

## Research mentoring: A study of doctoral student experiences and research productivity

Mentoring has been examined in the existing literature from a variety of perspectives including conceptually (Benishek & Chessler, 2005; Black & Helm, 2010; Borders et al., 2011; Borders et al., 2012; Casto et al., 2005; Hill, 2004; Huwe & Johnson, 2003), quantitatively (August & Waltman, 2004; Briggs, 2006; Briggs & Pehrsson, 2008; Dilmore et al., 2010; Dimitriadis et al., 2012; Holcomb-McCoy & Addison-Bradley, 2005; Hollingsworth & Fassinger, 2002; Lambie & Vaccaro, 2011; Okech et al., 2006; Paul et al., 2002; Ragins & Cotton, 1999; Ragins & McFarlin, 1990; Wasserstein et al., 2007), and qualitatively (Clark & Watson, 1998; Huskins et al., 2011; Magnuson et al., 2003; Magnuson et al., 2006; Magnuson et al., 2009; Niles et al., 2001). In the trajectory of this scholarly discourse there has been a lack of empirical support exploring critical aspects of the mentoring relationship in counselor education and counseling.

While the recommendations in the conceptual articles provided opportunities for future research (Benishek & Chessler, 2005; Black & Helm, 2010; Borders et al., 2011; Borders et al., 2012; Casto et al., 2005; Hill, 2004; Huwe & Johnson, 2003), there has been a paucity of quantitative studies to provide empirical support for these claims within the field of counseling. Numerous quantitative articles emerged from other disciplines (August & Waltman, 2004; Clark et al., 2000; Dilmore et al., 2010; Dimitriadis et al., 2012; Hollingsworth & Fassinger, 2002; Paul et al., 2002; Ragins & Cotton, 1999; Ragins & McFarlin, 1990; Rose, 2003; Taylor & Neimeyer, 2009; Wasserstein et al., 2007), which can only inform the counseling profession to a certain point. However, this quantitative study has illuminated a path on the journey of finding empirical support within the profession of counseling in relation to research mentoring relationships.

## Method

To understand the different aspects of research mentoring relationships, it is first important to have knowledge of how these terms were defined throughout the course of this study. *Research mentorship* was defined by Wester et al.'s (2009) guidelines for research mentorship as a “structured, formal or informal relationship that provides relational and instrumental support which may focus on the education, understanding, and potential collaboration around research, research process, research idea development, designs, program evaluation, and data analysis. Additionally, the research mentorship may include mentorship around the dissemination of research (e.g., publication, presentation) or information surrounding grants (e.g., seeking, writing)” (p. 1). *Research productivity* was the scholarly output of the researcher. The amount of the researcher's number of publications (journal articles, books or book chapters, and other publications), presentations (national, regional, and local presentations), and grants (national, on campus, and other grants) received as defined by the demographic questionnaire. *Research mentor role*: the relational (psychosocial) and instructional (career) role-based behaviors the mentor displays in the research mentoring relationship. The career (instructional) dimensions are defined by the mentors' ability to: sponsor, coach, protect, challenge, and promote (Dilmore et al., 2010). The psychosocial (relational) dimensions are defined by the mentors' engagement as: a friend, a social associate, parent, role model, counselor, and acceptor (Dilmore et al., 2010). Expanding on the definition of terms and the following section will illustrate the methodology utilized to answer the following research questions:

## **Research Questions**

**RQ 1:** What are the group differences in the classification of productivity of doctoral students?

**RQ 1.A:** What are the main effects for the research mentor role in the classification of productivity of doctoral students?

**RQ 1.B:** What are the main effects for gender in the classification of productivity of doctoral students?

**RQ 1.C:** What are the main effects for ethnicity in the classification of productivity of doctoral students?

**RQ 1.D:** What are the main effects for ACES region in the classification of productivity of doctoral students?

**RQ 1.E:** What are the interaction effects for the research mentor role, gender, ethnicity, and ACES region in the classification of productivity of doctoral students?

## **Instrumentation**

Participants were asked to complete two questionnaires for data collection: the MRI (Ragins & Cotton, 1999; Ragins & McFarlin, 1990), and a demographic questionnaire. The information collected was focused on the doctoral students' perceptions of their primary mentor. This information was obtained through the use of the web-based survey tool Survey Monkey.

