ROEQ-R scale was transformed into a new variable that displayed a normal distribution of scale scores. The scale was first reflected and data were transformed into log probabilities via loglinear transformation (Howell, 2010). Tabachnick and Fidell (2007) recommend loglinear transformations for distributions that differ substantially from normal. After this transformation, the ROEQ-R scale data displayed normality in their distribution (see Table 4.1).

**Figure 4.1.** Advisory working alliance (AWAI-S) rapport subscale histogram
Table 4.1

Descriptive Statistics for Study Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>A</th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
<th>Sk</th>
<th>K</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advisory Working Alliance</td>
<td>.93</td>
<td>113.62</td>
<td>21.30</td>
<td>45.00</td>
<td>150.00</td>
<td>-.81</td>
<td>.43</td>
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<tr>
<td>Rapport</td>
<td>.93</td>
<td>45.82</td>
<td>8.43</td>
<td>15.00</td>
<td>55.00</td>
<td>-1.42</td>
<td>2.29</td>
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<tr>
<td>Rapport+</td>
<td>.93</td>
<td>.87</td>
<td>.40</td>
<td>0.00</td>
<td>1.60</td>
<td>-.58</td>
<td>-.23</td>
</tr>
<tr>
<td>Apprenticeship</td>
<td>.91</td>
<td>50.59</td>
<td>10.76</td>
<td>18.00</td>
<td>70.00</td>
<td>-.61</td>
<td>-.05</td>
</tr>
<tr>
<td>Identification-Individuation</td>
<td>.76</td>
<td>17.36</td>
<td>3.89</td>
<td>7.00</td>
<td>25.00</td>
<td>-.29</td>
<td>-.36</td>
</tr>
<tr>
<td>Cultural Mistrust</td>
<td>.96</td>
<td>159.38</td>
<td>43.38</td>
<td>61.00</td>
<td>289.00</td>
<td>.15</td>
<td>-.13</td>
</tr>
<tr>
<td>Research Self-Efficacy</td>
<td>.84</td>
<td>90.92</td>
<td>14.61</td>
<td>55.00</td>
<td>120.00</td>
<td>-.22</td>
<td>-.73</td>
</tr>
<tr>
<td>Interest in Research</td>
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<td>59.97</td>
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<td>-.49</td>
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<td>Research Outcomes Expectations</td>
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<td>.38</td>
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<td>Research Outcome Expectations+</td>
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<td>.39</td>
<td>.00</td>
<td>1.28</td>
<td>-.20</td>
<td>-1.03</td>
</tr>
</tbody>
</table>

*Note.* Sk = Skewness, K = Kurtosis. + Revised scale based on loglinear transformations. Scales in italics represent loglinear transformation descriptive statistics; due to loglinear transformations, the coding direction for these variables are reversed.

For clarity in understanding the mean scale scores and range of scale scores, the scales were computed as mean-score scales to allow for comparisons to actual scale score ranges of scores (see Table 4.2).
Table 4.2

Mean Scale Scores for Study Variable: Actual versus Potential Range of Scale scores

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>Actual Range of Scores</th>
<th>Scale Range of Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Min</td>
<td>Max</td>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td>Advisory Working Alliance</td>
<td>3.75</td>
<td>.70</td>
<td>1.52</td>
<td>5.00</td>
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<tr>
<td>Rapport</td>
<td>4.17</td>
<td>.77</td>
<td>1.36</td>
<td>5.00</td>
</tr>
<tr>
<td>Apprenticeship</td>
<td>3.61</td>
<td>.77</td>
<td>1.29</td>
<td>5.00</td>
</tr>
<tr>
<td>Identification-Individuation</td>
<td>3.47</td>
<td>.78</td>
<td>1.40</td>
<td>5.00</td>
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<tr>
<td>Cultural Mistrust</td>
<td>3.32</td>
<td>.91</td>
<td>1.27</td>
<td>6.02</td>
</tr>
<tr>
<td>Research Self-Efficacy</td>
<td>7.58</td>
<td>1.22</td>
<td>4.58</td>
<td>10.00</td>
</tr>
<tr>
<td>Research Outcome Expectations</td>
<td>4.49</td>
<td>.49</td>
<td>2.75</td>
<td>5.00</td>
</tr>
<tr>
<td>Interest in Research</td>
<td>3.76</td>
<td>.50</td>
<td>2.53</td>
<td>4.67</td>
</tr>
</tbody>
</table>

Note. The mean and standard deviation represent the group mean and standard deviation for all 195 participants. The minimum and maximum scale scores are representative of the lowest and highest average scores obtained by an individual within the sample.

Lack of multicollinearity. Tests for multicollinearity are performed to determine whether predictor variables overlap in statistical variance to the degree that they are essentially conceptually measuring the same construct (Berry, 1993). For research question one, there were five single-item predictor variables of the criterion variable of working alliance. To test for multicollinearity, Pearson bivariate correlations (two-tailed) were computed for the predictor variables of (a) method of pairing with advisor, (b) length of time with advisor, (c) availability of advisor, (d) frequency of meeting with advisor, and (e) similarity of research interests (see Table 4.3). While researchers (e.g., Berry, 1993) have argued that Pearson bivariate correlations of $r > .80$ among predictor variables provide evidence of multicollinearity, it is now recommended by
researchers (e.g., DeVellis, 2003; Kraha, Turner, Nimon, Zientek, & Henson, 2012) that multicollinearity be tested by both correlation coefficients – with $r$s of .90 indicating multicollinearity as well as via diagnostic tests to determine tolerance and variance inflation factor (VIF) values.

Pearson bivariate correlations (two-tailed) were first computed (see Table 4.3). Results from the two-tailed correlations showed that multicollinearity was not evident among the advisor variables used as predictors for research question 1 (length of time with advisor, method of pairing, frequency of meeting, perceived availability, similarity of research interests). In fact, some advisor variables were not significantly correlated with one another. For example, the length of time a student has spent with his or her advisor was not significantly associated with any of the other advisor variables. The variables that were significantly correlated with other variables were not correlated at $r > .80$; this suggested that multicollinearity was not evident. The method of how the student was paired with his or her advisor was significantly correlated with frequency of meetings the student has with his or her advisor, $r(195) = .21, p = .004$. Method of pairing was also significantly associated with similarity in research interests between the student and advisor, $r(195) = -.29, p < .001$. In consideration of the coding responses of the variables, these results showed that students who were assigned their advisors tended to meet with their advisors less frequently and had dissimilar research interests from their advisors as compared to students who chose their advisors. The variable of students’ perceptions of availability of the advisor for issues that may arise was correlated with these same variables. Students who perceived their advisors are being more unavailable tended to meet with their advisors less frequently, $r(195) = -.21, p = .004$, and had dissimilar research interests from their advisors, $r(195) = .31, p < .001$, as compared to students who perceived their advisors as being more
available. Students who had dissimilar research interests to their advisors also tended to meet with advisors less frequently, $r(195) = -.30, p < .001$.

Table 4.3

*Pearson Bivariate Correlations between Predictor Advising Relationship Variables*

<table>
<thead>
<tr>
<th>Advisor Variables</th>
<th>Method of Pairing</th>
<th>Length of Time</th>
<th>Availability</th>
<th>Frequency of Meetings</th>
<th>Similarity in Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method of Pairing 01</td>
<td>1.00</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length of Time</td>
<td></td>
<td>-.09</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Availability</td>
<td></td>
<td>-.03</td>
<td>-.06</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Frequency of Meetings</td>
<td>.21**</td>
<td>.14</td>
<td>-.21**</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Similarity in Research</td>
<td>-.29***</td>
<td>-.04</td>
<td>.31***</td>
<td>-.30***</td>
<td>1.00</td>
</tr>
</tbody>
</table>

*Note.* *p* < .05; **p* < .01; ***p* < .001. Method of paring variable was recoded as follows: chose advisor = 1 assigned to advisor = 0.

Based on recommendations on testing for multicollinearity (DeVellis, 2003; Kraha et al., 2012), collinearity diagnostics were performed to obtain the tolerance and VIF values for each predictor advisor variable in relation to the other four predictor variables as regressed on the criterion variable of advisory working alliance (see Table 4.4). A tolerance value closer to one indicates absence of multicollinearity, whereas a tolerance value closer to zero signifies evidence of multicollinearity (Berry, 1993). A VIF value around one indicates absence of multicollinearity while a VIF value of five or greater indicates multicollinearity (Berry, 1993). As seen in Table 4.4, multicollinearity was not evident among the predictor variables of pairing with advisor, length of time with advisor, availability of advisor, frequency of meeting with advisor, and similarity of research interests when predicting advisory working alliance.
Table 4.4.

*Multicollinearity Diagnostics for Advising Relationship Predictor Variables on the Criterion Variable of Advisory Working Alliance*

<table>
<thead>
<tr>
<th>Predictor Variable</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method of pairing of advising dyad</td>
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<td>1.13</td>
</tr>
<tr>
<td>Length of time with advisor</td>
<td>.96</td>
<td>1.04</td>
</tr>
<tr>
<td>Perceived availability of advisor</td>
<td>.89</td>
<td>1.13</td>
</tr>
<tr>
<td>Frequency of meetings with advisor</td>
<td>.85</td>
<td>1.17</td>
</tr>
<tr>
<td>Similarity of research interest</td>
<td>.79</td>
<td>1.26</td>
</tr>
</tbody>
</table>

Testing for multicollinearity was also done with the predictor variable of advisory working alliance and the moderating variable of cultural mistrust in predicting research outcomes. In moderation analyses, the moderating variable is treated as another criterion variable; as such, multicollinearity should be assessed between these two variables (Shieh, 2010). Multicollinearity was tested via a Pearson correlation coefficient and computation of tolerance and VIF values. Advisory working alliance was significantly associated with cultural mistrust at $r(195) = -.19$, $p = .01$. However, as the Pearson correlation coefficient was not greater than .80, multicollinearity was not evident. Both the tolerance and the VIF values were 1.00, indicating a lack of multicollinearity between the AWAI-S and the CMI cultural mistrust scale.

**Homoscedasticity.** Homoscedasticity refers to the criterion variables showing similar variance of scores across the range of scores for the predictor variables (Howell, 2010). Linear relationships between the predictor variables and between predictor and criterion variables to test for homoscedasticity were plotted via scatterplots (Howell, 2010). The data are linear and show homoscedasticity if scores are evenly distributed above and below the horizontal line of the scatterplot (Howell, 2010). Figures 2, 3 and 4 show that scores were evenly distributed above
and below the horizontal line of the scatterplots for the scales of research self-efficacy (SERM), research outcome expectations (ROEQ-R), and interest in research (adapted IRQ).

Figure 4.2. Scatterplot: Advisory working alliance predicting research self-efficacy

Figure 4.3. Scatterplot: Advisory working alliance predicting research outcome expectations
Independence of errors. Another assumption of regression is that the errors of predictors are independent of one another, which can be determined by the Durbin-Watson statistic (Howell, 2010). Durbin-Watson values that are less than 1 or greater than 3 violate the assumption of independence of errors (Howell, 2010). Durbin-Watson statistics were calculated for the three research scales (i.e., SERM, ROEQ-R, adapted IRQ) with the AWAI-S advisory working alliance scale as the predictor variable. As seen in Table 4.5, Durbin-Watson values for the SERM research self-efficacy scale, the ROEQ-R research outcomes expectations scale, and the adapted IRQ interest in research scale were within acceptable limits.
Table 4.5

*Independence of Errors Testing*

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Durbin-Watson Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Self-Efficacy</td>
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</tr>
<tr>
<td>Research Outcome Expectations</td>
<td>2.05</td>
</tr>
<tr>
<td>Interest in Research</td>
<td>2.06</td>
</tr>
</tbody>
</table>

Summary

Prior to conducting statistics for hypothesis testing, study data were examined for missing variables and outliers. Fifteen participants did not complete over 50% of the survey and were removed from the data set via case-wise deletion. Univariate and multivariate outlier analyses demonstrated that there were 10 cases that were univariate outliers and nine cases that were multivariate outliers. With the removal of cases wherein over 50% of survey data were missing and cases that were both univariate and multivariate outliers, the final sample size for the study was $N = 195$. Linear interpolation was used to replace missing data when less than 5% of case data points were missing.

