

February 2024

Perceptions of the Instructional Research Training Environment and Research Self-Efficacy

Missy Moore
University of Georgia

John McCall
Auburn University

Todd Bolin
Clearview Counseling and Consultation PLLC

Austen Bingham
University of Georgia

Follow this and additional works at: <https://trace.tennessee.edu/tsc>

Recommended Citation

Moore, Missy; McCall, John; Bolin, Todd; and Bingham, Austen (2024) "Perceptions of the Instructional Research Training Environment and Research Self-Efficacy," *Teaching and Supervision in Counseling*: Vol. 6 : Iss. 1 , Article 4.

<https://doi.org/10.7290/tsc06u7fc>

Available at: <https://trace.tennessee.edu/tsc/vol6/iss1/4>

This article is brought to you freely and openly by Volunteer, Open-access, Library-hosted Journals (VOL Journals), published in partnership with The University of Tennessee (UT) University Libraries. This article has been accepted for inclusion in *Teaching and Supervision in Counseling* by an authorized editor. For more information, please visit <https://trace.tennessee.edu/tsc>.

Perceptions of the Instructional Research Training Environment and Research Self-Efficacy

Received: 05/23/23
Revised: 09/06/23
Accepted: 09/14/23
DOI: 10.7290/tsc06u7fc

C. Missy Moore , John McCall, Todd Bolin, Austen Bingham

Abstract

We examined counselor education and supervision (CES) doctoral students' ($n = 117$) perceptions of their instructional RTE and research self-efficacy. Students had more positive perceptions of their instructional RTE and higher research self-efficacy when research courses were taught by counseling faculty. Additionally, the instructional RTE was predictive of research self-efficacy above and beyond intrapersonal, interpersonal, and experiential variables. Implications for counselor education programs are provided.

Significance to the Public

Decades of research show counseling researchers struggle with engaging in rigorous research, which may stem from little emphasis on direct application to practice within the doctoral instructional research training environments due to instruction occurring outside of the discipline. Our results show CES doctoral students ($n = 117$) had more positive perceptions of their instructional RTE and higher research self-efficacy when research courses were taught by counseling faculty. Additionally, the instructional RTE was predictive of research self-efficacy above and beyond intrapersonal, interpersonal, and experiential variables.

Keywords: research training environment, research self-efficacy, research pedagogy, counselor education

For several decades, there has been a call to action within the field to increase the rigor of counseling research (Balkin, 2020; Baltrinic & Wachter Morris, 2020; Barrio Minton et al., 2008; Fong & Malone, 1994; Kline & Farrell, 2005; Wester & Borders, 2014). Researchers have connected lower quality, published studies in counseling journals to ineffective doctoral research training and counseling research coursework (Borders et al., 2014), ultimately concluding that research training must be addressed at the doctoral level (Wester et al., 2019). Effective research training environments (RTE), which are composed of instructional and interpersonal ingredients, should help students become well-versed in a range of research designs, practices, and scholarly writing to ensure impactful counseling research upon graduation (Gelso et al.,

2013; Wester & Borders, 2014). In ineffective RTEs, “aspects of research either are not being taught, not being understood, or are not being applied well” (Wester & Borders, 2014, p. 447). This suggests that areas for improvement in counseling research may stem from two sources: the instructional RTE, and trainees’ abilities or beliefs in their abilities to thoughtfully apply what they learned. Therefore, we focused our study on counselor education and supervision (CES) students’ perceptions of the instructional RTE and its influence on their research self-efficacy, with attention to the discipline of the research instructor.

C. Missy Moore, Department of Counseling and Human Development Services, University of Georgia; **John McCall**, Department of Special Education, Rehabilitation, and Counseling, Auburn University; **Todd Bolin**, Counselor Education and Supervision, The University of Georgia; **Austen Bingham**, Counselor Education and Supervision, The University of Georgia. Correspondence concerning this article should be addressed to C. Missy Moore, Department of Counseling and Human Development Services, University of Georgia, 110 Carlton Street, Athens, GA 30602. (email: missy.moore@uga.edu).

