The Research Self-Efficacy, Interest in Research, and Research Mentoring Experiences of Doctoral Students in Counselor Education

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Abstract

Doctoral programs in counselor education are believed to be developing effective researchers, yet there are few studies that examine the research constructs within counselor educator programs. The purpose of this study is to investigate a national sample of doctoral counselor education students' research quality by measuring three constructs: 1) research self-efficacy, 2) interest in research and 3) research mentoring. A cross-sectional, correlational research design was used to test if doctoral students programs could predict these constructs. Also, the study investigated whether students' research practices, (e.g., publishing refereed journal articles, et al.) correlated with their response levels.

Keywords: counselor education and development, interest in research interest, research self-efficacy, research mentoring

Keywords

Author's Notes

Exploring the Relationship Between Research Self-Efficacy, Interest in Research, and Research

Mentoring Experiences of Doctoral Students in Counselor Education

The counseling profession is dependent on research in order to maintain and develop the field. Therefore, graduate training programs are accountable to properly train students how to research and report their results (Lambie, Sias, Davis, & Akos, 2008). The dispersing of research and sharing of clinical ideas is one of the standards of counseling set by the Council for Accreditation of Counseling and Related Educational Programs (CACREP) (2009) (Section II, G.8.a.). Research is also a necessary part of doctoral programs, whether the student's career goal is that of practitioner or academic (Love, Bahner, Jones, & Nilsson, 2007).

Students who expect to transition from learner to practitioner need a curriculum that supports that transition, which should be an essential component of doctoral counselor education programs (DCEPs) (Rawls, 2008; Waalkes, 2016). Since research is an expectation of training and future practice, it should be modeled in doctoral counselor education programs (DCEP) so that students become well-prepared independent researchers (Lambie & Vaccaro, 2011). The value of strong research practices in both academic pursuits and general practice provides the counselor field with a rich, developing resource of knowledge for the future growth of the field. However, many counselor education programs do not provide adequate research training and mentoring of their students or junior faculty (Borders et al., 2011; Lambie et al., 2008; Waalkes, 2016; Waalkes, et. al., 2018). Further, many doctoral students report having lower confidence in their research abilities despite having a training environment that was rigorous in research training (Lamar & Helm, 2017).

Research Self-Efficacy, Interest in Research and Mentoring Experiences

Research self-efficacy (RSE), interest in research (IR), and research mentoring (RM) are essential components to developing the research skills of doctoral students in counselor

education (Hollingsworth & Fassinger 2002). The development of doctoral students into effective researchers is greatly influenced by the variables of RSE, IR and RM. These three constructs are measured within this study and are described below.

Research Self-Efficacy

In Bandura's (1977) social cognitive theory, self-efficacy is defined as an opinion or decision making process (i.e., use of a judgment by the individual) of an individual's ability to perform some action. In his description of self-efficacy, Bandura lists four sources of self-efficacy: (a) performance accomplishments, (b) vicarious experience, (c) verbal persuasion, and (d) emotional arousal. The first source of self-efficacy (i.e. performance) is based on an individual's personal experience while the remaining three sources are based on outside influences. RSE has been found to be a strong predictor of students' IR and related activities (e.g. Bieschke, Bishop, & Garcia, 1996). Lambie and Vacarro (2011) conducted a national study of 89 counselor education doctoral students and found that doctoral students with higher degrees of RSE have higher degrees of IR. Additionally, 69.7 percent of the participants in the study ($n = 59$) reported no scholarly activity and lower RSE scores than those participants who had scholarly activity.

Prior experiences conducting research have been shown to facilitate higher degrees of RSE in doctoral students (Gattis, 2008). Such studies found that higher levels of research experience lead to greater gains in RSE (Bieschke, Bishop, & Garcia, 1996). While there have been studies examining the construct of RSE with doctoral students, there have been limited studies examining RSE among counselor education doctoral students (Lambie & Vacarro, 2011).

Interest in Research

IR for students in DCEPs can be connected to having higher degrees of RSE (e.g., Lambie & Vaccaro, 2011). The connection between these two can also be found in Social

Cognitive Career Theory (SCCT, Lent, Brown, & Hackett, 1994). According to SCCT, an individual's career choice relates to an individual's self-efficacy and interest. IR can be promoted within a training setting if the aspects of the environment and faculty promote research and model research behaviors (Royalty et al., 1986). While IR can be promoted, it is still does not receive enough attention in doctoral training environments and warrants further study (Lambie & Vacarro, 2011).