Tests for the assumptions for linear and multiple regression demonstrated that scales were reliable and that the predictor and moderating variables were linear but did not display multicollinearity. The assumptions of homoscedasticity and independence of errors were met. Study scales displayed normal distribution of scores, with the exception of the ROEQ-R (Bieschke, 2000; Bieschke & Bishop, 1994). This scale was transformed via reflection and a loglinear transformation of scale scores.
Preliminary Analyses Prior to Hypothesis Testing: Pearson Bivariate Correlations

Prior to conducting statistical analyses for hypothesis testing, Pearson bivariate correlations were computed for all study variables. The specific variables examined were (a) the five advising relationship variables (method of pairing, research similarity, frequency of meetings, perceived availability, and length of time with advisor), (b) the predictor variable of advisory working alliance, (c) the moderating variable of cultural mistrust, and (d) the criterion variables of research self-efficacy, research outcome expectations, and research interests. The correlation matrix is presented in Table 4.6.

Results from the Pearson bivariate correlation analyses documented that similarity of research interests between the student and advisor was significantly related to student-advisor pairing, $r(195) = -.29, p < .001$; advisor availability, $r(195) = .31, p < .001$; and frequency of student meetings with advisor, $r(195) = -.30, p < .001$. In other words, students who shared similar research interests with their advisor reported that they were able to choose their advisor, that their advisor was more available, and that they more frequently met with their advisor than students who had dissimilar research interests from their advisor.

The advisor working alliance was significantly associated with student-advisor pairing, $r(195) = -.15, p = .03$; advisor availability, $r(195) = .52, p < .001$; the frequency of meetings with advisor, $r(195) = -.31, p < .001$; research interests similarity between student and advisor, $r(195) = .48, p < .001$; and cultural mistrust, $r(195) = -.19, p = .01$. Based on these findings, students who had higher ratings of their advisor working alliance had the ability to choose their advisor, had an advisor who was more available and met more frequently with the student, shared similar research interests with their advisor, and had lower levels of cultural mistrust than did students with lower ratings of their advisor working alliance. The advisory working alliance rating was
also significantly associated with the three criterion variables of research self-efficacy, $r(195) = .33, p < .001$, research outcome expectations, $r(195) = .28, p < .001$, and research interests, $r(195) = .15, p = .04$. Students who had higher ratings on the advisory working alliance scale reported increased research self-efficacy, higher research outcome expectations, and higher interest in research than students who had lower advisory working alliance ratings.

In addition to cultural mistrust being significantly associated with the advisory working alliance, cultural mistrust was also significantly related to the student-advisor pairing, $r(195) = -.16, p = .03$, and research interests similarity, $r(195) = -.24, p = .001$. In other words, students with higher levels of cultural mistrust were more likely to have had their advisor assigned to them and were less likely to share similar research interests with their advisor than students with lower levels of cultural mistrust. Cultural mistrust was not significantly associated with research self-efficacy, $r(195) = -.14, p = .05$, research outcome expectations, $r(195) = -.03, p = .71$, or research interests, $r(195) = -.04, p = .57$. 
Table 4.6

Pearson Bivariate Correlations of Study Variables

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>2-Length of Time with Advisor</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>3-Advisor Availability</td>
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<td>-.03</td>
<td>1.00</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-Meeting with Advisor</td>
<td>.21**</td>
<td>.14*</td>
<td>-.21**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-Research Interests Similarity</td>
<td>-.29***</td>
<td>.04</td>
<td>.31***</td>
<td>-.30***</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6-Cultural Mistrust</td>
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<td>.01</td>
<td>-.11</td>
<td>.14</td>
<td>-.24**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7-Advisor Working Alliance</td>
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<td>-.00</td>
<td>.52***</td>
<td>-.31***</td>
<td>.48***</td>
<td>-.19**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8-Research Self-Efficacy</td>
<td>-.22*</td>
<td>.12</td>
<td>.14</td>
<td>-.21**</td>
<td>.28***</td>
<td>-.14</td>
<td>.33***</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9-Research Outcome Expectations</td>
<td>-.05</td>
<td>-.01</td>
<td>.11</td>
<td>-.01</td>
<td>.24**</td>
<td>-.03</td>
<td>.28***</td>
<td>.13</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>10-Research Interests</td>
<td>-.10</td>
<td>-.11</td>
<td>.12</td>
<td>-.09</td>
<td>.14*</td>
<td>-.04</td>
<td>.15*</td>
<td>.22**</td>
<td>.54***</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Note. $N = 195$. *$p < .05$; **$p < .01$; ***$p < .001$
Data Analysis Strategy

As stated, the ultimate goal of this study was to examine cultural mistrust as a moderating factor for the relationship between the advisory working alliance and relevant training outcome variables. The relationships were established through the use of various regression models, and the interaction effects were tested using moderation analyses.

To determine the amount of variance in ratings of the advisory working alliance that can be predicted by theoretically expected background variables, a simultaneous multiple regression model was used. The multiple regression model provides information regarding the way in which these variables jointly predict the advisory working alliance. The working alliance serves as the dependent or criterion variable, and five theoretically expected background variables serve as predictor or independent variables. Simultaneous multiple regression is a statistical method which is extremely useful for studying both the separate and collective contributions of one or more predictor variables on the variation of a dependent variable (Wampold & Freund, 1987). Simultaneous regression was used, and all of the predictor variables were entered concurrently into the regression equation using SPSS software. The strength of relationships between the predictor and criterion variables is expressed as the multiple correlation coefficient $R$, which indicates how well the predictor scores correlate with the criterion variable. The square of the multiple correlation, $R^2$, indicates the proportion of variance in the criterion variable that can be explained by all of the predictor variables (Heppner, Wampold, & Kivlinghan, 2008). The value of $R^2$ ranges from 0 to 1, a higher value of $R^2$ indicates stronger linear relationship between the dependent variable and predictor variables.

To determine the amount of variance in training outcome variables (research self-efficacy, research outcome expectations, and research interest) that can be explained by the advisory
working alliance another type of multiple regression model, hierarchical regression analysis, was utilized. Within this model, the theoretically expected background variables and the advisory working alliance both serve as predictor variables. Research self-efficacy, research outcome expectations, and research interest serve as criterion variables. In hierarchical regression, predictor variables are entered in a specific order based on theoretical rationale (Heppner et al., 2008). The variables that characterize the advising relationship (e.g., matching method) were entered into the regression model in the first step to control for any effects. Next, the advisory working alliance was entered. The R values from the model were assessed to determine the amount of variance in the criterion variable that is explained by the predictor variable, beyond what is accounted for by the theoretically expected background variables. This type of test allows for a more stringent test of the relationship between the advisory working alliance and research training outcome variables. A hierarchical regression for each research training outcome variable was conducted.

To determine whether or not cultural mistrust serves as a moderating variable for the relationships theorized to exist in hypotheses two through four, a moderation analysis was conducted. A moderator is a variable that affects the direction and/or strength of a relationship between a predictor (independent) and criterion (dependent) variable (Baron & Kenney, 1986). Similar to hypotheses 2, 3, and 4, potential moderator effects were also tested using hierarchical regression. For moderation analyses, hierarchical regression is used when both the predictor and moderating variables are continuous. Using SPSS, the first step of the hierarchical regression will be to enter the predictor and moderator variable into the regression equation predicting the criterion variable. This provided an R² which will indicate the amount of variance that the predictor and moderator variable explain in combination with each other. The interaction
(predictor X moderator) was then entered into the equation, which produced a new $R^2$ which represents the amount of variance explained by the predictor, the moderator, and their interaction. The difference between the $R^2$ obtained in step one and the $R^2$ obtained in step 2 of the regression equation is the amount of variance in the criterion that is predicted by the interaction of the moderator. Most importantly, if the difference between the two values is significant, then there is in fact a moderation effect (Frazier et al., 2004; Heppner, Wampold, & Kivlinghan, 2008). Each of the relationships established in the main analysis section will be tested for the moderation effects of cultural mistrust.

**Hypothesis Testing**

Hypothesis 1 predicted that the ability to choose one’s advisor, length of time with advisor, similarity of research interests, frequency of meetings, and perceived availability would predict a significant portion of the variance in ratings of the advisory working alliance. It was also expected that pairing method would have a stronger association for students who have been working with their advisors for six months or less. To test hypothesis one, a simultaneous multiple regression was conducted with the five advising relationship variables as predictor variables and the advisory working alliance as the criterion variable (see Table 4.7).

Results from the simultaneous multiple regression documented that the overall model was significant, $F(5, 190) = 25.03, p < .001$: the five advising relationship predictor variables explained 40% of the variance in the criterion variable of advisor working alliance. When examining univariate effects, three advising relationship variables were significant predictors of advisory working alliance. The most significant predictor variable was the availability of the advisor, $\beta(194) = .39, t(194) = 6.55, p < .001$, followed by the predictor variable of similarity of research interests, $\beta(194) = .31, t(194) = 4.93, p < .001$. The third significant predictor variable
was frequency of meetings with advisor, $\beta(194) = -0.14$, $t(194) = -2.20$, $p = .029$. Simply stated, students with advisors who were more readily available, met with them more often, and shared similar research interests with the students rated their advisory working alliance more favorably than did students with advisors who were less available, met with them less frequently, and had dissimilar research interests. Whether the students had the ability (or not) to choose their advisor did not significantly predict students' ratings of the advisory working alliance, $\beta(194) = -0.02$, $t(194) = -0.34$, $p = .734$, nor did the length of time the students had spent with their advisor, $\beta(194) = .01$, $t(194) = .22$, $p = .825$.

Table 4.7

*Simultaneous Multiple Linear Regression: Advising Relationship Variables Predicting Advisory Working Alliance*

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>$T$</th>
<th>$R$</th>
<th>$R^2$</th>
<th>$\Delta R^2$</th>
</tr>
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<tbody>
<tr>
<td>Model 1</td>
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<td>.40***</td>
<td>.40***</td>
<td>.40***$^a$</td>
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</tr>
<tr>
<td>Student-Advisor Pairing</td>
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<td>-.34</td>
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</tr>
<tr>
<td>Length of Time with Advisor</td>
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<td>.22</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advisor Availability</td>
<td>.39***</td>
<td>6.55***</td>
<td></td>
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<tr>
<td>Meeting with Advisor</td>
<td>-.14*</td>
<td>-2.20*</td>
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<tr>
<td>Research Interests Similarity</td>
<td>.31***</td>
<td>4.93***</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* $N = 195$. $^a F(5, 190) = 25.03, p < .001$. *$p < .05$; **$p < .01$; ***$p < .001$

Hypothesis 2 predicted that the advisory working alliance would explain a significant portion of variance in students’ ratings of research self-efficacy, over and above that accounted for by variables that characterize the relationship. A hierarchical linear regression was conducted to test hypothesis two (see Table 4.8). The five advising relationship variables were entered on the first step of the regression model, followed by the advisory working alliance variable on step two. The criterion variable was research self-efficacy.
Results from the hierarchical linear regression documented that, after controlling for the
advising relationship variables, student ratings of the advisor working alliance significantly
predicted student research self-efficacy, $F(1, 194) = 9.04, p < .003$. Adding the advisory working
alliance variable to the hierarchical linear regression model explained an additional 4% of the
variance in the criterion variable of research self-efficacy, above and beyond the 13% explained
by the advising relationship variables. In total, the overall model accounted for 17% of the
variance in research self-efficacy.

Table 4.8

Hierarchical Linear Regression: Advisory Working Alliance Predicting Research Self-Efficacy,
Controlling for Advising Relationship Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>T</th>
<th>$R^2$</th>
<th>$\Delta R^2$</th>
</tr>
</thead>
<tbody>
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<td>.13***$^a$</td>
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<td>Length of Time with Advisor</td>
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<tr>
<td>Meeting with Advisor</td>
<td>-.13</td>
<td>-1.78</td>
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<tr>
<td>Research Interests Similarity</td>
<td>.18*</td>
<td>2.38*</td>
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<tr>
<td>Step 2</td>
<td>.41**</td>
<td>.17**</td>
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<td>Advisory Working Alliance</td>
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<td>3.01**</td>
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</table>

*Note. N = 195. $^aF(5, 190) = 5.49, p < .001; ^bF(6, 189) = 6.27, p < .001. *p < .05; **p < .01; ***p < .001*

Hypothesis 3 predicted that the AWA would explain a significant portion of variance in
students’ ratings of research outcome expectations, above that accounted for by variables that
characterize the relationship. A hierarchical linear regression was conducted to test hypothesis 3
(see Table 4.9). The five advising relationship variables were entered on the first step of the
regression model, followed by the advisory working alliance on step two. The criterion variable was research outcome expectations. Results from the hierarchical linear regression documented that, after controlling for the advising relationship variables, student ratings of the advisor working alliance significantly predicted student research outcome expectations, $F(1, 194) = 9.06$, $p = .003$. Adding the advisory working alliance variable to the hierarchical linear regression model explained an additional 4% of the variance in the criterion variable of research outcome expectations, above and beyond the 6% explained by the advising relationship variables. In total, the overall model accounted for 10% of the variance in research outcome expectations.