Research Training Environment

Gelso et al. (2013) proposed research training should be designed to set students on a positive trajectory toward genuine interest in research, strong efficacy and confidence as researchers, quality scholarship, and high research productivity. Gelso (1993) defined the RTE as “all those forces in graduate education programs, and ... the department and universities within which the programs are situated that reflect attitudes toward research and science” (p. 470). These RTE forces may include: (a) faculty factors, such as faculty engagement, teaching, and modeling with students (Gelso, 1993), (b) curriculum-based factors, such as coursework and mastery experiences for students (Gelso, 1993), and (c) institutional factors, such as institutional classification (e.g., R1), departmental prestige (Clauset et al., 2015), and available research resources (Randazzo et al., 2021). According to Gelso’s (1993) conceptualization, the RTE consists of 10 ingredients divided into two factors, interpersonal and instructional (Gelso et al., 2013). Given the specific problems associated with ineffective RTEs, we focused our study on the instructional RTE and its contributions to CES students’ research self-efficacy.

The Instructional Research Training Environment

Effective instructional RTEs consist of instructional aspects where students are taught varied and appropriate research approaches and designs, relevant statistical procedures, and the application of research to practice (Gelso, 1993; Gelso et al., 2013). The instructional RTE is composed of six ingredients that are most often addressed through research coursework (Borders et al., 2014). Of the six ingredients, Gelso (1993) noted application of research to practice is one of the most critical ingredients of the instructional research training environment. However, recent studies among CES students show that direct application of research to practice is lacking (Borders et al., 2020; Lamar & Helm, 2017), and this deficit is a barrier to research self-efficacy development. Lack of direct

application to practice in statistical coursework, in particular, is a perceived barrier to CES students’ research self-efficacy formation (Borders et al., 2020).

Borders et al. (2014) speculated problems related to research-to-practice application may stem from research courses being taught by noncounseling faculty. The authors found most CES doctoral research courses are taught by noncounseling faculty. When counseling faculty teach CES doctoral research courses, the content of these courses is conceptual or theoretical in nature, with few counseling faculty teaching methodological, statistical, or application-based research courses. Qualitative data suggests research instruction from counseling faculty is perceived as a support for CES students’ research self-efficacy formation (Borders et al., 2014). However, the role the discipline of the instructor plays in students’ perceptions of the instructional RTE and their research self-efficacy has not been tested on a larger scale. Additionally, previous quantitative studies with samples of psychology graduate students demonstrated mixed results regarding how influential the instructional RTE ingredients are on students’ level of research self-efficacy (Gelso et al., 2013).

Research Self-Efficacy and its Correlates

Research self-efficacy refers to “an individual’s estimation of her or his ability to perform various research-related behaviors” (Bieschke et al., 1996, p. 60). When students feel efficacious in executing research tasks, they are more likely to develop other mindsets and behaviors needed to conduct research (Morrison & Lent, 2014). Bandura (1977) identified four sources of information that influence a person’s perception of self-efficacy: emotional or physiological arousal, vicarious experiences, verbal persuasion, and performance accomplishments. This suggests that there are intrapersonal, interpersonal, and experiential factors that contribute to one’s level of self-efficacy. For the purpose of our study, we used established intrapersonal, interpersonal, and experiential correlates of research self-efficacy as control variables, which included the following:

(a) attitudes toward research and interest in research as intrapersonal factors, (b) research mentoring experiences as the interpersonal factor, and (c) research productivity as the experiential factor.

Intrapersonal Factors: Attitudes Toward Research and Interest in Research

Graduate students enter their training programs with various attitudes toward research and levels of interest in research that are shaped by personal characteristics (e.g., motivation; Deemer et al., 2009), personality characteristics (Kahn & Scott, 1997), and contextual factors (e.g., external support; Sawitri et al., 2020). Many graduate students have high levels of anxiety toward research (Gelso et al., 2013), which may contribute to poorer attitudes and lower interest in research. As students encounter research experiences in their RTE, their level of research self-efficacy becomes inextricably linked with their level of interest in research and attitudes toward research (Morrison & Lent, 2014). Among CES students, interest in research is predictive of CES students' research self-efficacy (Lambie & Vaccaro, 2011). However, attitudes toward research has yet to be studied quantitatively among CES students.