Bishop and Bieschke (1998) examined the influences of IR using a national sample of 184 counseling psychology students. The influences of RSE, research outcome expectations, and vocational choice on IR were examined. They found that the three factors examined were significant influences of IR.

Webb (2004) conducted a study with 73 participants. Participants were in their very first class of their psychology and counseling training programs. Results of the study found that participants showed greater IR when the program's emphasis was on research. Participants in programs that emphasized therapeutic training showed a lower IR. West, Kahn, and Nauta (2007) investigated the effect of learning style (i.e., visual vs. auditory learning) on IR with 132 psychology graduate students from 11 universities across the United States. The results of the study found that verbal learners showed higher IR than students who were more visual.

Research Mentoring

According to Gelso (1979), research is an essential component of the training environment for new professionals in counseling, and Hollingsworth and Fassinger (2002) believe that mentoring in research should be a focus in students' training environment. Although this relatively new construct in higher education is gaining increased attention, it is still not well researched in the literature (e.g., Briggs & Pehrsson, 2008), but it is believed that mentoring can

facilitate growth for the recipient and can develop a strong bond between the mentor and mentee, suggesting it is an essential component of academic training (Hollingsworth & Fassinger, 2002).

Such mentoring is expressed through the mentor-protégé relationship that occurs between a more experienced researcher/academic with a novice or inexperienced researcher/academic or student. Doctoral students often expect that they will gain a working knowledge of academic skills such as research through their respective mentoring experiences (Gelso, 1979), and students' views of their mentoring relationships can play a pivotal role in how they view themselves as efficient researchers (Hollingsworth & Fassinger, 2002).

Four studies found in the literature examined the construct of RM using the Research Mentoring Experiences Scale (RMES) within DECPs and other related fields. Rawls (2008) conducted a study using the RMES with a convenient sample of 577 students from the Association of Counselor Education and Supervision. Rawls found that positive RM experiences resulted in higher degrees of RSE. Jones (2006) used the RMES with a sample of 121 counseling psychology doctoral students in their second year or later of an APA accredited program. Jones's results indicated mentoring experiences predicted a satisfaction with the graduate training, but did not focus on future research productivity.

Hollingsworth and Fassinger (2002) examined the RMES with 194 third- and fourth-year counseling psychology doctoral students. They found that positive mentoring experiences also serve as good predictors for research behavior (i.e. scholarly publications or presentations). Lee (2009) conducted a study with 215 doctoral graduate students from clinical and counseling psychology programs and found that students who reported positive RM experiences and positive aspects of their training environments were more likely to engage in scholarly activity.

Need for more research mentoring. Within doctoral programs is a high expectation that students become proficient in teaching, supervision and research. In fact, CACREP (2009) promotes the principle that research is crucial for informing evidence-based practice. This view is evident, especially since DECPs and similar doctoral programs create curriculum utilizing evidence-based practices. Scholarly activities, such as publication, presentations, and scientific inquiries, help to advance the field of counseling (Boyer, 1990). Research publications are a primary gauge for determining the effectiveness and quality of institutions of higher learning (McGrail et al., 2006). The value of quality research supports other disciplines within the field as teaching, grant writing and presentations (Erwin, 2001). Even the standard method for social science doctoral programs, known as the Scientist-practitioner model (Ridley & Laird, 2015), requires research-based training as a major component in Ph.D. programs (Baker & Benjamin, Jr. 2000). The field of counseling is dependent on research for the advancement of its theoretical constructs and practice (Lambie et al., 2008), and practitioners are often held accountable for using evidence-based methods (Sexton & Whiston, 1996). For the practice of DECPs to develop, better research studies should be conducted on DECPs' impact on the quality of student research being produced (Borders et al., 2011; Lambie & Vacarro, 2011).

Since a strong research background is critical to an effective counseling practice (Heppner & Anderson, 1985), why is there such disconnect between research and what is promoted within DECP curricula (Lanning, 1990)? One practice that can improve the quality and productivity of research within the field of counseling is to include in the DECP curriculum an opportunity for students to work with established scholars (Gelso, 1979; i.e., mentoring.) RM is understood to be fairly limited for doctoral students and new faculty (e.g., Lambie et al., 2014), and there is little research available examining the research competencies of doctoral students and new faculty in counselor education fields (e.g., Lambie & Vacarro, 2011; Waalkes,

2016). For any field of study to grow, it should develop a mechanism of testing itself for improvement. Thus, the field of counselor education needs to include studies that investigate research competencies and mentoring of both new faculty and doctoral students in DECPs (e.g., Briggs & Pehrsson, 2008; Dollarhide, Gibson, & Moss, 2013). Also, the need for the continuation of mentoring for new faculty will help to create consistency within the professorate of DECPs (e.g., Borders et al., 2011), yet there continues to be a gap between research and practice (Owenz & Hall, 2011), and many practitioners see no value for doing research (Robinson III, 1994).