Table 4.9

*Hierarchical Linear Regression: Advisory Working Alliance Predicting Research Outcome Expectations, Controlling for Advising Relationship Variables*

<table>
<thead>
<tr>
<th>Variable</th>
<th>$B$</th>
<th>$T$</th>
<th>$R^2$</th>
<th>$\Delta R^2$</th>
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<td>Step 1</td>
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<td></td>
</tr>
<tr>
<td>Student-Advisor Pairing</td>
<td>-.00</td>
<td>-.02</td>
<td>.06*</td>
<td>.06**</td>
</tr>
<tr>
<td>Length of Time with Advisor</td>
<td>-.03</td>
<td>-.45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advisor Availability</td>
<td>.05</td>
<td>.70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meeting with Advisor</td>
<td>.08</td>
<td>1.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research Interests Similarity</td>
<td>.24**</td>
<td>3.08**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advisory Working Alliance</td>
<td>.27**</td>
<td>3.01**</td>
<td>.10**</td>
<td>.04**b</td>
</tr>
</tbody>
</table>

*Note. $N = 195$. \(^aF\)(5, 190) = 2.54, $p = .03$; \(^bF\)(6, 189) = 3.72, $p = .002$. \(*p < .05$; **$p < .01$; ***$p < .001$*

Hypothesis 4 predicted that the advisory working alliance would explain a significant portion of variance in students’ ratings of research interest, over and above that accounted for by variables that characterize the relationship. A hierarchical linear regression was conducted to test
hypothesis four (see Table 4.10). The five advising relationship variables were entered on the first step of the regression model, followed by the advisory working alliance on step two. The criterion variable was research interests. Results from the hierarchical linear regression documented that, after controlling for the advising relationship variables, student ratings of the advisor working alliance did not significantly predict student research interests, $F(1, 194) = .64$, $p = .426$.

Table 4.10

Hierarchical Linear Regression: Advisory Working Alliance Predicting Research Interests, Controlling for Advising Relationship Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>$B$</th>
<th>$T$</th>
<th>$R$</th>
<th>$R^2$</th>
<th>$\Delta R^2$</th>
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</thead>
<tbody>
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<td>.045</td>
<td>.045a</td>
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<td>Student-Advisor Pairing</td>
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<td>-1.01</td>
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</tr>
<tr>
<td>Length of Time with Advisor</td>
<td>-.12</td>
<td>-1.60</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advisor Availability</td>
<td>.08</td>
<td>1.09</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meeting with Advisor</td>
<td>-.02</td>
<td>-.20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research Interests Similarity</td>
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</tr>
<tr>
<td>Step 2</td>
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<td>.048</td>
<td>.034</td>
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<tr>
<td>Advisory Working Alliance</td>
<td>.07</td>
<td>.80</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. $N = 195$. $^aF(5, 190) = 1.78, p = .12$; $^bF(6, 189) = 1.59, p = .15$. *$p < .05$; **$p < .01$; ***$p < .001$

Hypotheses 5, 6, and 7 predicted that cultural mistrust would serve as a moderator between the advisory working alliance and the three research outcome variables of research self-efficacy, research outcome expectations, and research interest. The hierarchical linear regression model documented that the advisory working alliance variable did not significantly predict
research interests, which precluded the need to conduct regression for moderation with advisory working alliance, the moderator of cultural mistrust, and research interests. However, regression for moderation was conducted with the research variables of research self-efficacy and research outcome expectations. In accordance with recommendations by Baron and Kenny (1986), the predictor variable of advisory working alliance and the moderator variable of cultural mistrust were first centered (i.e., means were calculated to 0) and an interaction term of advisory working alliance X cultural mistrust was computed from these centered variables. To control for the variance in the dependent variable of research self-efficacy due to the advising relationship variables, these variables were entered on the first step of the regression model. The advisory working alliance and cultural mistrust variables were entered on the second step of the regression model. The interaction term of advisory working alliance X cultural mistrust was then entered on the third and last step of the regression model.

Regression for moderation was first conducted to address hypothesis 5, which predicted that cultural mistrust would moderate the relationship between the advisory working alliance and research self-efficacy (see Table 4.11). The results of the first step of the regression model showed that the advising relationship variables significantly predicted research self-efficacy, \( F(5, 190) = 5.49, p < .001 \), and explained 13% of the variance in the research self-efficacy variable. In examining univariate effects, the variable of similarity of research interests was the most significant predictor of research self-efficacy, \( \beta(194) = .18, t(194) = 2.38, p = .02 \). The second step of the model was significant, \( F(2, 193) = 4.70, p = .01 \): the advisory working alliance was the variable that made this model significant, \( \beta(194) = .26, t(194) = 2.96, p = .003 \). The advisory working alliance explained 4% of the variance in the research self-efficacy variable. Step 3, the interaction term of advisory working alliance and cultural mistrust was not significant, \( F(1, 194) \).
= .30, \( p = .58 \). Cultural mistrust did not moderate between the advisory working alliance and research self-efficacy, \( \beta(194) = -.04, t(194) = -.55, p = .58 \).

Table 4.11

Hierarchical Linear Regression: Advisory Working Alliance, Cultural Mistrust, and the Interaction of Advisory Working Alliance and Cultural Mistrust Predicting Research Self-Efficacy, Controlling for Advising Relationship Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>( T )</th>
<th>( R )</th>
<th>( R^2 )</th>
<th>( \Delta R^2 )</th>
</tr>
</thead>
<tbody>
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<td><strong>Step 1</strong></td>
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</tr>
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<td>Student-Advisor Pairing</td>
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<td>-1.69</td>
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<tr>
<td>Length of Time with Advisor</td>
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<td>1.78</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advisor Availability</td>
<td>.06</td>
<td>.77</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meeting with Advisor</td>
<td>-.13</td>
<td>-1.78</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Research Interests Similarity</td>
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<td></td>
</tr>
<tr>
<td>Advisory Working Alliance</td>
<td>.26</td>
<td>2.96**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cultural Mistrust</td>
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<td>-.62</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Step 3</strong></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Advisory Working Alliance X</td>
<td>-.04</td>
<td>-.55</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cultural Mistrust Interaction</td>
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<td></td>
</tr>
</tbody>
</table>

Note. \( N = 195 \). \( ^a F(5, 190) = 5.49, p < .001 \); \( ^b F(7, 188) = 5.42, p < .001 \); \( ^c F(8, 187) = 4.76, p < .001 \). *\( p < .05 \); **\( p < .01 \); ***\( p < .001 \)

Regression for moderation was then conducted to address hypothesis 6, which predicted that cultural mistrust would moderate the relationship between the advisory working alliance and research outcome expectations (see Table 4.12). The first step of the regression model showed that the advising relationship variables significantly predicted research outcome expectations, \( F(5, 190) = 2.54, p = .03 \), and explained 6% of the variance. In examining univariate effects, the
variable of research interests similarity was the most significant predictor of research outcome expectations, $\beta(194) = .24$, $t(194) = 3.08$, $p = .002$. The second step of the model was significant, $F(2, 193) = 4.69$, $p = .01$; however, it was the advisory working alliance that was the only significant predictor of research outcome expectations, $\beta(194) = .27$, $t(194) = 3.04$, $p = .003$. The advisory working alliance explained 4% of the variance. Step 3, the interaction term of advisory working alliance and cultural mistrust was not significant, $F(1, 194) = .62$, $p = .43$. Cultural mistrust did not moderate between the advisory working alliance and research outcomes expectations, $\beta(194) = .06$, $t(194) = .79$, $p = .43$. 
Table 4.12

Hierarchical Linear Regression: Advisory Working Alliance, Cultural Mistrust, and the Interaction of Advisory Working Alliance and Cultural Mistrust Predicting Research Outcome Expectations, Controlling for Advising Relationship Variables

<table>
<thead>
<tr>
<th>Variable</th>
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<th>T</th>
<th>R</th>
<th>R²</th>
<th>ΔR²</th>
</tr>
</thead>
<tbody>
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<td><strong>Step 1</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student-Advisor Pairing</td>
<td>-.00</td>
<td>-.02</td>
<td></td>
<td>.06**</td>
<td>.06**a</td>
</tr>
<tr>
<td>Length of Time with Advisor</td>
<td>-.03</td>
<td>-.45</td>
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<td></td>
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</tr>
<tr>
<td>Advisor Availability</td>
<td>.05</td>
<td>.70</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meeting with Advisor</td>
<td>.08</td>
<td>1.04</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research Interests Similarity</td>
<td>.24**</td>
<td>3.08**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Advisory Working Alliance</td>
<td>.27</td>
<td>3.04**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cultural Mistrust</td>
<td>.04</td>
<td>.60</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Step 3</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advisory Working Alliance X</td>
<td>.06</td>
<td>.79</td>
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<tr>
<td>Cultural Mistrust Interaction</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. N = 195. aF(5, 190) = 2.54, p = .03; bF(7, 188) = 3.23, p = .003; cF(8, 187) = 2.90, p = .005. *p < .05; **p < .01; ***p < .001

Post-Hoc Analyses

To provide more depth of understanding, post-hoc analyses were conducted. Specifically, Pearson bivariate correlations were conducted to assess potential significant relationships between advisory working alliance subscales and the research outcome variables of research self-efficacy, research outcome expectations, and research interest. Two hierarchical linear regression analyses were also conducted to ascertain whether the advisory working alliance subscales of apprenticeship and identification-individuation significantly predicted interest in research.
Moreover, cultural mistrust was examined as a potential moderator, via multiple linear regression for moderation (Baron & Kenny, 1986), between the predictor variables of student-advisor pairing method and student-advisor research interest similarity and the criterion variable of advisory working alliance.

**Pearson bivariate correlations.** In the first set of post-hoc analyses, relationships between advisory working alliance subscale and all research outcomes were examined via Pearson bivariate correlations and, where relevant, hierarchical linear regression. Results from the Pearson bivariate correlations documented that (based on the coding scheme) higher rapport was significantly associated with higher perceived sense of research self-efficacy, \( r(194) = -.27, p < .001 \), and increased research outcome expectations, \( r(194) = -.30, p < .001 \). A higher level of apprenticeship was significantly associated with higher perceived sense of research self-efficacy, \( r(194) = .33, p < .001 \), increased research outcome expectations, \( r(194) = .26, p < .001 \), and greater levels of research interest, \( r(194) = .17, p = .021 \). These significant relationships were also found with the identification-individuation predictor variable, with this variable being significantly related to higher levels of research self-efficacy, \( r(194) = .25, p < .001 \), research outcome expectations, \( r(194) = .33, p < .001 \), and interest in research, \( r(194) = .25, p < .001 \).
Pearson Bivariate Correlations between Advisory Working Alliance Subscales and Research Self-Efficacy, Research Outcome Expectations, and Research Interest

<table>
<thead>
<tr>
<th></th>
<th>Research Self-Efficacy</th>
<th>Research Outcome Expectations</th>
<th>Interest in Research</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AWAI-S Rapport</strong></td>
<td>-.27***</td>
<td>-.30***</td>
<td>-.10</td>
</tr>
<tr>
<td><strong>AWAI-S Apprenticeship</strong></td>
<td>.33***</td>
<td>.26***</td>
<td>.17*</td>
</tr>
<tr>
<td><strong>AWAI-S Identification-Individuation</strong></td>
<td>.25***</td>
<td>.33***</td>
<td>.25***</td>
</tr>
</tbody>
</table>

*Note.* The revised loglinear transformation AWA I-S Rapport subscale was used in analyses; due to this transformation, the coding was reversed so that a higher score denoted lower research rapport. *p < .05; **p < .01; ***p < .001

**Hierarchical linear regression analyses.** Two hierarchical linear regressions analyses were then conducted: (a) one regression model to examine whether advisory working alliance apprenticeship predicted interest in research and (b) one regression model to examine whether advisory working alliance identification-individuation predicted interest in research. For both hierarchical linear regression models, the five advising relationship variables of (a) type of student-advisor pairing, (b) length of time with advisor, (c) perceived availability of advisor, (d) frequency of meetings with advisor, and (e) similarity of student-advisor research interests were entered on the first step of the regression model. To control for potential confound effects, the advisory working alliance subscale that was not the predictor variable was entered on the second step of the regression model. The predictor subscale variable was entered on the third and last step.