Intrapersonal Factor: Research Mentorship Experiences

Faculty mentorship, approachability, and encouragement are important interpersonal factors that influence students' development of research self-efficacy (Borders et al., 2020) and an effective RTE (Gelso et al., 2013). Studies on research advisory relationships show faculty characteristics, advisement, and mentorship appear to be a critical moderator between students' attitudes toward, interests in, and motivation for research, and their research self-efficacy and research activity level (Cobb et al., 2020; Kuo et al., 2017). However, Livingji et al. (2021) differentiates research advisors from research mentors. Every doctoral student has an adviser, yet this does not equate to having a research mentor. In a meta-analysis, the authors

noted studies on research mentoring experiences in counselor education showed divergent results compared to studies with samples of psychology graduate students, citing Rawl's (2009) finding that 40% of doctoral students reported not having a research mentor. While results from research advisory relationships could translate to mentoring relationships, Livingji et al. (2021) called for more research on research mentoring experiences and research self-efficacy in counselor education (Livingji et al., 2021).

Experiential Factor: Research Productivity

Consistent with Bandura (1997), mastery experiences that allow doctoral students to test their research skills facilitates higher levels of research self-efficacy (Lambie & Vaccaro, 2011; Petko et al., 2020). We conceptualized mastery experiences in terms of research productivity, which involves current research involvement and past research productivity (Kahn & Scott, 1997). Research productivity is associated with higher research self-efficacy (Morrison & Lent, 2014), and Kahn and Scott (1997) hypothesized that this relationship is bidirectional. Apprenticeships, opportunities to present at conferences and write for publication, experiences helping other students with data collection (Borders et al., 2020), and number of student publications in academic journals (Lambie et al., 2014; Lambie & Vaccaro, 2011; Petko et al., 2020) are associated with higher levels of research self-efficacy among CES students.

The Current Study

Based on our review, two gaps exist in the research on the instructional RTE among CES student. First, it is unclear whether the instructional RTE contributes to research self-efficacy among CES doctoral students, given the mixed results among other graduate student populations (Gelso et al., 2013). Second, qualitative data suggests research courses being taught by noncounseling faculty may have adverse effects on students' research-related outcomes, yet this has not been tested

quantitatively. Therefore, we sought to understand how CES doctoral students perceive their instructional RTE, their associated research coursework, and the role the discipline of the instructor plays in students' perceptions of the instructional RTE and their research self-efficacy. In pursuit of the goals of the study, we used a convergent parallel mixed methods design to reach a more comprehensive understanding of students' perceptions of their instructional RTE and its influence on their research self-efficacy. Because we sought to integrate qualitative and quantitative data derived from a survey design, a convergent parallel design was the most appropriate design for this study. We addressed the following research questions:

1. How do CES students view their instructional RTE and perceive its influence on their development as researchers?
2. Do CES students' perceptions of the instructional RTE differ according to the discipline of the instructor?
3. Does the instructional RTE predict research self-efficacy above and beyond students' research productivity, research mentoring experiences, attitudes toward research, and interest in research?
4. Do students' levels of research self-efficacy differ according to the discipline of the instructor?

Method

Participants and Procedure

After receiving approval from the institutional review board, we invited CES students to complete an online survey using the survey platform Qualtrics. Doctoral students who (a) were currently enrolled in a CACREP-accredited counseling/counselor education program in the United States and (b) had completed at least one research-related course during their training program, were invited to participate in the study.

The researchers located 850 doctoral students' email addresses via a professional organization website, and they invited the doctoral students to participate in the study through four email requests. Eight hundred and forty-three emails were successfully delivered. Upon completing the survey, students had the option to enter their email address if they wanted to be entered into a drawing to win a Visa gift card. In total, 133 participants completed the survey, with a response rate of 15.78% based on successfully delivered emails. Of the 133 doctoral students who completed the survey, 16 surveys were not usable due to failure to meet the inclusion criteria or incomplete survey data, which resulted in a sample of 117 CES students.