### **Mentor Role Instrument (MRI)**

The MRI (Ragins & Cotton, 1999; Ragins & McFarlin, 1990) consists of 37 statements, which identify the relational (psychosocial) and instructional (career) role-based behaviors the mentor displays in the mentoring relationship and the overall satisfaction within the relationship. The five mentoring roles in the career (instructional) dimension subscale are defined by the mentors' ability to: sponsor, coach, protect, challenge, and promote and measured by 15 items, three items for each role (Dilmore et al., 2010). The six mentoring roles in the psychosocial (relational) dimension subscale are defined by the mentors' engagement as: a friend, social

associate, parent, role model, counselor, and acceptor and measured by 18 items, three items for each role (Dilmore et al., 2010). Overall satisfaction is measured in a subscale consisting of four items. Responses are provided on a 7-point Likert scale ranging from “Strongly Disagree” to “Strongly Agree.” All items start with “My mentor,” and include sample items such as: “is someone I can confide in,” “sees me as being competent,” and “is someone I am satisfied with” (Dilmore et al., 2010; Ragins & Cotton, 1999; Ragins & McFarlin, 1990).

Ragins and McFarlin’s (1990) MRI was originally developed to measure the perceptions of mentor roles in cross-gender relationships. The survey was administered to employees of three research and developmental organizations in the Southwestern part of the United States (Ragins & McFarlin, 1990). Ragins and McFarlin received 510 responses (58% response rate) and 181 of those respondents (35%) reported having a cross-gender mentor. The 181 respondents (35%) that met the researcher’s criteria were the population that served to norm the instrument. This sample produced reliability coefficients for the mentor roles ranging from .66 to .94 (Ragins & McFarlin, 1990).

Ragins and Cotton (1999) further tested the established reliability and preliminary evidence of validity (Ragins & McFarlin, 1990) of the MRI and created a four item satisfaction subscale in their study examining the effects of the gender composition of the mentoring relationship on the mentor functions and outcomes. The MRI was utilized, in their quantitative study sampling 614 participants, to measure mentor functions and mentor satisfaction (Ragins & Cotton, 1999). Ragins and Cotton found within their study the coefficient alpha level of the eleven mentor roles ranged from .63 to .91 and the coefficient alpha for the satisfaction subscale was .83.

Dilmore et al. (2010) explored the psychometric properties of the MRI with 141 participants, in an academic medicine setting, through a quantitative study designed to evaluate the instruments reliability and validity (Ragins & Cotton, 1999; Ragins & McFarlin, 1990). Dilmore et al. found the Pearson correlations within factors ranged from .57 to .93 with 75% of the correlations at .69 or higher, which is an indication of strong inter-item reliability. In addition, strong internal consistency was indicated by the Cronbach alpha value for the career (instructional) dimension, which was .95, and for the psychosocial (relational) dimension, which was .93 (Dilmore et al., 2010). Item homogeneity was also indicated due to the alpha values ranging in the career (instructional) roles from .87 to .97 and in the psychosocial (relational) roles from .82 to .94 (Dilmore et al., 2010). In addition, Dilmore et al. asserted the presence of factorial validity and concurrent validity in the correlations between each dimension.

### **Demographic Questionnaire**

A demographic questionnaire was utilized in this study. The demographic information collected provided information specific to research productivity for the dependent variables. In addition, several potential confounding or extraneous variables, such as the Carnegie classification of the institution, were identified and collected to control for in the statistical analysis (Heppner et al., 2008; Tabachnick & Fidell, 2007). Descriptive statistics were utilized to analyze this information such as frequency distributions and measures of central tendency to provide additional context to the data collected.

### **Participants and Data Collection**

The participants were a purposive sampling of doctoral-level students' enrolled in Council for Accreditation of Counseling and Related Educational Programs (CACREP) accredited counseling programs in the United States. Electronic correspondence was sent to all

CACREP accredited doctoral program chairs, CACREP liaisons, departmental administrative assistants, or other faculty designees that requested the participation of their doctoral students in the study. Each was asked to forward the email to all potential participants and to indicate whether or not they had forwarded the information. The email contained a cover letter that explained the purpose of the study and a link to the informed consent and questionnaires in the web-based tool Survey Monkey.