First, regression to determine the amount of variance in research interest predicted by apprenticeship was examined. After controlling for the advising relationship variables and the
advisory working alliance identification-individuation subscale, the regression model of advisory working alliance apprenticeship predicting interest in research was not significant, $F(1,194) = .30, p = .58$. Advisory working alliance apprenticeship was not predictive of interest in research, $\beta(194) = -.06, t(194) = -.55, p = .58$ (see Table 4.14). It did not contribute any additional variance to the overall regression model.

Table 4.14

*Hierarchical Linear Regression: AWA Apprenticeship Subscale Predicting Interest in Research, Controlling for Advising Relationship Variables and AWA Identification-Individuation Subscale*

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>T</th>
<th>$R^2$</th>
<th>$\Delta R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student-Advisor Pairing</td>
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<td>-1.01</td>
<td>.05</td>
<td></td>
</tr>
<tr>
<td>Length of Time with Advisor</td>
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<td>-1.60</td>
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<td></td>
</tr>
<tr>
<td>Advisor Availability</td>
<td>.08</td>
<td>1.09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meeting with Advisor</td>
<td>-.02</td>
<td>-.20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research Interests Similarity</td>
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<td>1.19</td>
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<td></td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AWA-Identification-Individuation Subscale</td>
<td>.22*</td>
<td>2.61*</td>
<td>.08*</td>
<td>.03*</td>
</tr>
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<td>Step 3</td>
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</tr>
<tr>
<td>AWA-Apprenticeship Subscale</td>
<td>-.06</td>
<td>-.55</td>
<td>.08</td>
<td>.001*</td>
</tr>
</tbody>
</table>

*Note. N = 195. $^a F(5, 190) = 1.78, p = .12; ^b F(6, 189) = 2.66, p = .017; ^c F(7, 188) = 2.32, p = .028. *p < .05; **p < .01; ***p < .001*

Next, regression to determine the amount of variance in research interest predicted by identification-individuation was examined. After controlling for the advising relationship variables and the advisory working alliance apprenticeship subscale, the regression model of
advisory working alliance identification-individuation predicting interest in research was significant, $F(1, 194) = 5.88, p = .02$ (see Table 4.15). In examining univariate effects, advisory working alliance identification-individuation significantly predicted interest in research, $\beta(194) = .26, t(194) = 2.43, p = .02$. In other words, students with a strong emotional bond with their advisor reported having significantly higher levels of interest in research as compared to students who were less emotionally bonded with their advisor. The advisory working alliance identification-individuation subscale contributed 3% of the variance to the overall regression model.

Table 4.15

Hierarchical Linear Regression: AWA Identification-Individuation Subscale Predicting Interest in Research, Controlling for Advising Relationship Variables and AWA Apprenticeship Subscale

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>T</th>
<th>R</th>
<th>$R^2$</th>
<th>$\Delta R^2$</th>
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<td>Student-Advisor Pairing</td>
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<td>1.01</td>
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<tr>
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<td>1.60</td>
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<td>Advisor Availability</td>
<td>.08</td>
<td>1.09</td>
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<tr>
<td>Meeting with Advisor</td>
<td>-.02</td>
<td>-.20</td>
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<tr>
<td>Research Interests Similarity</td>
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<td>1.19</td>
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<td>Step 2</td>
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<tr>
<td>AWA-Identification-Individuation Subscale</td>
<td>.26*</td>
<td>2.43*</td>
<td>.08*</td>
<td>.03*c</td>
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</tr>
</tbody>
</table>

Note. $N = 195$. $^aF(5, 190) = 1.78, p = .12; ^bF(6, 189) = 1.68, p = .13; ^cF(7, 188) = 2.32, p = .028. *p < .05; **p < .01; ***p < .001$
Regression for moderation. Significant results from Pearson bivariate correlations presented in this chapter were found for the advising relationship variables of student-advisor pairing method and student-advisor research interest similarity, cultural mistrust, and advisory working alliance. These significant relationships allowed for further testing of cultural mistrust as a potential moderator between these two advising relationship variables and advisory working alliance. The predictor and moderating variables of interest were first recoded in accordance with recommendations by Baron and Kenny (1986). The predictor variable of student-advisor research interest similarity and the moderating variable of cultural mistrust were centered so that the variable means were 0; an interaction term was then computed from these two centered variables. The student-advisor pairing method variable was recoded from 1 = I chose my advisor and 2 = I was assigned to work with my advisor to 1 = I chose my advisor and 0 = I was assigned to work with my advisor. An interaction term was computed from the centered variables. In the regression model, the un-centered predictor and moderating variables were entered on Step 1 of the regression model, followed by the interaction term (comprised of the predictor and moderating variable) on the second step.

The results of the first regression model for moderation showed that the first model was significant, $F(2,193) = 5.00, \ p = .008$, and explained 5% of the variance. In examining univariate effects, however, the variable of cultural mistrust was the only significant predictor of advisory working alliance, $\beta(194) = -.17, t(194) = -.31, p = .02$. Student-advisor pairing method did not show significance in predicting advisory working alliance, $\beta(194) = -.13, t(194) = -1.77, p = .08$. The second model was not significant, $F(1,194) = 1.44, p = .23$; as such, the interaction term of student-advisor pairing method and cultural mistrust was not significant in predicting
advisory working alliance. Cultural mistrust did not moderate between the student-advisor pairing method and advisory working alliance, $\beta(194) = -.21$, $t(194) = -1.20$, $p = .23$.

Table 4.16
Hierarchical Linear Regression: Student-Advisor Pairing Method, Cultural Mistrust, and the Interaction of Student-Advisor Pairing Method and Cultural Mistrust Predicting Advisory Working Alliance

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>T</th>
<th>$R^2$</th>
<th>$\Delta R^2$</th>
</tr>
</thead>
<tbody>
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<td>.05**a</td>
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</tr>
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<td>-2.31*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
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<td>.06</td>
<td>.01b</td>
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<tr>
<td>Cultural Mistrust Interaction</td>
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<td></td>
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</tbody>
</table>

Note. $N=195$. $^a F(2, 193) = 5.00, p = .008; ^b F(3, 192) = 3.82, p = .01$. *$p < .05$; **$p < .01$; ***$p < .001$

The results of the second regression model for moderation showed that the first model was significant, $F(2, 193) = 29.59$, $p < .001$, and explained 24% of the variance. In examining univariate effects, however, the variable of student-advisor research interests similarity was the only significant predictor of advisory working alliance, $\beta(194) = .46$, $t(194) = 7.11$, $p < .001$. Cultural mistrust did not significantly predict advisory working alliance, $\beta(194) = -.07$, $t(194) = -1.11$, $p = .27$. This is an interesting result. Cultural mistrust did significantly predict advisory working alliance when paired with the variable of student-advisor pairing method, but was no longer predictive of the advisory working alliance when paired with the variable of student-
advisor research similarity. This suggests that these two variables share conceptual and statistical variance. The second model was not significant, $F(1, 194) = .20, p = .66$: the interaction term of student-advisor research interest similarity and cultural mistrust was not significant. Cultural mistrust did not moderate between the student-advisor research similarity pairing method and advisory working alliance, $\beta(194) = .03, t(194) = .45, p = .66$.

Table 4.17

Hierarchical Linear Regression: Student-Advisor Research Interest Similarity, Cultural Mistrust, and Interaction of Student-Advisor Research Interest Similarity by Cultural Mistrust Predicting Advisory Working Alliance

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>T</th>
<th>$R$</th>
<th>$R^2$</th>
<th>$\Delta R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Student-Advisor Research Interest Similarity</td>
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<td>7.11***</td>
<td></td>
<td>.24***</td>
<td>.24***a</td>
</tr>
<tr>
<td>Cultural Mistrust</td>
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<td>-1.01</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Step 2</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Student-Advisor Research Interest Similarity</td>
<td>.03</td>
<td>.45</td>
<td></td>
<td></td>
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<tr>
<td>X Cultural Mistrust Interaction</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Note. $N = 195$. $^a F(2, 192) = 29.59, p < .001; ^b F(3, 191) = 19.71, p < .001. *p < .05; **p < .01; ***p < .001$
Chapter 5

Discussion

The purpose of the present study was to explore African American graduate student perspectives of the advisory working alliance, specifically examining cultural mistrust as a potential moderating factor between the advisory working alliance and research training outcomes. While faculty mentoring has been highlighted as an important resource for minority graduate students, there has been relatively no research on the importance of graduate advising relationships for this population of students. Graduate advising relationships in general, however, have been examined and found to be an extremely important component of doctoral training (Gelso & Lent, 2000). According to Schlosser and Gelso (2001), from the perspective of the advisee the components of the advisory working alliance are rapport (i.e., the level of interpersonal communication), apprenticeship (i.e., the degree to which the advisee feels their advisor is introducing them to various aspects of their field) and identification-individuation (i.e., the degree to which an advisee wants to be like their advisor). These relationships have the potential to impact the personal and professional development of students in many ways, and have been linked to positive research training outcomes (Schlosser et al., 2001, 2005). The research training outcomes that were of particular interest to the present study were research self-efficacy (i.e., having a perceived ability to conduct research), research interest (i.e., having interest in activities related to conducting research), and research outcome expectations (i.e., having certain expectations of what will happen as a result of the research being conducted). These variables are rooted in social cognitive career theory (Lent, Brown, & Hackett, 1996) and
have been positively linked to the scholarly activity of current students (Kahn & Scott, 1997; O’Brien, Malone, Schmidt, & Lucas, 1998; Phillips & Russell, 1994) and post graduates (Royalty & Magoon, 1985; Royalty & Reising, 1986); increased engagement in scholarly activities (Kahn, 2001), increased scholarly productivity; and students’ dissertation progress (Geisler, 1995).

Though research examining these constructs among minorities is sparse, there is a small subsection of literature which includes studies that have large samples of minority students. Rice et al. (2009) found adequate psychometric properties to support use of the Advisory Working Alliance Inventory–Student Version (Schlosser & Gelso, 2001) with a sample of international graduate students. They did however find significant differences on rapport and identification-individuation when their sample was compared to a majority white comparison sample of domestic students. In their qualitative study, Brown et al. (2011) also found that advising accounts were consistent with advisory working alliance theory. However, other salient themes emerged, such as perceptions of advisors’ cultural competence within the relationship, and experience of racial micro-aggressions. Recently, Schlosser et al. (2011) introduced a multiculturally infused model of graduate advising relationships that attends to the process and outcome of advising, with particular attention paid to the potential effects of multicultural variables on formation and maintenance of the advisory working alliance. One such variable, cultural mistrust, was explored in the present study. Cultural mistrust refers to the need for individuals of color to be mindful of the possibility that they may currently be victimized by acts of racism and/or prejudice. Schlosser et al. (2011) theorized that cultural mistrust has the potential the impact the advisory working alliance. They theorized that high levels of cultural mistrust would lead to difficulty in the relationship formation process. Additionally, the authors
posited that inattention to cultural mistrust may impact the advisors’ ability to balance support and challenge roles.

Based on the theoretical frameworks described above, the current investigation first explored variables theoretically expected to influence the development of a strong advisory working alliance (i.e., method of pairing with advisor, frequency of meetings, perceived availability of advisor, length of time with advisor, and degree of similarity between research interests) using a simultaneous regression. Next, the relationship between the advisory working alliance and research training outcomes variables (i.e., research self-efficacy, research outcome expectations, and interest in research) was examined using three hierarchical regressions, each of which controlled for the aforementioned background variables. Finally, cultural mistrust was examined as a potential moderating factor using a moderation regression analysis. In this chapter, the major findings of the current study are reviewed and discussed in detail. Then, limitations of the investigation are discussed. Finally, implications for future research are identified.

Findings

**Appropriateness of Instruments.** One of the major contributions of this study to the education and research training field is the use of the study instruments with a sample comprised entirely of African American doctoral students as well as with students outside of the field of psychology. Prior to the present study, no published studies were found that utilized the AWA, RSE, ROE, or IRQ scales with large samples of African Americans. In addition, the aforementioned instruments had previously been used with psychology and education students. Furthermore, no studies prior to the present study utilizing the CMI did so with a sample of doctoral students. All of the instruments used in the study showed strong internal consistency.
Though the psychometric properties were not examined as part of the hypotheses of this study, the high Cronbach alphas obtained provided evidence that the measures were reliable and appropriate for this sample.