Of the 117 participants included in the study, 85 identified as female (72.6%), 29 identified as male (24.8%), one identified as transgender or nonbinary (0.9%), and two declined to respond (1.7%). Seventy-seven of the students identified as Caucasian/White (65.8%), 21 as African American/Black (17.9%), 4 as Asian American/Pacific Islander (3.4%), 3 as Latino/Hispanic (2.6%), 1 as biracial (0.9%), 3 as multiracial (2.6%), 6 as other (5.1%), and 2 declined to respond (1.7%). On average, students' ages ranged from 24 to 67, with an average age of 37 ($M = 37.11$, $SD = 10.50$). When asked to describe what "year" they were in their doctoral program, 3 identified as first year students (2.6%), 40 identified as second year students (34.2%), 45 identified as third year students (38.5%), 19 identified as fourth year students (16.2%), and 8 identified as fifth year and beyond students (6.8%). Two students declined to report their year (1.7%). At the time of the survey, approximately 52% of the students reported that they were still completing coursework ($n = 61$; 52.1%), 37% reported that they passed comprehensive exams/portfolio review ($n = 43$; 36.8%), 9% passed proposal defense ($n = 11$; 9.4%), and 1% passed dissertation defense ($n = 1$; 0.9%).

Students reported an average of four research-related courses required for their program of study, with a required range between one and eight ($M = 4.26$, $SD = 1.27$). On average, students reported

approximately one completed course in research methods and design ($M = 1.28$, $SD = .88$), two completed quantitative/statistics courses ($M = 1.84$, $SD = 1.20$), and one completed qualitative course ($M = .99$, $SD = .72$). Seventy students reported that their research methods courses were taught by counseling faculty (59.8%), while 40 reported that they were taught by other disciplines (34.2%). Seven students did not report the discipline of their instructor for methods coursework (6%). Forty-three students reported their quantitative/statistics courses were taught by counseling faculty (36.8%), while 68 reported they were taught by other disciplines (58.1%). Six students did not report the discipline of their quantitative instructor (5.1%). Lastly, 49 students reported their qualitative courses were taught by counseling faculty (41.9%), while 59 reported they were taught by other disciplines (50.4%). Nine students did not report the discipline of their qualitative instructor (7.7%).

Instruments

Demographic Form

We developed a demographic form that consisted of 12 items related to their enrollment as doctoral students, their program of study, progress toward their degree, research-related coursework, and demographic characteristics. We also included four open-ended questions related to their level of satisfaction with their instructional research training, their perceptions of benefits and challenges associated with their research-related coursework and training, and if any, changes they would make to their instructional RTE.

Research Training Environment Scale-Revised Short Form

The Research Training Environment Scale-Short Form (RTES-R-S; Kahn & Miller, 2000) is an 18-item, self-report scale designed to measure global perceptions of the RTE. Using a Likert-type, response format, respondents indicate their agreement to a series of statements concerning research training. The items can be summed to form

a total score or two subscales, interpersonal or instructional. We used the instructional RTE subscale for the purpose of our study, and Cronbach's alpha was .82 for the current sample.

Research Self-Efficacy Scale

The Research Self-Efficacy Scale RSES; Greeley et al., 1989) is a 38-item, self-report scale designed to measure an individual's level of confidence in their ability to successfully engage in research-related tasks. Using a response format ranging from 0 (*no confidence*) to 100 (*complete confidence*), respondents indicate the degree of confidence to accomplish a research behavior. Previous researchers reported evidence of construct validity (Bieschke et al., 1996) and high internal consistency for the RSES total score with counselor education doctoral students (.96; Lambie & Vaccaro, 2011). In the current study, Cronbach's alpha was .98.

Research Productivity

Research Productivity (Kahn & Scott, 1997) is a 12-item, self-report instrument designed to measure research productivity across three dimensions: current research involvement, past research productivity, and research in clinical practice. However, the authors recommend only using the current research involvement and past research productivity subscales (Kahn & Scott, 1997). The authors reported Cronbach's alpha for past research productivity as .72 and current research involvement as .59 (Kahn & Scott, 1997). In our study, Cronbach's alphas were .75 for past research productivity and .74 for current research involvement.