Research productivity is a requirement in DECPs and for most tenure-track faculty positions, yet many graduates in DECPs feel unprepared to conduct quality research (West et al., 1995), and little is done that examines research activities within the field (Briggs, 2006). Some studies have demonstrated a positive impact between a strong research focus in DECPs' curriculum and a higher confidence and scholarly activity of post-graduate students. Miller 2006) found that as the frequency of scholarly activity increases, students spent less time completing their programs. The same study also found that scholarly activity increased as social context increased. The lack of research into the quality of research within DECPs may be leading to a decline in students' applying to DECPs (Maples & Altekruse, 1993). Gordon, et al. (1994) reviewed the research productivity of 78 CACREP accredited programs. They looked at the publications produced by these 78 programs in approximately 6,322 journals and found that the faculty with the strongest research-focused curriculum produced over 13.7% of total publications within the journals examined. They concluded that if students want to become strong researchers, they should attend programs where research is highly emphasized. Rawls (2008) found that stronger mentoring experiences were better indicators of occupational commitment.

The research environment is important in developing researchers (Gelso, 1979). Factors that contribute to the research environment are students' IR (Bieschke, Bishop, & Herbert, 1995) and the doctoral students' identification as researchers and leaders (Lockard III, et al., 2014). Yet, an equally important but little-focused factor is the importance of mentoring (Geslo & Lent, 2000). Hollingsworth and Fassinger (2002) found that a student's mentoring experience was a good predictor of subsequent productivity, concluding that there was a strong correlation between the training environment and the experience of the student. It would be good practice for research institutions to employ interventions that allow researchers (both doctoral students and faculty) better opportunities to develop research skills and overcome the barriers that prevent production of scholarly work (Borders, et al., 2011; Dollarhide, Gibson, & Moss, 2013; Gattis, 2008; Lambie & Vacarro, 2011).

Purpose of the Study

While it is understood that research is necessary in the training of doctoral students, there is limited research investigating the research competencies within the field of counselor education (e.g., Lambie & Vaccaro, 2011). Also, little investigation as to the relationship between RSE, IR and RM is done. The purpose of this study was to examine the relationship between RSE, IR, and RM. Additionally, the study looked at the impacts of doctoral students' year of preparation within their programs (i.e., 1st year student, 2nd year student, etc.) and the impact years within the DCEP might have on the three constructs. Also, an additional analysis will be compared to view the impact that students' demographics might have on the three constructs. Four research questions were examined for the study. They were:

1) Is there a correlation between RSE, RM, and IR.

2) Does year of preparation for doctoral students correlate with RSE, IR, and RM?

3) Do demographic variables of doctoral students (defined within the study as age, gender, education level, scholarly activity, race/ethnicity, location, specialization, doctoral-level research courses taken, and professional aspirations) correlate with RSE, IR, and RM?

4) Can structural equation modeling (SEM) improve the observed effect of RM on RSE?

Method

Procedure and Participants

The study utilized purposive sampling procedures to allow for the collection of a larger sample size in a shorter time (Trochim & Donnelly, 2008). The population chosen for this study consisted of students enrolled in fifty-nine DCEPs, which were accredited programs by CACREP at the time of this study. Students were invited to participate in the study. A survey site was created to allow for electronic administration of the survey instruments. There were a total of 261 participants in the study. The participants were comprised of 75.5% female, 23.8% male and .8% other or unspecified. A majority of participants were between the ages of 31-40 (41.3%) with the next largest age group being 23-30 (31.1%). Most of the participants (34.5%) had completed a Master of Arts degree in counseling prior to starting doctoral training. A large part of the participants (85.1%) were pursuing a PhD in counselor education. Of note, 65.9% of the participants reported having a research mentor prior to starting their doctoral training. An electronic administration of the survey instruments was made available to the participants. The original electronic submissions consisted of 350 surveys with 107 being incomplete, leaving a total of 243 usable surveys for the analysis. A total of 18 participants requested a hard copy of the survey, leaving a total population of 261. The universities' Institutional Review Board (IRB) gave permission to conduct the study.