**Background Variables Thought to Characterize the AWA.** For Hypothesis 1, the effect of five variables theoretically expected to characterize the advisory working alliance was examined. Based on the extant theoretical and empirical literature (Huber et al., 2010; Knox et al., 2003; Schlosser et al., 2001, 2003, 2005), it was expected that the ability to choose one’s advisor, length of time with advisor, similarity of research interests, frequency of meetings, and perceived availability would predict a significant portion of the variance in ratings of the advisory working alliance. Based on the findings from Huber et al. (2010), it was also expected that the ability to choose your advisor would have a stronger association with the advisory working alliance for students who had worked with their advisor for six months or less. Lastly, in an attempt to provide clarity on theoretical mixed findings related to the importance of frequency of meetings (Huber et al., 2010), and the theoretical supposition that perceived availability is actually more important (Knox et al., 2003), both of these variables were examined.

Through preliminary Pearson bivariate correlations, similarity of research interest emerged as an important factor, correlating significantly with pairing method, perceived advisor availability, and frequency of meetings. In short, students who had higher levels of research similarity with their advisor reported choosing their advisor, viewing them as available, and meeting with them frequently. The working alliance also correlated with four of the five background variables, revealing that students who reported high advising working alliances also chose their advisor, perceived their advisor as available, met frequently with their advisor, and shared similar research interests. Length of time with advisor did not significantly correlate with
the advisory working alliance. Results from the simultaneous multiple linear regression indicated that the five variables together did in fact explain a significant portion of the variance in the advisory working alliance. However, upon closer examination of univariate effects, only three of the five variables emerged as significant, unique predictors. The most significant predictor was perceived availability of the advisor, followed by similarity of interests, and then frequency of meetings. Unexpectedly, pairing method and length of time spent with advisor did not significantly predict the advisory working alliance on their own.

These results offered rich information on the variables that contributed to a strong working alliance for this population of African American doctoral students involved in cross-racial advising dyads. Similar to previous research conducted with predominantly White samples, the five theoretically expected variables contributed significantly to variance in the working alliance. These results, however, do not preclude the possibility that there may be other unique variables that might influence the development of the alliance in cross-racial dyads. While 40% of the variance was accounted for by these theoretically expected variables, there is still 60% of the variance left to be explored. The findings do however provide preliminary evidence in support of the use of the advisory working alliance construct with a minority population.

Another important finding was related to the debate over the importance of students having frequent meetings with their advisor versus the advisor being perceived by the students as available. As posited by Knox et al. (2003) and Schlosser et al. (2011), perceived availability emerged in this study as a more salient factor than frequency of meetings. This finding also offered direct support for Schlosser et al.’s. (2011) multiculturally infused model of advising. With regard to relationship maintenance, the theory posited that perceived availability would be
specifically critical to cross cultural dyads due to the potential of culture-based preferences for infrequent interaction. This finding has implications for those advisors who might schedule regular frequent meetings, but lack flexibility in being available for unscheduled needs of their advisee. Though not as significant as perceived availability, frequency of meeting emerged as the next most significant predictor of the advisory working alliance. This is similar to previous findings with less diverse samples (i.e. Huber et al., 2010). Though not specifically posited in Schlosser’s multiculturally infused model of advising, it is possible that meeting frequently with your advisor provides increased opportunity for rapport building and conflict resolution, all theorized to strengthen the alliance.

Similarity of interests emerged as the next most significant predictor of the advisory working alliance, which is in line with all prior research. This result also offers specific support for Schlosser’s (2011) model that posited that among cross-racial advising dyads, as the degree of similarity between advisor and advisee increases, the ease of relationship formation will increase, leading to the strength of the advising relationship.

As stated, contrary to expectations, pairing method and length of time spent with advisor did not significantly predict the advisory working alliance on their own in this sample. This finding was particularly interesting given that the majority of students in this sample (over 75%) reported that they chose their advisor as opposed to being assigned. While pairing method on its own did not contribute a significant amount of variance to the AWA, higher ratings of their advisory working alliance was significantly associated with choosing one’s advisors. Because the length of time spent with advisor did not contribute to variance in the AWA, further analysis was not conducted to look for differences between students who worked with their advisor for more than six months as compared to those who worked with their advisor for less than six months.
Additionally, the current sample was comprised primarily of students who had been working with their advisor for more than six months. In fact, only 12.3% of students in the present sample reported having only worked with their advisor for less than six months. The homogeneity of the present sample with regards to length of time with advisor compromises our ability to draw conclusions or further investigate the significance of the six-month mark. It is important to keep in mind, however, that the large proportion of students in the sample who had been working with their advisor for more than six months may have influenced other areas. For example, pairing method did not emerge as a significant predictor of the working alliance, but it is possible that the longer one is with his or her advisor; nature of pairing could simply become less important to the relationship.

AWA Prediction of Research Training Outcome Variables. Hypotheses 2, 3, and 4, examined whether or not the advisory working alliance would explain a significant portion of variance in students’ ratings of research self-efficacy (Hypothesis 2), research outcome expectations (Hypothesis 3), and interest in research (Hypothesis 4) when controlling for the five advising relationship variables examined in Hypothesis 1. Based on the extant theoretical and empirical literature (Knox et al., 2003; Schlosser et al., 2001, 2003, 2005), it was expected that once the variables that were expected to influence the advisory working alliance were controlled for, students’ ratings of the advisory working alliance would explain a significant portion of the variance in students’ self-report ratings of research self-efficacy, research outcome expectations, and research interest.

Preliminary Pearson bivariate correlation analyses revealed that the AWAI-S, as expected, was significantly associated with research self-efficacy, research outcome expectations, and interest in research. Students with higher scores on the Advisory Working
Alliance measure reported higher scores on all three training variables. Three separate hierarchical regressions were conducted, revealing that as expected, after controlling for the advising relationship variables, the advising working alliance explained a significant portion of variance in both research self-efficacy beliefs and research outcome expectations. The working alliance did not, however, significantly predict student interest in research as expected. Post-hoc analyses were conducted examining each of the AWA subscales (rapport, apprenticeship, and identification-individuation) in relation to the research training outcome variables. Correlations showed that research self-efficacy and research outcome expectations significantly correlated with each of the three subscales (rapport, apprenticeship, and identification-individuation). These were expected findings given that the total AWA score predicted variance in both research self-efficacy and research outcome expectations. Interest in research, however, only correlated with apprenticeship and identification-individuation and did not have a significant correlation with rapport. As a final step, two hierarchical linear regressions were conducted to determine the amount of variance in interest in research that could be accounted for by the subscales of apprenticeship and identification-individuation. The apprenticeship regression model was not significant; however, the identification-individuation model was significant. The identification-individuation subscale is intended to measure the part of the emotional bond between the advisor and the advisee reflecting the advisee’s admiration of the advisor. These findings indicated that students who admired and wanted to be like their advisor evidence higher interest in research. While significant, this post-hoc analysis only accounted for a very small amount of variance in interest in research, indicating that there are unknown variables that account for variance which warrant further exploration.
The findings regarding the relationship between the advisory working alliance and the research training outcome variables not only offer additional evidence of the importance of the alliance for graduate students in general, but for African American graduate students in particular. The low number of African Americans in tenure track academic positions has often been attributed to difficulty in establishing programs of research. Knowing that a strong advising alliance can bolster the research self-efficacy and research outcome expectations among this population further highlights the need to attend to advising relationships.

Although contrary to expectations in the present study, the fact that the advising working alliance total score did not explain variance in students’ interest in research was not completely surprising. Previous research showed that the advisory working alliance has predicted variance in research self-efficacy, attitudes towards research, as well as variance in the advisor’s perception of the advisee’s self-efficacy and interest in research. Though it was a logical expectation, no previous study has actually shown that the working alliance predicts a student’s perception of interest in research. Still, given the nature of the relationship between research self-efficacy, outcome expectations, and interest, it was reasonable to hypothesize that the alliance would account for variance in all three. Consistent with social cognitive career theory, it was thought that individuals will form enduring interests in activities in which they view themselves to be efficacious and anticipate positive outcomes. It is interesting to note that a large portion of participants in the study (49.2%) reported being in pre-proposal status with regard to their dissertations. It is possible that a majority of students in our sample may have had limited research experience or had not yet developed an attachment to their own research interests that might be expected after proposing one’s dissertation. This could mean that variables not examined in this study, (i.e. investment/attachment to research or number of research related
experiences such as publications, presentations) might explain variance in interest in research where the advising working alliance did not in this case.

Another possible explanation for the lack of variance in students’ interest in research accounted for by the strength of the advising relationship might be the significant correlation between the IRQ and the investigative scale of the Vocational Preference Inventory found during validation of the IRQ (Bieschke, Bishop & Herbert, 1995; Bishop & Bieschke, 1998). Holland codes offer a theory of vocational and career choice based on personality type. Individuals that are categorized as investigative by the Holland Code system are described as intellectual, introspective, inquisitive, curious, methodical, rational, analytical, and logical. The IRQ total score has not correlated with any other Holland type (e.g. Artistic, Social, Enterprising, Realistic, or Conventional). The high correlation between the IRQ and investigative Holland code might suggest that interest in research is more of a stable, intrinsic, personality trait, which is less likely to be influenced by the nature of an extrinsic relationship, such as the Advisory Working Alliance. Post hoc analyses, however, revealed that high identification-individuation or admiration of one’s advisor led to significantly higher levels of interest in research among students. This finding underscored the importance of how much an advisee wants to “be like” their advisor.

**Cultural Mistrust as a Moderating Variable.** For Hypotheses 5, 6, and 7, cultural mistrust as a moderating factor between the advisory working alliance and the research training outcomes was examined. Since no significant relationship was established between working alliance (the predictor variable) and interest in research (the criterion variable), cultural mistrust was only examined as a moderator for the criterion variables of research self-efficacy and research outcome expectations. Based on the literature (Lee, 2003; Terrell & Terrell, 1981;
Townes et al., 2009) regarding the impact of cultural mistrust on the behavior of African Americans in educational/interpersonal settings, it was expected to emerge as a moderator for both models. Specifically, the avoidant behavior, lowered expectations, lowered motivation, and underutilization of services that has been shown to occur as a result of cultural mistrust contributed to the expectations that cultural mistrust would serve as a moderator (Biafora et al., 1993, Townes, Chavez-Korell, & Cunningham, 2009, Caldwell & Obasi, 2010). Additionally, Schlosser et al. (2011) theorized that specifically among advisees of color, high levels of cultural mistrust would likely lead to difficulty in the relationship formation process.

Preliminary Pearson bivariate correlations showed that as expected, cultural mistrust was significantly correlated with the advising working alliance. Students with higher advising working alliance ratings had lower levels of cultural mistrust. Cultural mistrust was also significantly related to method of pairing and research interest similarity. Students with higher levels of mistrust were more likely to have had their advisor assigned to them and were less likely to share similar research interests. Contrary to expectations, cultural mistrust was not significantly associated with research self-efficacy, research outcome expectations, or research interests. Two separate regression for moderation analyses revealed that, contrary to expectations, cultural mistrust did not moderate between the advisory working alliance and research self-efficacy or research outcome expectations. Post hoc analyses were then conducted to determine whether cultural mistrust moderated the relationship between student advisor pairing method and the advisory working alliance, and the relationship between research interest similarity and the advisory working alliance. Cultural mistrust did not emerge as a moderator for either relationship.
The finding that cultural mistrust was not a moderator of any relationships was contrary to expectations, but still provided rich information. These findings indicated that -- contrary to Schlosser’s (2011) theory -- the mere presence of cultural mistrust does not automatically mean that the cross-racial advising relationship may suffer, or that it will lead to detrimental training outcomes for the student. Cultural mistrust by definition is an adaptive, protective function stemming from an attitudinal response to a history of oppression (Ogbu, 1991). Cultural mistrust is the belief acquired by African Americans, due to past and/or ongoing mistreatment related to ethnic group membership, that Whites cannot be trusted (Terrell, Taylor, Menzise, & Barrett, 2009). Put simply, cultural mistrust refers to the need for individuals of color to be mindful of the possibility that they may currently be victimized by acts of racism and prejudice (Terrell & Terrell, 1981). When considering the results in context of the definition, it is quite likely that an individual can have levels of cultural mistrust that are not detrimental to relationships formation (such as the advisory working alliance) or academic success (research self-efficacy, outcome expectations, and interests).