Research Mentoring Experiences Scale

The Research Mentoring Experiences Scale (RMES; Hollingsworth, 2000) is a 28-item, self-report measure that assesses students' perceptions of their research mentoring experiences with a faculty member during their doctoral program. Using a *very little* (1) to a *great deal* (5) response

format, students report the extent to which the faculty member attends to various research task functions. Hollingsworth and Fassinger (2002) reported Cronbach's alpha as .74 for the RMES total score. In the current study, Cronbach's alpha was .95.

Revised-Attitudes Toward Research Scale

The Revised-Attitudes Toward Research Scale (R-ATR; Papanastasiou, 2014) is a 13-item, self-report instrument designed to measure students' attitudes toward social science research across three dimensions: research usefulness, research Anxiety, and positive research predispositions. Using a 1 to 7 response format, students indicate their agreement with each statement about research. Papanastasiou (2014) reported Cronbach's alphas as .92 for positive research disposition, .86 for research anxiety, and .90 for research usefulness. In the present study, Cronbach's alphas were .88 for positive research disposition, .88 for research anxiety, and .75 for research usefulness.

Interest in Research Questionnaire

The Interest in Research Questionnaire (IRQ; Bishop & Bieschke, 1994) is a 16-item, self-report instrument designed to measure respondents' level of interest in various research-related activities using a response format of *very uninterested* (1) to *very interested* (5). Previous research reported Cronbach's alphas as .93 (Lambie & Vaccaro, 2011) for the IRQ total score. In the present study, Cronbach's alpha was .92.

Data Analysis

Qualitative Data Analysis and Trustworthiness

To answer our first research question, we used a qualitative content analysis approach to explore participants' perceptions of their instructional RTE. We selected qualitative content analysis due to it being a systematic process for examining the

content of text data and its applicability to qualitative data from open-response survey items (O'Cathain & Thomas, 2004). Multiple recent studies have demonstrated the appropriateness of using content analysis to analyze survey responses, specifically in open-ended survey responses (e.g., Kleinheksel et al., 2020; Moser et al., 2015). Specifically, a conventional approach to content analysis guided our investigation, which is an inductive approach to content analysis that allows categories and themes to emerge from the data (Hsieh & Shannon, 2005).

We used the three content analysis phases outlined by Elo and Kyngäs (2008) to guide our analysis: (a) preparation, (b) organizing, (c) reporting. In the preparation phase, we defined the unit of analysis as the participants' entry in each open-response question. In the organizing phase, we followed Hsieh and Shannon's (2005) recommendations for coding in conventional analysis. First, we globally read these data and then conducted a close read of these data, highlighting exact words or phrases that captured key ideas. With each highlighted word or phrase, we noted our impressions, the context in which the words and phrases were used, and initial ideas about labels for codes. We compared the initial codes to each other, refining and reorganizing codes throughout the process. Based on related ideas and concepts, we grouped the codes into meaningful categories, defining each category to ensure codes appropriately fit within the category. We then compared the categories and developed larger abstractions into themes (Hsieh & Shannon, 2005). In the reporting phase, we defined themes using salient raw data that represented each theme (Elo & Kyngäs, 2008; Hsieh & Shannon, 2005).

To establish credibility, each author organized the available data into initial codes using open coding, and we worked together to define and refine ideas to form categories and themes. To establish transferability, we gathered a rich description of students' instructional RTE to demonstrate the contexts in which the findings could be applied. To establish dependability, we used a coding sheet to track how we organized data. To establish

confirmability, we discussed our own experiences in our doctoral programs and any personal reactions that arose in the coding process.

Quantitative Data Analysis

Prior to conducting the analyses, we screened the data for normality, univariate and multivariate outliers, multicollinearity and singularity, and homogeneity of variance. We detected three univariate outliers among the variables of interest. However, upon examining the plots and the trimmed mean, the univariate outliers did not appear to be influential and were retained in the analyses. One multivariate outlier was detected and removed from the data. Inspection of the probability plots and skewness values indicated that there were no deviations from normality, and the VIF statistics revealed that multicollinearity and singularity were not present in the sample. Levene's test among the groups used in the independent samples *t*-test was not statistically significant. *A priori* power analyses using G*Power for an independent-samples *t*-test (i.e., with medium effect size and achieved power of .80) indicated that a sample size of 104 was sufficient to support the results. A sample size of 109 sufficiently supported the results for a hierarchical regression with eight predictors, a medium effect size, and achieved power of .80. We analyzed these data using SPSS Version 28.