Instruments

The constructs of interest for the study were RSE, IR, and RM. Three instruments were used to provide statistics for measurements of these constructs. RSE was measured by the RSE Scale (RSES; Greeley et al., 1989; IR was measured by the IR Questionnaire (IRQ; Bishop & Bieschke, 1994); and RM was measured by the RM Experience Scale (RMES; Hollingsworth & Fassinger, 2002).

The RSES is a 38-item scale. The instrument is designed to measure an individual's perceived ability to perform various research tasks (e.g., choose methods of data collection, execute experimental procedures. and integrate results with regard to the current literature). Participants are asked to rate the degree to which they feel confident in their ability to accomplish each item, ranging from 0 (*not confident*) to 100 (*totally confident*). Bieschke, Bishop, and Herbert (1995) reported a high internal consistency for the RSES total scale (.96) and found evidence of construct validity in their factor analysis. Other studies have supported the psychometric soundness of the RSES (e.g., Forester et a1., 2004: Unrau & Beck, 2004). The reliability of the RSES with these data was high, with an overall alpha coefficient score of .98 (Cohen. 1988).

The IRQ is a 16-item scale designed to measure participants' IR-oriented activities. Respondents gauge the degree of interest in a particular research task (e.g., conceptualizing a research study and conducting a literature review) on a 5-point Likert scale ranging from 1 (*very disinterested*) to 5 (*very interested*). The internal consistency of the IRQ was found to be high, with coefficient alphas of .89 (Bishop & Bieschke, 1994) and .90 (Bishop & Bieschke, 1998). Other studies have supported the psychometric soundness of the IRQ (e.g., Love, Bahner, Jones, & Nilsson, 2007). The current study had an alpha coefficient score of .94 (Cohen. 1988).

The RMES is a 28-item scale designed to measure respondents' perceptions with their RM experience. The RMES is a relatively new instrument in comparison to the RSES and the IRQ and thus does not have as extensive research on the internal consistency. There is limited research on the internal consistency of the RMES. In the four studies using the RMES, the internal consistency for the RMES was found to be .74 (Hollingsworth & Fassinger, 2002), .94 (Jones, 2006), and .95 (Lee, 2009). Rawls (2008) did not report the internal consistency of the item in the study. The RMES reliability for the current study had an alpha coefficient score of .97 (Cohen. 1988).

Additional demographic information was also provided by participants in the study. Demographic information collected was both general (gender, race, age) and items specific to counselor education (e.g. counseling experience, specialty, year of study, degree completed, et al.). Demographic variables were measured against the three constructs of interests to determine any correlational relationship. The location of the participants was included on the demographic sheet. Three self-rated items were included in the demographic questionnaire. The items used a 4-point Likert scale. Participants provided a rating for themselves on research methodology competency (RMC), IR methodology (IM), and how they would rate their current research mentor (CRM).

Analysis

Three separate analyses were completed for this study. The first analysis used a multiple linear regression model (MLR) to determine the relationship between the demographic variables collected in the study and each of the three constructs. RSE, IR, and MR were the dependent variables. A structural equation model (SEM) was utilized as a second analysis to confirm the results of the MLR. The regression analysis conducted looked at the correlation between the

three constructs, RSE, IR, MR, and the correlation between the demographic variables and each of the three constructs.

An analysis of variance (ANOVA) was the third analysis used to determine the relationship between the constructs (RSE, IR, and RM) and the demographic variables of year-of-study. Year-of-study was also correlated against the other demographics in the MLR. and the other demographic variables to accommodate a result to answer the research question regarding the correlation between year of study and RSE, IR, and RM. A two-tailed Person product moment correlation (r) was also calculated to show the strength of the relationship between the constructs and year-of-study.

The design was an ex-post facto, cross-sectional, correlational design. An ex-post facto design was used to analyze the variables in an existing state or past occurrence (Best & Kahn, 2006). The analysis of the study looked at the relationship between RSE, IR, MR and also considered the relationship of the demographics of first, second, third, and more than three-year graduate students and their RSE scores. Since these demographics could not be randomly assigned, and ex-post-facto model was best (Crowl, 1996). RSE, IR, MR were tabulated as continuous variables where RSE and were defined as dependent variables. The demographic variables were independent. The Statistical Package for Social Science (SPSS) for Windows, version 17.0 (2008) was used for the analysis.