Once the participants received the information by email they were able to access the informed consent and questionnaires through the link to the web-based tool Survey Monkey. After agreeing to participate in the study, the doctoral students completed the demographic questionnaire and the Mentor Role Instrument (MRI) (Ragins & Cotton, 1999; Ragins & McFarlin, 1990). The original sample for quantitative analysis consisted of 162 doctoral students; however, participants that did not complete the demographic information and the survey in its entirety ( $n = 31$ ) were excluded from the final analysis. This resulted in a sample size of 131 participants.

### **Statistical Analysis**

Descriptive statistics were utilized to analyze the items and information on the demographic questionnaire that was provided by the participants. In addition, frequency distributions were utilized to identify the primary mentor roles as operationalized by the MRI with the identification as a primary role defined by at least 10 participants selecting these role based behaviors (Dilmore et al., 2010; Ragins & Cotton, 1999; Ragins & McFarlin, 1990). Research productivity in the form of publications, presentations, and grants with research mentoring relationships of doctoral students were assessed in the primary and supplementary research questions. The primary research question, “What are the group differences in the

classification of productivity of doctoral students?” was examined through a factorial Multivariate Analysis of Variance (MANOVA).

### **Factorial MANOVA**

A factorial MANOVA was utilized because there was more than one independent variable and more than one dependent variable and it determined mean group differences (Faherty, 2008; Tabachnick & Fidell, 2007). Three assumptions must have been met before conducting the factorial MANOVA including: an independence of observations, dependent variables that must have been normally distributed, and that there must have been homogeneity of variance (Tabachnick & Fidell, 2007). These assumptions needed to be met during the data analysis procedure and were attended to in several ways. The independence of observations was met through the sampling plan, which involved the distribution of the survey link being forwarded to the individual doctoral students’ email addresses (Tabachnick & Fidell, 2007). The normal distribution of the dependent variables was analyzed through skewness, kurtosis, outliers, and power analysis (Tabachnick & Fidell, 2007). Lastly, homogeneity of variance was assessed through a review of the standard deviations of each cell (Tabachnick & Fidell, 2007). The factorial MANOVA that was conducted to explore the group differences in the classification of productivity of doctoral students yielded several results. The groups utilized in data analysis were research mentor role, gender, ACES region, and ethnicity. Each research mentor role was analyzed in conjunction with gender and ACES region and then subsequently analyzed with just ethnicity and the research mentor role. Due to the lack of variance in ethnicity responses this procedure was put in place to gain the most accurate representation of the data. In addition, primary mentor roles were coded as a dichotomous variable in data analysis to determine if the participants’ research mentors were manifesting these roles. Primary mentor roles were

determined by the participants that had high scores on each of the corresponding items in Mentor Role Instrument (MRI) and by at least 10 participants selecting these role-based behaviors. The following section reports the multivariate results for all the groups utilized in data analysis such as research mentor role, gender, ACES region, and ethnicity. Statistically significant results also reflect the univariate analysis, mean, and standard error values. The applicable mean and standard error values for the mentor roles were reported as “primary” and “N/A” to indicate the directionality of the results.

## **Results**

### **Descriptive Statistical Data Analysis**

The participants' ages ranged from 24 years old to 61 years old, with a mean age of 34.5, and standard deviation of 8.5. Of the 131 participants, 74.8% identified as female (n = 98) and 25.2% identified as male (n = 33). The majority of the sampled participants identified their sexual orientation as heterosexual (n = 110, 84.0%). In the classification of their ethnic identity, 96 participants (73.3%) reported White (Non-Hispanic). In addition, participants were given the opportunity to self-identify additional categories that were not already listed. In the reporting of current relationship status, the highest amount of participants 45.0% (n = 59) identified as married.

Program, university, and regional specific information (N = 131) were provided regarding the sampled population's doctoral studies. The participants reported the current phase of their doctoral program, which was intended to ascertain how far along the students were in their doctoral studies. Thirty seven point four percent (n = 49) of the participants reported they were completing coursework, 22.9% (n = 30) of the participants reported they were preparing for comprehensive exams within the next six months, 14.5% (n = 19) of participants reported having



successfully passed comprehensive exams and only having the dissertation to complete, and 25.2% (n = 33) of participants reported having proposed their dissertation and collecting data. In reference to years of engagement as a doctoral student, the highest number of participants 32.1% (n = 42) were in their second year and the lowest number of participants 6.1% (n = 8) were in their fifth year. Self-reported data showed fewer than five of the participants were in their sixth year, ninth year, and tenth year.