It is also important to note that Terrell and Terrell (1981) have highlighted the fact that cultural mistrust of Whites by African Americans has the potential to be either protective or counterproductive depending on the context. An example of the counterproductive byproducts of cultural mistrust would be the avoidant behavior described in therapeutic, educational, and medical settings where cultural mistrust has been present. Sanders (1997) posited that many African Americans gain resilience through experiences of discrimination, and that as a result it is possible for high levels of cultural mistrust to coexist with positive outcomes such as belief in the value of education and positive outcome expectations. This alternative -- a more positive view of responses to discrimination such as cultural mistrust -- offers a useful lens through which to view
the present results. It is also important to keep in mind that on average, the population of students sampled in this study reported relatively low levels of cultural mistrust (group average rating of 3.32 out of 7). Lastly, it is important to recognize that in many cases where cultural mistrust has been previously examined, it has been examined in the context of outcome behaviors (avoidance of therapy, premature termination of counseling, requests for a black counselor, etc). This study measured outcome responses that were more attitudinal in nature as opposed to behavior. In this study, frequency of meeting would fit into this category of behavioral responses, but was not significantly correlated with cultural mistrust. This might be influenced by the power structure inherent in many advising relationships, where frequency of meeting might not be decided by the advisee.

Limitations

Population. The current investigation utilized African American doctoral students across disciplines. Participants were recruited from research intensive universities (CIC and AAU member institutions) nationwide. Participants were recruited electronically via requests for distribution made to Black Graduate Student Associations (BGSA’s), Offices of Multicultural Affairs, and Offices of Diversity inclusion at each targeted institution. It is highly likely that the students who received the recruitment notice and ultimately took the survey were closely connected to the African American graduate student population at their institution. It is likely that this sample is biased to include more African American graduate students who are connected with institutional/social supports. Such supports could potentially be an important variable to examine. For example, a student who is not connected with social or institutional supports might place more value on their relationship with their advisor, whereas students who are connected might be able to connect with other faculty if their advising relationship goes awry.
Another limitation to this study is the large number of students who were deemed ineligible to participate. The criteria for the present study were very specific: students had to be enrolled in a full-time doctoral program which required a dissertation for program completion, be paired with a doctoral advisor whom the participant viewed as White, and be attending either a Committee on Institutional Cooperation (CIC) member institution or an American Association of Universities (AAU) member institution. A total of 519 students attempted to take the survey; however, 290 students were disqualified for not meeting criteria based on their responses to an initial screening survey. This is an extremely high number; over 50% of the students who attempted the survey were deemed ineligible. Further, the majority of students disqualified from taking the survey (n=136) were deemed ineligible because they reported having a doctoral advisor whom they did not view as White. While the decision to focus on cross racial dyads was strategic and meant to address a specific gap in the literature and specific theoretical propositions made in the theory of multicultural advising (Schlosser et al., 2011), the large number of students excluded was not expected. Statistics indicate that there are only 1.6 African American faculty members available for every 100 African American students, not including HBCU’s (National Center for Education Statistics, 2003). Due to these numbers, it appeared as though faculty members who did not identify as African American would be the most likely to be in a position to serve as a mentor to students in this population. While the desired sample of cross-racial dyads was obtained, the exclusion of these 136 students from the study is a limitation, in that useful comparisons could have been made across groups and accounting for the experiences of these students would have enriched the study significantly.

The high level of education of the students sample may have also skewed/biased the sample for any relationships where level of education might have an impact. An example of this
would be the potential relationship between cultural mistrust and level of education. While cultural mistrust has been examined in many diverse settings (e.g., mental health, educational, medical), and has been found to be useful in explaining avoidant behavior among African Americans, no studies were found that examined this construct at the graduate school level. It is possible that as level of education as well as socioeconomic status increases, the level of cultural mistrust decreases.

**Measurement.** While all of the measures used in the study evidenced strong reliability, there are potential limitations regarding measurement that warrant discussion. First, the self-efficacy research measure is very quantitative in tone. The questions included in the measure are heavily geared towards students who are working on quantitative projects (almost one-third of the questions are about statistical analysis). Given the diversity of graduate program represented in the present sample, and the inclusion of students in programs such as anthropology, sociology, philosophy, etc., it is likely that many of the participants were working on dissertations that were qualitative in nature. As such, the absence of a more inclusive measure of self-efficacy is a limitation of the present study.

Another measurement limitation is evident related to the Cultural Mistrust Inventory. In particular, there was evidence to suggest that the measure of cultural mistrust used may not have been the most appropriate measure. The first issue with the measure is that it is dated: the measure was created over 30 years ago and has not been updated since. In particular, some of the terminology used in certain items may have influenced participants’ responses. For example, the item in the survey with the most missing data points was the item on the CMI that read “Since whites can’t be trusted in business, the old saying ‘one in the hand is worth two in the bush’ is a good policy to follow.” The high number of participant who did not answer this question is a
potential indicator that participants were not familiar with the phrase, ‘one in the hand is worth two in the bush.’ Additionally, a visual scan of the data prior to data cleaning showed that several participants completely skipped the CMI altogether. Another potential issue with the CMI was its length. The CMI is comprised of 48 items and represented almost half of the items used in the present study. Efforts were made to keep the survey short to avoid participant fatigue, however, the inclusion of a 48-item inventory such as the CMI made this difficult.

Lastly, there was some evidence that within this particular population of students, some of the questions used in the CMI were viewed as offensive. Throughout the recruitment and data collection process, several emails were received by the primary investigator from participants expressing their discomfort with the items on the cultural mistrust scale. Participants expressed concern and discomfort with the measure as a whole, while others expressed their discomfort with particular items. In particular participants contacted the primary investigator to express that they were offended by a particular item, which asked the reader to rate their level of agreement with the following statement “Of all ethnic groups, Whites are really the Indian-givers.” The strong reaction of participants to the questions on this measure provides further evidence for the datedness and inappropriateness of this instrument with this particular population, and the need for revision.

**Future research**

One clear direction for future research is to design a more inclusive study with less stringent inclusion criteria. This can be addressed in several ways. First, the inclusion criteria can be expanded to include students with advisors across racial and ethnic groups. This would provide the opportunity to make important comparisons across the experiences of students not only in cross-racial dyads, but those in racially similar dyads as well. It would also allow for the
inclusion of all cross-race dyads other than black-white. This would open the door for the testing of additional tenets of the multicultural theory of advising (Schlosser et al., 2011) by including additional variables such as racial identity. According to Schlosser’s theory, when members of a dyad are in similar stages of racial identity (regardless of the race of the dyad members) a strengthened working alliance will result. In addition to including advisors of all backgrounds, future studies might also consider including a comparison group of advisees, similar to the comparison group of domestic graduate students Rice et al. (2009) used to compare experiences with their sample of international graduate students. The inclusion of a comparison group would allow for further exploration of all variables.

These less stringent criteria and inclusion of additional variables would provide the opportunity to explore what factors contribute to the 60% of variance in the advisory working alliance left unaccounted for by the present study. One variable to consider for future research would be racial identity, specifically comparing the stage of racial identity of the advisor with that of the stage of racial identity of the advisee. Another direction would be to focus more on variables that related directly to the advisor (advisor age, gender, type of degree, years of experience, etc). Personality type and attachment style of both the advisor and the advisee would also be useful variables to examine as potential factors which account for variance in the AWA.

The information gathered surrounding the cultural mistrust construct in the present study also provides direction for future research. A clear future direction for research regarding this variable would to meaningfully revise this measure. As stated earlier, the terminology in the measure is dated, and currently includes 48 questions. Future researchers might find conducting a qualitative study that analyzes in-depth interviews with African Americans useful in determining the themes of cultural mistrust present in today’s society. While the themes may in
fact prove to be very similar to those present in 1981 when the original inventory was validated, a study like this would still provide the first steps in potentially shortening or updating the wording of the inventory. Following the qualitative study, a shorter list of items could be generated for each of the four subscales, and a confirmatory factor analysis could be conducted to assess the psychometric properties of a shortened version of the CMI. Exploration is also warranted into differences in the intensity and expression of cultural mistrust across socioeconomic and education levels. Given that no previous literature was found using this measure with a doctoral student population, it is possible that this measure was not appropriate. Additionally, in the present study, cultural mistrust did not emerge as a moderating factor for any of the relationships examined. Given that cultural mistrust can be adaptive and protective depending on the context, this is not totally surprising. It is also possible that the strength of the advisory working alliance might serve as a protective factor against the avoidant behavior that is often times associated with cultural mistrust. Cultural mistrust, theorized by Schlosser to impact relationship formation, is still worth investigating in this context once the above-mentioned measurement issues have been addressed.

Another avenue for future research would be to expand the outcome variables examined. Schlosser et al. (2011) identified two types of measurable advising relationship outcomes: proximal (short term) and distal (long term). The present study examined three proximal research training outcome variables as outcomes: research self-efficacy, research outcome expectations, and interest in research. These variables were examined for one time point only. Future studies can build on these findings by examining long-term or distal outcomes, and by implementing a longitudinal design. Distal outcomes can provide valuable information regarding career and graduate program related outcomes. Potential distal research outcome variables include timely
completion of dissertation; publication and/or presentation dissertation research; continuing to value and consume research; and making ongoing contributions to literature. Potential distal career-related outcomes would include variables such as timely degree completion; prestige or quality of first job, rate of promotion, perceived career success, work satisfaction, reputation/career eminence; decreased role stress and role conflict; competence serving as an advisor/supervisor; and professional citizenship behaviors. There are also distal outcome variables which are related specifically to one’s advisor that can be explored in future studies, such as maintaining a mentoring relationship with advisor beyond completion of program or enhancing advisor’s reputation. By implementing a longitudinal design and following a cohort of students over the course of their graduate programs and beyond, valuable information can be gained about the educational pipeline and outcomes for minority doctoral students. A clear picture of the developmental trajectory of the advisory working alliance over time would enhance the literature substantially. In addition, as previously addressed in this chapter, the inclusion of more behavioral outcomes might better highlight the role of cultural mistrust in advising relationships. Lastly, controlling for other variables within a future study, such as year in program, may offer valuable information regarding the developmental trajectory of research interest that occurs as student progresses through their respective program.

A final direction for future research would be conducting studies that include the use of more sophisticated statistical analysis. Given the exploratory nature of the present study and the complexity of the relationships examined, the research questions of this study lend themselves to a structural equation modeling (SEM) design. SEM is a statistical technique for testing and estimating causal relations using a combination of statistical data and qualitative causal assumptions. Structural equation models (SEM) allow both confirmatory and exploratory
modeling, meaning they are suited to both theory testing and theory development. In this case, we were testing the fit of an existing theory with a new population. Unfortunately, SEM was not an option in the present study due to the sample size. Previous guidelines (e.g., Kline, 1998) indicated that 10 to 20 participants per estimated parameter in an SEM model would result in a sufficient sample. Using this guideline, a sample size of at least 280 participants would have been required for SEM in this study. Since more participants yield more statistical power, researchers are encouraged to use larger sample sizes when testing more complex models.

One advantage to conducting a future study using SEM would be the ability to estimate and test the relationships among constructs. Compared with other general linear models, where constructs may be represented with only one measure and measurement error is not modeled, SEM allows for the use of multiple measures to represent constructs and addresses the issue of measure-specific error. This difference is important in that it allows researchers to establish the construct validity of factors. Future studies with more resources for recruiting should focus efforts on recruiting a larger sample of students, perhaps by including universities outside of the AAU and CIC in order to garner a sample size large enough for an SEM model.

Conclusions

The present study had several clearly stated goals. First, the study sought to advance the training and education literature significantly by providing empirical support for the theoretical propositions posited by Schlosser et al. (2011) with regard to advising relationship formation, maintenance, and outcome among cross racial dyads. Cultural mistrust was also examined as a moderating factor for established relationships. This goal was accomplished in that the importance of the advising relationship on research outcome training variables for minority students was highlighted. Second, the study also sought to shed light on the graduate student’s
pipeline for minority students, and highlight the advising relationship as an important resource. The study demonstrated that advising relationships were especially important in boosting the research self-efficacy and research outcome expectations of African American doctoral students. This echoed previous findings that have highlighted the alliance as an important resource for doctoral students in general. This information bolsters the argument that there should be standardized training, which includes multicultural training for those individuals that will serve as advisors for doctoral students.