Data Analysis

The study was designed as a cross-sectional, ex-post facto, correlational research design. The chosen design was selected to evaluate the variables in their natural state (i.e. no manipulation). Ex-post facto design was elicited to examine the variables in their current or existing state (Field, 2009). The purpose of the correlational research design was to understand the relationship between two or more variables (Ary, Jacobs, & Sorenson, 2010). With respect to

the current study, the researchers wanted to understand the relationship between the three constructs of RSE, IR, and RM. Additionally, the researchers wanted to determine if there was a difference in scores of these three constructs that were based on participants' self-reports of their year of study in the program. The statistical power that was used in the study was 80%. Setting the power at 80% at the .05 confidence level is the smallest amount acceptable for rejecting a false null hypothesis (Field, 2009). Cohen's (1992) sample size chart was utilized. The minimum sample size needed for this study would be 85 based on a power of 80%, a level of significance of 5%, and an effect size equal to $r = 0.3$. In order to ensure the minimum sample size, the research sought to obtain a sample of 170 participants owing to response rates of 50% in related studies (e.g., Lambie & Vaccarro, 2011).

The data received from the participants was organized and used SPSS (version 17.0) for analysis. Multiple linear regression was used in the statistical analysis which included Pearson product moment correlation (two-tailed) and analysis of variance (ANOVA). Multiple linear regression was used to determine if there was a significant relationship between RSE, IR, and RM. Since the researchers wanted to identify differences between groups (i.e., year of study), use of ANOVA procedures is appropriate since it is useful in making group comparisons (Ary, Jacobs, & Sorenson, 2010). Missing values for items were accounted for by using estimates of the mean (Field, 2009) to obtain scores for that item. The estimate of means procedure allowed for participants with a non-response to have a response for that item. Additionally, having a representative or mean response reduces the amount of variability between responses (Tabachnick & Fidell, 2007), allowing the researcher to make more accurate estimates. An item on the RMES was removed due to low response rate (18.4%) by the participants. An attempt was made to recover the missing item for this instrument. The missing item was attributed to a

technical issue on the electronic version of the survey. The data was analyzed for assumption violations. There were no violations identified.

Results

Participant Characteristics

Review of the demographic data of the participants indicated that the majority of the counselor education doctoral students in the study were female (75.5%, $n = 197$), with two individuals identifying their gender as "other/not specified". The age group most represented was 31 to 40 years of age (41.3%, $n = 98$) followed by 23 to 40 years of age (31 .1%, $n = 81$), 41 to 50 years of age (14.9%, $n = 39$), over 50 years of age (11.1%, $n = 29$), and not specified (1.5 %, $n = 4$). The year of study in their respective doctoral program was reported as, 54 (20.7%) participants reported being in their 1st year, 60 (23.0%) in their 2nd year, and 124 (47.5%) in their 3rd year (or greater), and 23 (8.8%) of participants not reporting year of study. The reported race/ethnicity revealed that 198 (75.9%) identified as White/non-Hispanic, 29 (11.1%) as Black/African American, 10 (3.8%) identified as Latino/Hispanic, 8 (3.1%) identified as Asian, 1 (.4%) identified as Pacific Islander, 8 (3.1%) as biracial, and 7 (2.7%) other/not specified. The demographic results were comparable with previous research (Lambie & Vaccaro, 2011).

The participants reported their area of counseling specialty prior to beginning doctoral studies as 132 (50 .6%) mental health/community counseling, 49 (18.8%) school counseling, 39 (14.9%) as other (e.g. rehabilitation counseling, pastoral counseling, student affairs), 15 (5.7%) as Counselor Education and Supervision, and 26 (10.0%) as marriage and family counseling. A majority of participants reported no scholarly publications (59 .4%. $n = 155$). The career aspirations reported were reported as follows: 170 (65.2%) wished to pursue a tenure track/faculty position; 30 (11 .5%) were pursuing a non-Tenured track instructors; 28 (10.7%) were pursuing a practitioner career; and 33 (12.6%) were labeled as other or unspecified.

Results for RSE

  RSES was used to obtain participants' RSE scores. The mean RSE score was 71.59 ($SD =$ 16.12, range = 17.37 to 98.95) for the participants. The scores for the RSE were consistent to other studies with doctoral students. For example, Bishkek, Bishop & Garcia's, (1996), study had mean RSE score of 71.05, an SD of 15.61 and range between 22.0 to 95.0. The RSE scores did not have a statistically significant relationship to the participants' gender, age, race/ethnicity, counseling experience, counseling area of specialization, and professional aspirations. A significant statistical relationship was observed between RSE and scholarly activity (i.e. refereed publications, presentations at national, international conferences). The relationship between scholarly activity and RSE scores is discussed next.