Participants were also asked about the amount of funding they received to complete their doctoral degree. The greatest number of participants 35.1% (n = 46) reported they received 100% funding to complete their degree and the lowest number of participants 5.3% (n = 7) reported they received 25%-49% funding to complete their degree. The majority of the sampled participants (n = 70, 53.4%), did not know the Carnegie Research Classification of their institution, followed by reporting a High Research Activity: RU/H classification (n = 24, 18.3%), followed by reporting a Doctoral/Research Universities: DRU classification (n = 22, 16.8%), and reporting a Very High Research Activity: RU/VH classification (n = 15, 11.5%).

In the Association of Counselor Education and Supervision (ACES) region where the doctoral students resided the rocky mountain (RMACES) region and western (WACES) region were combined for data analysis. The highest numbers of participants 56.5% were from the southern (SACES) region (n = 74) and the least number of participants 7.6% were from the North Atlantic (NARACES) region (n = 10). Research mentor demographic information was also identified by the sample population (N = 131). The majority of the participants presented their research mentor as female (n = 85, 64.9%), followed by the presentation of their research mentor as male (n = 45, 34.4%), and the presentation of their research mentor as transgendered

(n = 1, 0.8%). In the classification of their research mentors' ethnic identity, the highest percentage of participants 78.6% (n = 103) identified their research mentor as White (Non-Hispanic), and the lowest percentage of participants 0.8% (n = 1) identified their research mentor as Biracial. Less than five of the participants self-identified their research mentor as Indian, Multi, and not sure.

Participants were asked the academic rank of their research mentor and primarily reported their research mentor being a tenured faculty member 72.5% (n = 95), while the least amount of participants reported their research mentor as an adjunct or clinical faculty member 3.0% (n = 4), and less than five of the participants self-reported their research mentor as a core faculty member. Participants reported the venue or area of expertise of their research mentor, which was intended to ascertain the location and type of research mentor. Eighty four point seven percent (n = 111) of the participants reported their research mentor was a counseling faculty member at their current institution contrasted to only 0.8% (n = 1) of the participants who reported that their research mentor was a statistical consultant. Less than five of the participants self-reported their research mentor was a marriage and family therapy faculty member at their current institution or had an area of expertise in School Counseling and LGBTQ issues. The types of research productivity classified as publications that participants reported which was also utilized in the multivariate data analysis (N = 131). The participants reported the number of publications (journal articles, books or book chapters, and other publications) that they authored or co-authored including in press materials ranging from zero to four. The first type of publications that were reported was the number of journal articles. Three point eight percent (n = 5) of the participants reported that they authored or co-authored four journal articles, 5.3% (n =

7) of the participants reported that they authored or co-authored three journal articles, 12.2% (n = 16) of the participants reported that they authored or co-authored two journal articles, 23.7% (n = 31) of the participants reported that they authored or co-authored one journal article, and 50.4% (n = 66) of the participants reported that they authored or co-authored zero journal articles. Point eight percent (n = 1) of the participants self-reported that they authored or coauthored eight journal articles, 0.8% (n = 1) of the participants reported that they authored or coauthored seven journal articles, and 3.1% (n = 4) of the participants reported that they authored or co-authored six journal articles.

The second type of publications research productivity the participants reported was the number of publications of books or book chapters that they authored or co-authored including in press materials ranging from zero to four. Two point three percent (n = 3) of the participants reported that they authored or co-authored four books or book chapters, 0.8% (n = 1) of the participants reported that they authored or co-authored three books or book chapters, 4.6% (n = 6) of the participants reported that they authored or co-authored two books or book chapters, 16.0% (n = 21) of the participants reported that they authored or co-authored one book or book chapter, and 2.3% (n = 3) of the participants reported that they authored or co- authored zero books or book chapters. Point eight percent (n = 1) of the participants self-reported that they authored or co-authored eight books or book chapters, and 0.8% (n = 1) of the participants reported that they authored or co-authored six books or book chapters.