To address our second and fourth research question, we conducted independent samples *t*-test to determine if there were differences in CES students' perceptions of the instructional RTE and research self-efficacy according to the discipline that teaches research-related courses in their program. We coded the participants' self-reported research coursework into two groups based on whether they had at least one research course in their program of study taught by counseling faculty ($n = 72$) or whether they had no research courses taught by counseling faculty ($n = 41$). We used Hedge's *g* to estimate effect size due to differences in sample sizes between each group.

To address our third research question, we hoped to determine whether the instructional RTE was

predictive of research self-efficacy above and beyond other intrapersonal, interpersonal, experiential factors that are known correlates of students' research self-efficacy. A hierarchical multiple regression was performed to predict levels of research self-efficacy, after controlling for the influence of research productivity (Block 1), research mentoring experiences (Block 2), and attitudes toward research and interest in research (Block 3). Finally, the instructional RTE subscale score was entered at block 4 to determine the contributions of the instructional RTE above and beyond the intrapersonal, interpersonal, experiential factors.



Qualitative Findings

To answer our first research question, we analyzed the four open-ended responses on our survey to explore participants' level of satisfaction with their instructional RTE, perceived benefits and challenges associated with their research coursework and its influence on their development as researchers and scholars, and any changes (if any) they would make to their research coursework and training. We organized the emerging themes by topics associated with the coding unit: (a) satisfaction with instructional RTE, (b) perceptions of research coursework: benefits and challenges, and (c) preferred changes to research coursework.

Satisfaction With Instructional RTE

Five themes emerged across satisfaction levels that shaped satisfaction with their instructional RTE: application, instructor characteristics, faculty mentorship, continuity in training, and attitudes toward foundational content.

Application

Most participants reported that their satisfaction with their instructional RTE depended on their ability and exposure to applying the various research concepts learned through their coursework. Satisfied participants reported receiving "hands-on

experience” through coursework, research teams, assistantships, and independent projects, which allowed them to apply skills inside and outside of the classroom. Conversely, somewhat satisfied students acknowledged they received a good foundation of research content yet struggled to apply it in counseling or felt like something was missing from their training. For example, one student reported, “The courses did a good job of introducing me to various research subjects and topics However, the classes being interdisciplinary made it difficult to really apply what was being learned.” Dissatisfied participants reported struggling both in and outside of the classroom, mainly because research courses were interdisciplinary and “not designed for counseling students.” For example, “Unsatisfied. The faculty teaching the courses are from another discipline and it feels like there is a disconnect between what we need to know as researchers in counseling and research in the other professions that are being attended to.”

Instructor Characteristics

Participants reported the characteristics of the instructor greatly influenced their satisfaction level. Satisfied participants described their instructors as “passionate,” “experienced,” “knowledgeable,” and had “a real love for research ... that shows.” Somewhat satisfied participants noted that some instructors were great in the classroom but “were not available outside of class for questions.” Also, their satisfaction greatly varied by instructor: “We had a couple great professors who took the time to make each meeting and assignment meaningful. Others barely prepared for the course and class meetings were spent discussing topics unrelated to the course.” Dissatisfied participants described their instructors as “ill-prepared,” “frustrating and disorganized,” and “lack[ing] competence.”

Faculty Mentorship

Similarly, the quality and availability of faculty mentorship outside of the classroom influenced participants’ levels of satisfaction with their

research training. Satisfied participants noted that they had a research mentor or an advisor who “took [them] under [their] wing.” For example, “My advisor made sure I received challenging training through independent research, so I am satisfied with my training.” Somewhat satisfied participants noted that they often felt behind their peers in their level of involvement in faculty research. Additionally, they described wanting more research mentorship from faculty, yet realized they did not communicate their needs. For example, “Overall great, would have liked to have more personal mentoring and involvement in publications before graduation, but I also did not personally reach out and ask for help” Dissatisfied participants reported that little to no research mentorship or support was available in their doctoral programs. One student reported, “Extremely dissatisfied because my deepest desire is to do best practice research as a research practitioner and I feel at a loss as to how to access support in learning the skills I need.”