  The amount of scholarly activity the participants reported was statistically significant, F $(1, 51) = 6.579$, $p = .013$ for the data. The scholarly activity variable explained 11.4% of the variance in the RSE scores for these data. The doctoral students who had scholarly activity scored at a statistically significant higher level on the RSE than did the students with no scholarly activity. Additionally, the number of research courses taken reported was statistically significant, F $(2, 168) = 8.827$, $p = .013$ for the data. The number of research courses taken explained 9.5% of the variance in the RSE scores for these data. Regarding the demographic items of research methodology competency (RMC), IR methodology (IM) and rating of research mentor (RRM) and location, only the RMC and RRM variables were statistically significant. The RMC variable was statistically significant with, F $(3, 72) = 17.447$, $p < .001$ for the data and RRM was statistically significant, F $(4, 72) = 2.976$, $p = .025$ for the data.

Results for IR

  The IRQ was used to obtain participants' IR scores. The mean IRQ score was 3 .75 ($SD =$ .72, range = 1.63 to 5.00) for IR among the participants. This score was slightly higher than an

earlier study by Lambie and Vaccaro (2011) which had a mean IRQ score of 3.57. This study's

IRQ scores did not have a statistically significant relationship to the participants' race/ethnicity,

gender, age, counseling experience, counselor area of specialization and professional aspirations,

but did find statistical significance with scholarly activity to IRQ scores, F (1, 51) = 7.410, p =

.009 for the participants in the study and accounted for 12.7% of the variance. The demographic

variable RMC was statistically significant, F (3, 72) = 3.696, p = .016 for the data. The variable

IRM was statistically significant, F (3, 72) = 16.814, $p < .001$ for the participants in the data. The

RMC and IRM variables accounted for 13.3% and 7.3% of the variance respectively. The variable

RM was not statistically significant.

Results for RM

The RMES was used to obtain participants' RM experience scores. The mean RMES

score was 2.30 (SD = .99. range = 1.00 to 5.00). Similarly, Hollingsworth and Fassinger (2002)

reported a mean RMES score of M = 3.18 for doctoral students on RM. The multiple linear

regression model for RM and the demographic variables did not have any statistically significant

relationship, F (27, 257) = .915, p = .589. Since the demographic variable and RMES was not

significant at the .05 level of significance, no further ANOVA was conducted.

Since the study looked for a relationship between RSE and RM, the data was further

analyzed using a structural equation model (SEM) with a Statistical Analysis System (SAS)

software to evaluate the relationship between the constructs for latent variables. This approach

would allow for confirmation of any relationships run under traditional regression analysis

(Raynov & Marcoulides, 2006). Since the relationship observed between RM and RES (r = -

.264, $p < .01$) was not observed to be an improvement from the relationship observed from the

regression analysis between RSES and RM (r = -.243, $p < .01$), SEM was no longer useful for

analysis and discontinued.

Students' Year in Program and RSES, IRQ Scores, and RMES Scores

ANOVA's were conducted to evaluate doctoral students in counselor education's RSE, IR, and RM scores with their current year of study in their DCEPs. RSES, IR, and RM were treated as the dependent variables for each ANOVA with year of study as the independent variable. The results of the ANOVA indicated that the year of study of the participants did have a significant impact on RSE scores at the .05 level of significance, $F (6, 235) = 4.853, p < .001$. No statistical significance was observed for the impact of participants' year of study in program on IR and RM scores. Since the effect of year of study on RSE scores showed statistical significance, a post-hoc procedure was administered.

Students in their 3rd year of their doctoral program scored 5.16 units higher on RSES scores than first year students and 3.09 units higher than 2nd year students. There was no statistical significance observed between 1st and 2nd year students on RSES scores. Additionally, there was no significant difference observed of students who were in their 3rd year compared to beyond 3rd year.

Relationship Between RSES, IRQ, and Scores, RMES Scores

A linear multiple regression analysis was conducted on the outcome variable of RSE variable and the predictor variables of IR and RM scores. The strongest correlation was between RSE and IR ($r = .372, p < .01$). The effect size for this relationship was small to moderate ($r^2 = .138$). The relationship between RSE and IR predicted 12.2% of the ($R^2 = .12$) of the variance for the doctoral students RSE scores, $F (1, 161) = 23 .587, P < .001$. The correlation between RSE and RM was an inverse relationship ($r = -.243, p < .01$), and it had a small effect size ($r^2 = .059$). The relationship between RSE and RM predicted 15.4% of the ($R^2 = .15$) of the variance for the doctoral students RSE scores, $F (1, 160) = 23 .587, P < .001$. The correlation between IR and RM was not statistically significant at the .05 level of significance ($r = -.150, p = .057$). The results of

the analysis indicated that higher IR scores predicted higher scores in RSE. Additionally, since there was an inverse relationship between RM and RSE, this signified that if a student had higher scores on RM, their respective RSE scores went down.