Authoring or co-authoring other publications such as newsletter articles, including in press materials, was the third type of publications research productivity that was reported by the participants ranging from zero to four. Six point one percent (n = 8) of the participants reported that they authored or co-authored four other publications, 4.6% (n = 6) of the participants

reported that they authored or co-authored three other publications, 12.2% (n = 16) of the participants reported that they authored or co-authored two other publications, 15.3% (n = 20) of the participants reported that they authored or co-authored one other publication, and 57.3% (n = 75) of the participants reported that they authored or co-authored zero other publications. Point eight percent (n = 1) of the participants self-reported that they authored or co-authored 30 other publications, 0.8% (n = 1) of the participants reported that they authored or co-authored over 20 other publications, 2.3% (n = 3) of the participants reported that they authored or co-authored eight other publications, and 0.8% (n = 1) of the participants reported that they authored or coauthored six other publications.

Participants identified the types of research productivity classified as presentations and this information was also utilized in multivariate data analysis (N = 131). The participants reported the number of presentations (national, regional, and local presentations) that they were a primary presenter or co-presenter ranging from zero to four. Six point one percent (n = 8) of the participants reported that they presented or co-presented four national presentations, 11.5% (n = 15) of the participants reported that they presented or co-presented three national presentations, 19.1% (n = 25) of the participants reported that they presented or co-presented two national presentations, 17.6% (n = 23) of the participants reported that they presented or co-presented one national presentation, and 37.4% (n = 49) of the participants reported that they presented or co-presented zero national presentations. One point five percent (n = 2) of the participants self reported that they presented or co-presented twelve national presentations, 1.5% (n = 2) of the participants reported that they presented or co- presented ten national presentations, 0.8% (n = 1) of the participants reported that they presented or co-presented nine national presentations, 0.8% (n = 1) of the participants reported that they presented or co-presented eight national

presentations, 0.8% (n = 1) of 1.5% (n = 2) of the participants reported that they presented or co-presented six national presentations, and 1.5% (n = 2) of the participants reported that they presented or co-presented five national presentations.

The second type of research productivity classified as presentations that the participants reported was the number of regional presentations that they were a primary presenter or co-presenter ranging from zero to four. Eleven point five percent (n = 15) of the participants reported that they presented or co-presented four regional presentations, 9.2% (n = 12) of the participants reported that they presented or co-presented three regional presentations, 18.3% (n = 24) of the participants reported that they presented or co-presented two regional presentations, 19.1% (n = 25) of the participants reported that they presented or co-presented one regional presentation, and 27.5% (n = 36) of the participants reported that they presented or co-presented zero regional presentations. Point eight percent (n = 1) of the participants self-reported that they presented or co-presented over thirty regional presentations, 0.8% (n = 1) of the participants reported that they presented or co-presented twenty regional presentations, 0.8% (n = 1) of the participants reported that they presented or co-presented over ten regional presentations, 0.8% (n = 1) of the participants reported that they presented or co-presented nine regional presentations, 1.5% (n = 2) of the participants reported that they presented or co-presented eight regional presentations, 2.3% (n = 3) of the participants reported that they presented or co-presented seven regional presentations, 3.1% (n = 4) of the participants reported that they presented or co-presented six regional presentations, and 4.6% (n = 6) of the participants reported that they presented or co-presented five regional presentations.

Being a primary presenter or co-presenter at local presentations was the third type of presentations research productivity that was reported by the participants ranging from zero to