Bordin (1979) defined the working alliance in the psychotherapy relationship as “the portion of the relationship characterized by the cooperation, mutuality, and collaboration in regard to the work being conducted which provides the basis for the members of the dyad to work together toward agreed upon goals” (Bordin 1975, p. number ). The concept of a “working alliance” in any context (therapeutic, supervisory, and advisory) has consistently been shown to be a crucial factor to the success of relationships expected to induce change. He theorized that the core construct of a “working alliance” should be applicable to any such relationship (i.e., teacher-student, supervisor-supervisee, advisor-advisee, therapist-client; Bordin, 1983; Horvath & Greenberg, 1989). The working alliance within the therapeutic relationship has been consistently linked to positive therapeutic outcomes (Horvath & Symonds, 1991; Horvath & Bedi, 2002; Martin, Garske, & Davis, 2000), and research has also demonstrated positive outcomes associated with a strong supervisory working alliance, such as supervision satisfaction (Inman, 2006) and counselor self-efficacy (Hanson, 2006). With the present study and those that preceded it, there is overwhelming evidence that the working alliance formed in an advising relationship is equally important. So why is there a lack of standardized training for advisors, who hold such an important role in the experiences of students they are paired with? Therapists
and supervisors are trained in very specific ways, and held to ethical standards; however, no such structure exists for doctoral level advisors. The research indicates that good advising in general, regardless of cultural factors is a balance of support and challenge. Specific training for all new faculty becoming advisors should be rooted in the research on advising in general, as well as inclusive of the theory of multicultural advising. Advisors should be made aware of how important their role is, and educated on factors which have been shown to make a strong alliance. For example, educating advisors on the fact that being perceived as available is more important that scheduling weekly meetings may lead to stronger relationships and a more valuable use of time. In addition, there should be both accountability and evaluative standards for advisors put in place at an institutional level. This way, advisors who are struggling or failing to fulfill their role adequately can be offered additional training to enhance their skills. It is hoped that the results of this study and similar studies to follow will provide a foundation for a movement in higher education towards the standardized training of advisors who will be informed and aware of the importance of their role and the ways in which cultural difference can manifest within an advising context.
References


doi:10.1177/0894845309349357


doi:10.1093/sw/42.2.145


doi:10.3102/00346543071004549


doi:10.1037/0022-0167.37.3.322


Appendix A

Participant Reported Departmental Affiliation

Agriculture
American Studies
Anthropology
Applied Health Science
Archaeology
Architecture & Planning
Atmospheric and Oceanic Science
Behavioral and Community Health
Biobehavioral Health
Biochemistry
Biochemistry, Microbiology, and Molecular Biology
Biological Systems Engineering
Biology
Biomedical Engineering
Biomedical Sciences
Biotechnology
Cell Biology
Chemical & Biomolecular Engineering
Chemistry
Civil and Environmental Engineering
Clinical Psychology
Cognitive and Neural Systems
Communication
Computational Science, Engineering, and Mathematics
Computer and Information Technology
Counseling and Educational Psychology
Counseling Psychology
Counseling, Higher Education, & Special Education
Counseling, School, & Educational Psychology
Counselor Education
Curriculum & Instruction
Curriculum, Teaching, & Learning
Earth System Science
Economics
Education
Education Leadership & Foundations
Education Policy Studies
Educational Leadership
Educational Leadership and Policy Analysis
Educational Psychology
Educational Psychology, Counseling, and Special Education
Educational Psychology, Measurement and Evaluation
Educational Theory, Policy, and Administration
Educational, Counseling, and School Psychology
Electrical Engineering and Computer Science
English
Epidemiology
Ethnic Studies
Food Science Nutrition
Genetics, Molecular, and Cellular Biology
Government and Politics
Health & Kinesiology
Health & Human Development
Health Behavior
Health Policy and Management
History
Human and Community Development
Human Development and Family Studies
Human Sciences
Industrial and Systems Engineering
Information and Library Science
Information Sciences and Technology
Instructional Technology
Integrated Biomedical Research
International Health
Internal Medicine
Kinesiology
Language, Literacy, and Culture
Learning & Performance Systems
Management and Entrepreneurship
Marine Biology
Materials Science & Engineering
Mathematics
Mechanical and Aeronautical Engineering
Mechanical and Aerospace Engineering
Mechanical Engineering
Medicine
Microbiology
Microbiology and Immunology
Microbiology and Molecular Genetics
Microbiology, Immunology, & Cancer Biology
Molecular and Computational Biology
Music
Neuroscience
Nursing
Nutrition
Organizational Behavior
Pathology
Pathology, Microbiology, and Immunology
Pharmacology & Pharmaceutical Sciences
Pharmacology & Experimental Therapeutics
Pharmacology and Toxicology
Philosophy
Plant Biological Sciences
Political Science
Psychology
Psychological Science
Psychology and Social Behavior
Public Policy and Administration
Recreation, Sport, and Tourism
Rehabilitation, Science, and Technology
Religion
Romance Languages
School Psychology
Social Work
Sociology
Sociology & Criminal Justice
Systems and Information Engineering
Teaching and Learning
Theatre and Dance
Urban Systems
Wildlife Ecology and Conservation
Appendix B

Distribution Request

Listserv Administrator Version:

Dear XXXXX,

Hello, my name is Eanah Brown, and I am a graduate student in Counseling Psychology working under the advisement of Dr. Kathleen Bieschke at the Pennsylvania State University. I am contacting you regarding a research project which examines factors that contribute to the success of African American graduate students across disciplines. I am interested in understanding more about the contributions of a variety of factors on the experiences of minority students regarding research activities, specifically advising experiences. This research project is being conducted online. The online survey contains 129 questions and has been piloted to determine length of time. The survey should only require 20-30 minutes of a student’s time.

I am writing to request that you post the attached recruitment email on your listserv. In an effort to reach as many African American graduate students as possible, we are contacting organizations such as yours in our recruitment efforts. All responses to the survey will be confidential. In addition, please feel free to forward this recruitment notice to any other relevant organizations at your University.

Studies of this kind offer great insight into the education pipeline, and unfortunately, African Americans are underrepresented in this area of research. Therefore, participation is valuable.

If you have any questions or concerns related to this study, please contact Eanah Brown (emb270@psu.edu) or Dr. Kathy Bieschke (kbieschke@psu.edu). Upon request, a copy of the approval from Institutional Review Board (IRB) at Pennsylvania State University may be provided.

Sincerely,

Eanah Brown,
The Pennsylvania State University
STUDENT RECRUITMENT NOTICE

Are you an African American Doctoral Student? If so, you could win a $20 Amazon gift card by taking just 20 minutes to complete a brief survey!

My name is Eanah Brown, and I am an African American doctoral student in Counseling Psychology at the Pennsylvania State University. I am conducting my dissertation research on factors that contribute to the success of other African American doctoral students across disciplines. Studies of this kind offer great insight into the education pipeline, and unfortunately, African Americans are sorely underrepresented in this area of research. Therefore, your input is very valuable! As a fellow graduate student, I know just how valuable your time is. That is why I am conducting this survey online and anticipate that it should take 20 minutes or less to complete. Additionally, a gift certificate worth $20.00 to Amazon.com will be awarded to 1 out of every 20 participants who complete the survey. To review the informed consent and complete the online questionnaires, please click on the following link:

https://www.psychdata.com/s.asp?SID=149056

All information will remain anonymous. I greatly appreciate your participation in this dissertation study and would be happy to send you the results upon completion. Please feel free to forward this recruitment notice to other African American graduate students at your institution. This research has been approved the Internal Review Board (IRB) at the Pennsylvania State University.
Appendix D

Invoice for Incentives Paid to Participants

Final Details for Order #107-4999650-6090610
Print this page for your records.

Order Placed: April 21, 2013
Amazon.com order number: 107-4999650-6090610
Order Total: $300.00

Gift Certificates/Cards

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- From: Eanah Brown
- Message:
Recently you participated in my dissertation survey. I am pleased to inform you that you have been randomly selected as the winner of a $20.00 gift certificate to Amazon.com. Thank you again for participating in my study. Best, Eanah

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Payment information

Item(s) Subtotal: $300.00
Final Details for Order #107-2938194-2589800
Print this page for your records.

Order Placed: April 21, 2013
Amazon.com order number: 107-2938194-2589800
Order Total: $20.00

Gift Certificates/Cards

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Total before tax: $20.00
Estimated tax to be collected: $0.00
Grand Total: $20.00
Appendix E

Consent Form

Informed Consent Form for Social Science Research

Title of Project: African American Student Experiences and Perspectives of Graduate Advising Relationships

Principal Investigator: Eanah Brown, M.Ed., Graduate Student
University Park, PA 16802
(814) 863-6174; emb270@psu.edu

Advisor: Dr. Kathleen Bieschke
123 Rittenour Building
University Park, PA 16802
(814) 865-3296; kxb11@psu.edu

Purpose of the Study: The purpose of this research study is to explore the advising experiences of African American/Black graduate students across disciplines. More specifically, the purpose is to examine the relationships students have with their doctoral level advisors and the potential impact of cultural variables on research training outcomes.

Procedures to be followed: You will be asked to answer 129 questions in an online survey. The online survey will collect brief demographic information, as well as information about your views towards research, your relationship with your advisor, and levels of cultural mistrust.

Benefits: You may be able to reflect on your advising experiences in your training program. For some participants, such an experience may be meaningful.

Duration: It will take approximately 20-30 minutes to complete the survey.

Statement of Confidentiality: Your confidentiality will be kept to the degree permitted by the technology being used. No guarantees can be made regarding the interception of data sent via the Internet by any third parties. However, this study will use www.psychdata.net online survey system to collect and store data. This system is a professionally developed server and many studies have used it. All of the participant’s responses will be encrypted using XXX bit SSL technology (Secure Socket Layer), which is equivalent to the industry standard for securely transmitting credit card information over the internet. Once research data is stored on the psychdata sever, it will be held in an isolated database that can only be access by a principal investigator. In the event of a publication or presentation resulting from the research, no personally identifiable information will be shared (e.g. name, graduate program, or graduate advisor).
Right to Ask Questions: Please contact Eanah Brown, M.Ed. by calling (814) 863-XXXX or by emailing emb270@psu.edu with questions, complaints, or concerns about this research.

Voluntary Participation: Your decision to participate in this study is voluntary. You may refuse to participate, withdraw your consent to this research and discontinue your participation in the study at any time without penalty. You do not have to answer questions you do not want to answer.

Payment for participation: At the end of the survey, you will be provided with the opportunity to participate in a drawing. One out of every 20 participants will be randomly selected to receive a $20 gift certificate to Amazon.com. In order to participate in the drawing, you will be asked to submit an email address so that you can be contacted in the event that you are selected. Your email address will be stored separately from your survey responses.

You must be 18 years of age or older to consent to take part in this research study. You must also self-identify as African American or Black. In addition, you must be enrolled in a doctoral program that requires a dissertation. You must also have a graduate advisor whom you perceive as White. For the purposes of this study “graduate advisor” refers to the faculty member who has the greatest responsibility for helping guide you through your graduate program. If the criteria do not apply to you, please disregard this letter.

If you have read and understand the above statements, please click on the ‘Continue’ button below to indicate your consent to participate in this study.

Please print off this form to keep for your records.

Continue
Appendix F

Participant Eligibility Screening Questionnaire

First we will gather some basic demographic information to ensure your eligibility for the survey.