Discussion

The study was conducted to advance the understanding of the research training needs of doctoral students in counselor education specifically with respect to exploring the relationship between RSE, IR, and RM. The review of the literature promotes the need to find methods to improve the research quality and productivity within the field of counselor education, but the lack of research into finding stronger programs to enhance the value of the field through stronger research practices may be leading to a decline in students going into the counselor education field. Thus, this study attempted to discover if the relationships between RSE, IR and RM might provide an avenue for future research in the field.

The Relationships of RSE, IR, and RM

There was a statistically significant relationship between RSE and IR. This finding suggests that doctoral students with higher RSE scores also show a stronger interest in researching as part of their educational programs. This finding was consistent with previous research with RSE and IR (e.g., Lambie et al., 2014). Stronger RSE and IR scores during the learning process could lead to a stronger interest in researching after the educational process ends. Confidence in one's ability to do research, which the RSE would measure, can lead to a higher desire to be involved in research opportunities within the field.

There was an inverse relationship between RSE scores and RM scores. This finding suggested that doctoral students with higher RM scores have lower RSE scores. The current study was consistent with Rawls (2008) study which had an inverse relationship between RSE and RM. However, Hollingsworth and Fassinger (2002) found a positive, statistically significant

relationship between the two. Lee (2009) also found a positive statistically significant relationship between RSE and RM. The disparity between the finding in this study and others between the relationship of RSE to RM indicates a need for further research.

There was a statistically significant relationship observed of the effect of scholarly activity on RSE scores. The doctoral students who reported higher levels of scholarly activity also had higher levels of RSE than those participants who reported lower levels of scholarly activity. This finding was consistent with other studies (e.g., Kahn, 2001; Kahn & Scott, 1997). The findings suggest that doctoral students who are more active in scholarly activities will have higher levels of RSE.

The results of the study indicated that doctoral students in their 3rd year of doctoral preparation scored higher levels of RSE than 2nd and 1st year doctoral students. This finding was consistent with other findings (e.g., Kahn, 2001; Lambie & Vaccaro, 2011). Kahn's (2001) study used the SERM (Phillips & Russell, 1994) to determine the relationship between RSE and year in program. In the current study, there was no statistical significance between 3rd year doctoral students and those students who were beyond their 3rd year of study which was not examined in the Lambie and Vaccaro (2011) study. It would be warranted that further investigations examine why there was no difference in RSE scores after the third year of doctoral study (i.e. improvement of scores). The rise in RSE from 1st, 2nd, and 3rd year doctoral students seems self-evident, since more experience in an activity should lead to higher confidence. This study supports that viewpoint. This finding could help support future investment by DCEPs to include more research opportunities for doctoral students.

The study did not find any statistically significant relationship between RSE and the demographic variables for age, gender, ethnicity, and counseling experience. The lack of finding significance for age differed from the study by Lambie and Vaccaro (2011), which did find that

age had a statistically significant relationship to RSE. Since no interactions were measured in this study, further refinement of this studies design may be warranted.

A significant relationship between RSE and the number of research courses taken was found. Again, the idea that taking more research courses will increase RSE seems self-evident, and the findings of this study do seem to support that. Familiarity with a skill allows the user to have more confidence in applying that skill. This finding could also support future investment by DCEPs into requiring a heavier research load for students, especially if the goal is to turn graduates into skilled research practitioners and improve the quality of the counselor field.

RM showed no statistical significance with the demographic variables explored in the study. This finding was different than Rawls (2008), who did not find ethnic differences for RM but did find gender differences (males reported lower levels than females). However, it did support the findings of Hollingsworth and Fassinger (2002), who did not find a statistical relationship between gender and RM. With mixed findings in the literature of demographic variables relationship to RM, further research is warranted.

Implications for Counselor Education

There were nearly two thirds (59.4%) of the participants who reported no scholarly activity, leaving just 40.6% reporting some sort of scholarly activity. A similar response was found by Lambie and Vaccaro (2011), where only 30.3% of study respondents reported participating in scholarly activity. Such a high percentage of non-scholarly activity by graduate students seems to support the need for developing better and more rigorous research opportunities within DCEPs since there is some support in the literature for a higher relationship between RSE and activity. Miller's (2006) study would support this also since it found that less time is spent in DCEPs with a higher research activity and the study also found that higher activity aids in completion of the dissertation. If RSE is improved by taking more research

courses, which is supported by this study and others, DCEPs should emphasize higher research standards.