Continuity in Training

Participants described the sequence of research training, consistency of quality coursework across training, and the format of research coursework as important contextual factors that influenced their satisfaction levels. Satisfied participants reported that they felt “intellectually challenged” by research coursework throughout their research training, had the opportunity to infuse independent work into their program of study, and felt that everything they learned was preparing them for the dissertation process. Somewhat satisfied participants reported that they received excellent training in some research courses and poor training in others, namely statistics courses. “I feel that my research training in qualitative research has definitely helped me grow as a researcher, however the research training in statistics was not as extensive nor applicable to my field when I took the course.” Dissatisfied participants reported that the research courses did not build on each other or lacked quality throughout their research training. One participant wrote:

I would be happier with a more connected method of learning about research. For example,

if one of my first courses had me design a "small" research project in my area of interest, and then grew that project throughout my coursework up to manuscript, I think my fear of the full dissertation process would be less, and I would have a familiarity with the full process as one process, not multiple pieces from the multiple courses just connected loosely by whatever logic I join them.

Additionally, dissatisfied participants reported that some statistics courses were offered in an online format, which greatly inhibited their satisfaction with their research training.

Attitudes Toward Foundational Content

Lastly, participants' level of satisfaction with their instructional RTE varied based on personal attitudes toward foundational content offered in their research coursework. Satisfied participants described receiving "exposure to various methods and traditions," "learning an extensive amount that helped to address ... anxiety with approaching research," learning "more than ... anticipated," and believing there are many "opportunities to grow as a researcher." Somewhat satisfied participants acknowledged a solid research foundation but reported that they needed and wanted more. For example, one participant wrote, "Moderate. I know more after the courses than I knew prior, but I don't believe I know enough to execute research on my own." Dissatisfied participants reported that their research training was "too simplistic" or that they had to rely on previous research training from their undergraduate psychology program.

Perception of Coursework: Benefits and Challenges

When asked to describe perceived benefits associated with their research coursework and its influence on their development as a researcher and scholar, participants reported feeling more confidence in "starting research projects," "developing a research proposal," "analyzing data,"

"read[ing] and comprehend[ing] peer-reviewed journal articles," "present[ing] at conferences," "effectively evaluat[ing] existing research," and "asking for helping and guidance ... in research writing." Participants reported that this increased confidence occurred from being exposed to new ideas, applying critical thinking, and acquiring research skills. For example, participants reported, "I am able to think as a researcher and see gaps in literature. I think of ways to design studies and what the outcomes could be and why this needs further study." Moreover, participants reported that they felt more confident in their development as a researcher and scholar because the research process was "demystified" and less intimidating. One participant wrote, "It has taken some of the intimidation factor out and added interest to do research It also has made me realize the research process and becoming a researcher is not an overnight thing nor is it just an acquired skill. You have to work at it so it gives me hope."

When asked to describe the perceived challenges associated with their research coursework and its influence on their development as a researcher and scholar, many participants reported being negatively influenced by the "overwhelming" amount of information in research coursework, the lack of application to the counseling field, and the lack of mentorship, modeling, and support by faculty. Participants noted their research coursework often felt overwhelming due to "information overload," "the publish or perish mantra," and the "fast-paced" learning environment. Additionally, many participants described their research coursework as challenging when taught by instructors from other disciplines. For example, one participant wrote, "The research courses are related to general education and not relevant or applicable to the counseling field, which makes it difficult to apply the knowledge learned in class to my current research projects." A lack of support by faculty and the perceived selectivity of individuals invited to engage in research were identified as potentially problematic by some participants. One participant wrote that the research environment "is a secret coven where only selected individuals are allowed to join the staff to conduct research."

While coursework taught by instructors from other disciplines was considered problematic, participants also reported that CES instructors also negatively influenced their development as a researcher and scholar when they lacked support, did not model enthusiasm or expertise in research, and showed favoritism and restricted research mentorship to “promising” students. For example:

I do not feel that there is a faculty member who could sufficiently support me.... It appears that no faculty currently teaching a research class is knowledgeable enough or loves research. It is the step-child in the program.