four. Nine point nine percent (n = 13) of the participants reported that they presented or co-presented four local presentations, 13.0% (n = 17) of the participants reported that they presented or co-presented three local presentations, 17.6% (n = 23) of the participants reported that they presented or co-presented two local presentations, 16.0% (n = 21) of the participants reported that they presented or co-presented one local presentation, and 22.9% (n = 30) of the participants reported that they presented or co-presented zero local presentations. 0.8% (n = 1) of the participants self-reported that they presented or co-presented countless local presentations due to job requirements, 0.8% (n = 1) of the participants reported that they presented or co-presented over one hundred local presentations, 0.8% (n = 1) of the participants reported that they presented or co-presented over thirty local presentations, 0.8% (n = 1) of the participants reported that they presented or co-presented thirty local presentations, 0.8% (n = 1) of the participants reported that they presented or co-presented over twenty local presentations as part of their job, 1.5% (n = 2) of the participants reported that they presented or co-presented fourteen local presentations, 0.8% (n = 1) of the participants reported that they presented or co-presented eleven local presentations, 5.3% (n = 7) of the participants reported that they presented or co-presented ten local presentations, 1.5% (n = 2) of the participants reported that they presented or co-presented eight local presentations, 0.8% (n = 1) of the participants reported that they presented or co-presented seven local presentations, 2.3% (n = 3) of the participants reported that they presented or co-presented six local presentations, and 3.8% (n = 5) of the participants reported that they presented or co-presented five local presentations.

The final type of research productivity that participants identified were classified as grants and that information was also utilized in the multivariate data analysis (N = 131). The participants reported the number of grants (national, on campus, and other grants) that they wrote

or co-wrote including grants they did not receive funding for ranging from zero to four. Point eight percent ( $n = 1$ ) of the participants reported that they wrote or co-wrote four national grants, 1.5% ( $n = 2$ ) of the participants reported that they wrote or co-wrote three national grants, 6.1% ( $n = 8$ ) of the participants reported that they wrote or co-wrote two national grants, 8.4% ( $n = 11$ ) of the participants reported that they wrote or co-wrote one national grant, and 82.4% ( $n = 108$ ) of the participants reported that they wrote or co-wrote zero national grants. Point eight percent ( $n = 1$ ) of the participants self-reported that they wrote or co-wrote nine national grants.

The second type of grants research productivity the participants reported was the number of number of on campus grants that they wrote or co-wrote ranging from zero to four. Point eight percent ( $n = 1$ ) of the participants reported that they wrote or co-wrote four on campus grants, 0.8% ( $n = 1$ ) of the participants reported that they wrote or co-wrote three on campus grants, 4.6% ( $n = 6$ ) of the participants reported that they wrote or co-wrote two on campus grants, 14.5% ( $n = 19$ ) of the participants reported that they wrote or co-wrote one on campus grant, and 78.6% ( $n = 103$ ) of the participants reported that they wrote or co-wrote zero on campus grants. Point eight percent ( $n = 1$ ) of the participants self-reported that they wrote or co-wrote six on campus grants.

Writing or co-writing other grants was the third type of grants research productivity that was reported by the participants ranging from zero to four. Point eight percent ( $n = 1$ ) of the participants reported that they wrote or co-wrote four other grants, 1.5% ( $n = 2$ ) of the participants reported that they wrote or co-wrote three other grants, 5.3% ( $n = 7$ ) of the participants reported that they wrote or co-wrote two other grants, 8.4% ( $n = 11$ ) of the participants reported that they wrote or co-wrote one other grant, and 84.0% ( $n = 110$ ) of the participants reported that they wrote or co-wrote zero other grants.

## Factorial MANOVA Data Analysis

Table 1. MANOVA results for Research Mentor Sponsor Role and Total Productivity (N = 131)

Sponsor Role	.911	3.701	3	113	.089
Gender	.999	.041	3	113	.001
ACES Region	.916	1.123	9	275.163	.029
Ethnicity	.999	.041	3	113	.039
Interaction (Gender, ACES)*	.927	.972	9	275.163	.025
Interaction (Ethnicity)*	.966	.339	12	312.490	.011

  

Variance Source	Wilks Lambda	Omnibus F	df1	df2	n <sup>2</sup>
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\*All interaction effects include the sponsor role