This study showed an inverse relationship between RM and RSE. The higher the RMES scores, the lower the RSES scores. Rawls (2008) found similar results between research mentoring and research self-efficacy but with a different instrument to measure research self-efficacy. Jones (2006) found positive research mentoring only predicted positive experience on the training environment and not on actual research productivity. The Lambie and Vaccaro (2011) study did show a positive relationship between RSE, IR and the research training environment. Both this study and the Lambie and Vaccaro 2011 study demonstrated a positive relationship between higher RSE scores and higher IR scores. Lambie and Vaccaro suggest that DECPs should match students with faculty mentors early in the process to facilitate a development of RSE throughout the doctoral training process. Borders et al., (2011) also found significance between RM and RSE and further supported early mentoring of research activities for both doctoral students and new professors. This study's finding of a negative (albeit a statistically significant one) relationship rather than a positive relationship warrants further refinement of the research design and further investigation into the differences between this study and that of Lambie's and Borders's.

The participants' RSE scores and IR scores were shown to have a statistically significant relationship with each other. Again, this finding makes sense since confidence in one's ability to do research, which is measured by RSE, should lead to a higher willingness to pursue research activities. As mentioned earlier, for the field of counselor education to advance and mature, it is going to need to have a stronger body of research that supports its practices. Inculcating evidence-based practices into the field of medicine and psychology have provided these fields

with a stronger research base and has improved the practices within these two fields. Counselor education should follow their lead and find a way to develop a richer research base.

Results of this study were different from other studies where a significant relationship was observed between IR and RM (e.g., Kahn, 2001). The inverse relationship results between RM and RSE would suggest that mentoring relationships be structured where the students become less dependent on their research mentors. Other researchers support that mentoring of students helps to ensure that students are developing accordingly with respect to skills necessary for the counselor education and identity as a counselor educator (e.g., Hollingsworth, 2000; Woo, Storlie, & Baltrinic, 2016). According to Lambie and Vaccaro (2011) "Developing doctoral counselor education students' research and scholarship competencies needs to be supported and nurtured in preparation programs where the faculty and systemic climate may promote these professional skills, dispositions, and behaviors" (p. 254). Further exploration of the inverse relationship of RM to IR and RSE is warranted to discover why this study seems to contradict other research.

Limitations of the Study

This study was limited since it was non-experimental in design. Such studies do not provide as strong an inference as experimental studies, which have greater control of participants and can manipulate variables (Field, 2009). Rather, non-experimental designs are limited by the researcher's observations between the variables. The study was correlational in design which does not allow for causality (Tabachnick & Fidell, 2007). Another limitation of the study was the sampling procedures were non-probability sampling purposive. While purposive sampling allows the researcher to choose participants that will fit the needs of the research, it does not give a true representation of the population (Cohen & Manion, 2005).

Another limitation was the participant response rate. This study sought responses from 59 CACREP DCEP programs. Of the 350 electronic surveys completed, 107 had to be excluded because they were incomplete. A better method of online surveying could be developed to ensure more complete surveys. Other studies showed similar responses (Kahn and Schlosser, 2010). Additional research using this study's design will have to provide for a larger number of respondents. This might improve the results of the relationships between RM and RSE, and IR since this study's finding seemed to indicate a negative relationship with RM.

Recommendations for Future Research

The study did demonstrate a positive relationship between RSE and IR. However, it did not find any positive statistical significance between either RSE and RM and with IR and RM. Rather, it did indicate a negative statistical relationship between RSE and RM. This finding did not appear to be supported by the modest research, so should be further investigated. Since the focus of the study was to demonstrate whether RM impacts RSE or IR, the results would indicate that the higher the RM, the lower the RSE or IR. This would lead to a conclusion that DECPs might want to limit RM experiences to boost RSE or IR scores. However, this seems antithetical at best. The more likely issue is that there are some interaction effects occurring that the current methodology does not consider. A qualitative study on the three constructs (RSE, IR, and RM) might prove helpful in future research to lead to a deeper understanding of the relationship between RM and RSE and IR. This study did not concur with other studies on the relationship between RM and RSE (or IR), but it did find a significant positive relationship between RSE and IR, which indicates that RSE is important for advancing research in the field. What needs to be explored in more detail for future research is what produces a higher RSE score.

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