1. Are you currently a full time doctoral student? 
   1= Yes  
   2= No

2. Does your program of study require a dissertation for program completion? 
   1= Yes  
   2= No

3. Are you of Hispanic, Latino, or Spanish origin? 
   1= No, not of Hispanic, Latino, or Spanish origin  
   2= Yes, Mexican, Mexican American, Chicano  
   3= Yes, Puerto Rican  
   4= Yes, Cuban  
   5= Yes, another Hispanic, Latino, or Spanish origin

4. With which racial group do you primarily identify with? 
   1= African American  
   2= Biracial (includes African American)  
   3= Biracial (does NOT include African American)  
   4= White  
   5= Asian/Asian American  
   6= American Indian/Alaska Native  
   7= Native Hawaiian/Pacific Islander

5. Were you born in the United States? 
   1= Yes  
   2= No

6. Do you currently have a doctoral advisor? (an advisor is the faculty member who has the greatest responsibility for helping guide an advisee through their graduate program) 
   1= Yes  
   2= No
7. With which racial/ethnic/cultural group do you perceive your advisor as belonging to?
   1= White
   2= African American
   3= Hispanic/Latino/a
   4= Asian/Asian American
   5= American Indian/Alaska Native
   6= Native Hawaiian/Pacific Islander
   7= Biracial

8. Does the University you attend appear on the list below?

   Boston University
   Brandeis University
   California Institute of Technology
   Carnegie Mellon University
   Case Western Reserve University
   Columbia University
   Cornell University
   Duke University
   Emory University
   Georgia Institute of Technology
   Harvard University
   Indiana University
   Iowa State University
   John Hopkins University
   Massachusetts Institute of Technology
   Michigan State University
   New York University
   Northwestern University
   The Ohio State University
   The Pennsylvania State University
   Princeton University
   Purdue University
   Rice University
   Rutgers, the State University of New Jersey
   Stanford University
   Stony Brook University
   Texas A&M University
   Tulane University
   The University of Arizona
   University at Buffalo
   University of California, Berkeley
   University of California, Davis
   University of California, Irvine
   University of California, Los Angeles
University of California, San Diego
University of California, Santa Barbara
University of Chicago
University of Colorado Boulder
University of Florida
University of Illinois
University of Iowa
University of Kansas
University of Maryland
University of Michigan
University Minnesota
University of Missouri-Columbia
University of Nebraska-Lincoln
University of North Carolina at Chapel Hill
University of Oregon
University of Pennsylvania
University of Pittsburgh
University of Rochester
University of Southern California
University of Texas at Austin
University of Virginia
University of Washington
University of Wisconsin-Madison
Vanderbilt University
Washington University
Yale University

1=Yes
2=No
Appendix G

Participant Demographic Questionnaire

Directions: Please respond to the following questions. Indicate your information in the space provided or place a circle around the number that corresponds to your response.

1. What is your gender?
   1= Female
   2= Male
   3= Transgendered

2. What is your age? ______________

3. What year of your doctoral education are you completing at this time?
   1= 1st year
   2= 2nd year
   3= 3rd year
   4= 4th year
   5= 5th year
   6= 6th year and beyond

4. What is the name of your department? ______________

5. What degree are you seeking? ______________

6. You indicated earlier that you view your advisor as White. Do you perceive your advisor as also holding an international status?
   1=Yes
   2=No

7. How did you come to be paired with your current advisor?
   1 = I chose my advisor
   2 = I was assigned to work with my advisor

8. How long have you worked with your current advisor?
   1 = Less than six months
   2 = More than six months
   3 = Six month to a year
   4 = One to two years
   5 = Two years or more
9. How often do you meet with your current advisor?
   1 = Weekly
   2 = Biweekly
   3 = Monthly
   4 = Once a semester
   5 = Other

10. How would you rate your advisor’s availability for issues that may arise?
    1 = Rarely available
    2 = Sometimes available
    3 = Usually available
    4 = Always available

11. How would you rate the similarity between your advisor’s research interests and your own?
    1 = Not at all similar
    2 = Somewhat similar
    3 = Similar
    4 = Very similar

12. How important to you is your relationship with your advisor?
    1 = Not at all important
    2 = Somewhat important
    3 = Important
    4 = Very important

13. What is the standing of your current progress on your dissertation?
    1 = Pre-proposal
    2 = Proposed, but haven’t collected data
    3 = Data collected by not analyzed
    4 = Data collected and analyzed, ready to defend
    5 = Defended

14. Did you attend a Historically Black College or University (HBCU) for your undergraduate studies?

15. What is the likelihood that you will pursue a career in academia?
    1 = Not at all likely
    2 = Somewhat likely
    3 = Likely
    4 = Highly likely
    5 = Unsure
Appendix H

Advisory Working Alliance Inventory – Student Version

Directions: These 30 items pertain to your perceptions about your relationship you’re your advisor. For the purposes of this study, the term advisor is referring to the faculty member who has the greatest responsibility for helping guide you through your graduate program (e.g. advisor, major professor, committee chair, dissertation chair). Using the 5-point scale provided, please indicate the degree to which you agree with each statement.

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

1. ______ I get the feeling that my advisor does not like me very much.

2. ______ My advisor introduces me to professional activities (e.g. conferences, submitting articles for journal publication).

3. ______ I do not want to be like my advisor.

4. ______ My advisor welcomes my input into our discussions.

5.______ My advisor helps me conduct my work within a plan.

6.______ I tend to see things differently from my advisor.

7.______ My advisor does not encourage my input into our discussions.

8.______ My advisor has invited me to be a responsible collaborator in his/her own work.

9. ______ I do not want to feel similar to my advisor in the process of conducting work.

10. _____My advisor is not kind when commenting about my work.

11. _____My advisor helps me establish a timetable for the tasks of my graduate training.

12._____ My advisor and I have different interests.

13._____ I do not feel respected by my advisor in our work together.

14._____My advisor is available to me when I need her/him.

15._____I feel like my advisor expects too much from me.

16._____My advisor offers me encouragement for my accomplishments.
17. _____Meetings with my advisor are unproductive.
18. _____I do not think that my advisor believes in me.
19. _____My advisor facilitates my professional development through networking.
20. _____My advisor takes my ideas seriously.
21. _____My advisor does not help me stay on track in our meetings.
22. _____I do not think that my advisor has my best interests in mind.
23. _____I learn from my advisor by watching her/him.
24. _____I feel uncomfortable working with my advisor.
25. _____I am an apprentice of my advisor.
26. _____I am often intellectually “lost” during my meetings with my advisor.
27. _____I consistently implement suggestions made by my advisor.
28. _____My advisor tries to make program requirements are rewarding as possible.
29. _____My advisor does not educate me about the process of graduate school.
30. _____My advisor helps me recognize areas where I can improve.
Appendix I

Self- Efficacy in Research Measure – Brief Form

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 on a scale of 0 - 9 with 0 representing no confidence and 9 representing total confidence.

0-1-2-3-4-5-6-7-8-9
no confidence total confidence

1. _______ Keeping records during a research project
2. _______ Designing an experiment using traditional methods (e.g., experimental, quasi experimental designs)
3. _______ Writing the introduction and literature review for a dissertation
4. _______ Writing the introduction and discussion sections for a research paper for publication
5. _______ Formulating hypotheses
6. _______ Writing the method and results sections of a thesis
7. _______ Utilizing resources for needed help
8. _______ Understanding computer printouts
9. _______ Defending a thesis or dissertation
10. _______ Using multivariate statistics (e.g., multiple regression, factor analysis, etc.)
11. _______ Using statistical packages (e.g., SPSS-X, SAS, etc.)
12. _______ Operationalizing variables of interest
Appendix J

Research Outcome Expectations Questionnaire – Short Form

Directions: Using the 5-point scale provided, please indicate the degree to which you agree with each statement.

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

1. _____Involvement in research will enhance my job/career opportunities.

2. _____People I respect will approve of my involvement in research.

3. _____Involvement in research will allow me to contribute to practitioners' knowledge base.

4. _____Research involvement will lead to a sense of satisfaction.

5. _____Being involved in research will contribute to my development as a professional.

6. _____I believe research skills will be fruitful for my career.

7. _____My involvement in research will lead to meaningful contributions to the field.

8. _____My analytical skills will become more developed if I am involved in research activities.
Appendix K

Interest in Research Questionnaire

Directions: Using the 5-point scale provided, please indicate the degree of current interest you have in the activities listed. Please remember that the term research encompasses both quantitative and qualitative approaches.

1= Very Disinterested  2=Disinterested  3=Indifferent  4=Interested  5=Very Interested

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 (question removed).

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 L

Cultural Mistrust Inventory

Please indicate your level of agreement with the following statements on a scale of 1-7 with 1 representing strongly disagree and 7 representing strongly agree.

1------2------3------4------5------6------7
Strongly Disagree   Strongly Agree

1. _____Whites are usually fair to all people regardless of race.
2. _____White teachers teach subjects so that it favors whites.
3. _____White teachers are more likely to slant the subject matter to make blacks look inferior.
4. _____White teachers deliberately ask Black students questions which are difficult to they will fail.
5. _____There is no need for a Black person to work hard to get ahead financially because Whites will take what you earn anyway.
6. _____Black citizens can rely on White lawyers to defend them to the best of his or her ability.
7. _____Black parents should teach their children not to trust White teachers.
8. _____White politicians will promise blacks a lot but delivery little.
9. _____White politicians will slant a story to make Blacks appear guilty.
10. _____White politicians usually can be relied on to keep the promises they make to Blacks.
11. _____Blacks should be suspicious of a White person who tries to be friendly.
12. _____Whether you should trust a person or not is based on his race.
13. _____Probably the biggest reason Whites want to be friendly with Blacks is so they can take advantage of them.
14. _____A Black person can usually trust his or her White co-workers.
15. _____If a White person is honest in dealing with Blacks, it is because of fear of being caught.
16. _____A Black person cannot trust a White judge to evaluate him or her fairly.
17. _____A Black person can feel comfortable making a deal with a White person simply by a handshake.

18. _____Whites deliberately pass laws designed to block the progress of Blacks.

19. _____There are some Whites who are trustworthy enough to be close friends.

20. _____Blacks should have nothing to do with Whites since they cannot be trusted.

21. _____It is best for Blacks to be on their guard when among Whites.

22. _____Of all ethnic groups, Whites are really the Indian-givers.

23. _____White friends are least likely to break their promise.

24. _____Blacks should be cautious about what they say in the presence of Whites since Whites will try to use it against them.

25. _____Whites can rarely be counted on to do what they say.

26. _____Whites are usually honest with blacks.

27. _____Whites are as trustworthy as members of any other ethnic groups.

28. _____Whites will say one thing and do another.

29. _____White politicians will take advantage of Blacks every chance they get.

30. _____When a White teacher asks a black student a question, it is usually to get information which can be used against him or her.

31. _____White policemen can be relied on to exert an effort to apprehend those who commit crimes against Blacks.

32. _____Black students can talk to a White teacher in confidence without fear that the teacher will use is against him or her later.

33. _____Whites will usually keep their word.

34. _____White policeman usually do not try to trick Blacks into admitting they committed a crime which didn’t.

35. _____There is no need for blacks to be more cautious with White businessmen than with anyone else.
36. _____ There are some White businessmen who are honest in business transactions with Blacks.

37. _____ White store owners, salesmen, and other white businessmen tend to cheat blacks whenever they can.

38. _____ Since Whites can’t be trusted in business, the old saying “one in the hand is worth two in the bush” is a good policy to follow.

39. _____ Whites who establish businesses in Black communities do so only so that they can take advantage of Blacks.

40. _____ Blacks have often been deceived by White politicians.

41. _____ White politicians are equally honest with Blacks and whites.

42. _____ Blacks should not confide in whites because they will use it against you.

43. _____ A Black person can loan money to a white person and feel confident it will be repaid.

44. _____ White businessmen usually will not try to cheat Blacks.

45. _____ White business executives will steal the ideas of their Black employees.

46. _____ A promise from a White is about as good as a three dollar bill.

47. _____ Blacks should be suspicious of advice given by White politicians.

48. _____ If a Black student tries; he will get the grade he deserves from a White teacher.
# VITA

Eanah Maurayah Whaley

## EDUCATION

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<th>Degree</th>
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<td>August 2014</td>
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<td>The Pennsylvania State University, University Park, PA</td>
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<td>M.Ed., Counseling Psychology</td>
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## CLINICAL EXPERIENCE

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<td>Crisis Response Center - Advanced Doctoral Practicum Student</td>
<td>July 2012-October 2012</td>
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<td>Center Volunteers in Medicine, State College, PA</td>
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<td>CAPS - Practicum Student/Graduate Assistant Therapist</td>
<td>August 2010- May 2012</td>
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<td>Bank of America Career Services Center - Doctoral Practicum Student</td>
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<td>CEDAR Clinic- Doctoral Practicum Student</td>
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<td>August 2011 – May 2012</td>
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<td>Rosemont College Counseling Center, Rosemont, PA</td>
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## RESEARCH EXPERIENCE

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<td>Center for Collegiate Mental Health - Graduate Assistant</td>
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<td>Schreyer Institute for Teaching Excellence - Assessment Support for NSF Grant</td>
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## PROFESSIONAL PRESENTATIONS


## HONORS AND AWARDS

- 2011: United States Air Force Health Professions Scholarship Program (HPSP)
- 2010-2012: Conrad Frank Jr. Graduate Fellowship
- 2009-2012: Bunton-Waller Graduate Student Assistantship in College of Education
- 2009: Dr. Dick Malnati Award
- 2008: Margaret J Messinger Scholarship