Factorial MANOVA data analysis illustrated the results of the classification of productivity and the sponsor role of the research mentor. The multivariate data analysis revealed a significant effect of the sponsor role (Wilk's Lambda = .911,  $F(3, 113) = 3.701$ ,  $p = .014$ ) on the total amount of research productivity specified as publications, presentations, and grants. In the follow-up univariate analysis, there was a significant effect of the sponsor role on the number of publications ( $F(1, 115) = 10.378$ ,  $p = .002$ , "primary" mean = 6.433(.507), "N/A" mean = 3.933(.587)), and on the number of presentations ( $F(1, 115) = 5.511$ ,  $p = .021$ , "primary" mean = 11.840(1.116), "N/A" mean = 7.830(1.293)). However, there was no significant effect of the sponsor role on the number of grants ( $F(1, 115) = .950$ ,  $p = .332$ , "primary" mean = 4.058(.315), "N/A" mean = 3.588(.365)). In addition, multivariate analysis of ethnicity found that there was no significant effect of ethnicity (Wilk's Lambda = .889,  $F(15, 326.147) = .948$ ,  $p = .511$ ) on the total amount of research productivity. Multivariate analysis also determined that there was no significant effect of gender (Wilk's Lambda = .999,  $F(3, 113) = .041$ ,  $p = .989$ ) and ACES region (Wilk's Lambda = .916,  $F(9, 275.163) = 1.123$ ,  $p = .347$ ) on the total amount of research



productivity. In addition, there were no significant interaction effects between the sponsor role, gender, and ACES region (Wilk's Lambda = .927,  $F(9, 275.163) = .972$ ,  $p = .463$ ) and between the sponsor role and ethnicity (Wilk's Lambda = .966,  $F(9, 312.490) = .339$ ,  $p = .981$ ). As illustrated in table 1, all results are primarily associated with small effect sizes (less than .10).

## **Discussion**

### **Limitations**

While this study has the potential to provide data that will have implications for the field of counseling there are certain limitations that exist. One limitation is due to the purposive sampling of doctoral students in CACREP accredited programs (Faherty, 2008; Heppner et al., 2008). As a result, the opportunity to obtain a representative sample of all doctoral students in counseling education programs did not exist. Although due to the small effect sizes, the research study did obtain statistical significance, the sample size of 131 participants did not reach the desired number for generalizable results. Within the sample of doctoral students ( $N = 131$ ) in CACREP accredited programs, there is an additional limitation of an online self-report survey which could have elicited socially desirable responses. Also, not every variable within this sample in relation to research mentoring experiences could be explored in the course of one quantitative study.

### **Implications**

The sponsor role subscale of the MRI addressed the research mentor's influence in the organization that benefits or advances the mentees career. Helping a mentee obtain a desirable position would be an example of the type of duties a researcher would emulate in the sponsor role (Ragins & Cotton, 1999; Ragins & McFarlin, 1990). This is congruent with Sambunjak et al.'s (2006) findings in academic medicine that identified research mentorship as impacting

overall research productivity. This could further be attributed to the mentee perceptions that by having a mentor they have an advocate for their overall needs within the organization and in their career.

While having a mentor advocate may be a part of a formal mentoring experience, the findings of Ragins and Cotton (1999) that discussed gender composition of mentoring relationships in a formal and informal capacity do not correlate to this study. The results yielded no significant effects for gender and the classification of productivity of doctoral students. This correlated to Briggs' (2006) dissertation that found no statistical significance of gender related differences in pretenured faculty within counselor education. In addition, the results of this study failed to reject the null hypothesis in favor of the alternative hypothesis due to no significant effects for ethnicity and the classification of productivity of doctoral students. While Holcomb-McCoy and Addison-Bradley (2005) supported retaining faculty of color to influence racial climate, the research mentors of the sampled participants were primarily identified as White (Non-Hispanic) (n = 103, 78.6%). This suggests that the national representation of the racial climate of doctoral students and their research mentors is based on the majority population. Also, the majority of the nationally sampled participants identified from the southern (SACES) region (n = 74, 56.5%), which created less opportunities for regional differences to emerge. In addition, there were no statistically significant interaction effects between the research mentor role, gender, ethnicity, and ACES region and the classification of research productivity.

### **Recommendations for Future Research**

While statistically significant findings are generalizable, the value of extensive participant experiences is also important. A phenomenological or grounded theory approach could provide additional insight into the individual experiences of doctoral students in the field

of counseling. This data could provide themes and meaning making experiences, which presents additional support of the doctoral student perceptions of their research mentoring relationships. In addition, a longitudinal study could be conducted following doctoral students through the tenure process to explore possible changes in their needs regarding their research mentoring relationships. This study could be a quantitative inquiry or mixed methods design that incorporates a phenomenological or grounded theory approach. This data would have the potentiality to explore the research mentoring experience across time and identify differences in the research mentoring experience.

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