The overwhelming amount of information coupled with negative experiences with instructors contributed to increased anxiety, ultimately negatively influencing participants’ reported wellness. Participants noted that the “scary,” “intimidating,” and “critical” nature of research coursework was contributing to fatigue, lack of motivation, and burnout. One participant wrote, “It has negatively impacted my wellness, just due to being overly concerned with the pressure to publish. I also worry this pressure will result in less quality work.” Another participant wrote, “The approach or methods of training have left me traumatized and a bit disinterested in continuing my own research.” Furthermore, participants reported that they saw research negatively impacting their professors’ wellness, ultimately shaping their development as a researcher and scholar. “My professors seem overworked and stressed over their requirements to publish. This does not make me want to jump at a research-driven faculty position.”

Preferred Changes to Coursework

After weighing their perceptions of their research coursework and training, participants were asked to consider some changes, if any, that they might make to their instructional RTE. Overwhelmingly, most students reported that they wanted more research courses taught by counseling faculty. For example, one participant wrote, “I think the counseling faculty should teach our research courses completely, the outside programs do not understand

our research and do not allow us to practice or explore counseling research in their classes.” Furthermore, participants reported needing additional statistics courses, while some reported that they would add “a course dedicated solely to conducting literature reviews and scholarly writing.” Many participants recommended using project-based assignments to improve research practice. One participant described this concept as, “a research course with my program faculty that mirrors a research team. With this course, perhaps publications can begin.”



Quantitative Results

To answer our second research question, we conducted an independent-samples t-test to determine if there were statistically significant differences in students’ perceptions of the instructional RTE according to the discipline of the instructor. Results indicated that there was a statistically significant difference in CES students’ perceptions of the instructional RTE when a research course is taught by counseling faculty ($M = 39.93$, $SD = 6.38$) in comparison to faculty affiliated with other disciplines ($M = 34.37$, $SD = 8.42$), $t(111) = -3.96$, $p < .001$. There was a strong medium effect to large effect, $g = .78$.

To answer our third research question, we conducted a hierarchical multiple regression to predict the contributions of the students’ perceptions of the instructional RTE on their levels of research self-efficacy, after controlling for the influence of research productivity, research mentoring experiences, attitudes toward research, and interest in research. The past productivity and current research productivity were entered at block 1, and this model was not statistically significant $F(2, 113) = 1.61$, $p = .205$ and accounted for 2.8% of the variance in research self-efficacy ($R^2 = .028$; $p = .205$). The research mentoring experiences total score was entered at block 2. This model was statistically significant, $F(3, 112) = 4.50$, $p < .01$ and accounted for 10.8% of the variance in research self-efficacy ($R^2 = .108$; $p < .01$), and the beta

coefficient for research mentoring experiences ($\beta = .290, p < .01$) was statistically significant. Research usefulness, research anxiety, positive research predisposition, and the interest in research total score were entered at block 3, and this model was statistically significant, $F(7, 108) = 18.31, p < .001$, accounting for 54% of the variance in research self-efficacy ($R^2 = .543; p < .001$). However, the beta coefficients for research mentoring experiences ($\beta = .211, p < .01$), research anxiety ($\beta = -.446, p < .001$), and positive research predisposition ($\beta = .313, p < .01$) were the only statistically significant predictors. The instructional RTE was entered at block 4, and this model was statistically significant, $F(8, 107) = 18.15, p < .001$, and accounted for 57.6% of the variance in research self-efficacy ($R^2 = .576; p < .001$). The statistically significant predictors in the model were research anxiety ($\beta = -.418, p < .001$), positive research predispositions ($\beta = .242, p < .05$), and the instructional RTE ($\beta = .232, p < .01$). The instructional RTE was predictive of research self-efficacy above and beyond intrapersonal, interpersonal, and experiential variables. For every one unit of increase in research self-efficacy scores, there is a .42 unit decrease in research anxiety scores, a .24 unit increase in positive research predispositions scores, and a .23 increase in instructional RTE scores.

Finally, to answer our fourth research question, we conducted an independent samples *t*-test to explore differences in students' research self-efficacy according to the discipline of the instructor in their research-related courses. Results show there was a statistically significant difference in CES students' research self-efficacy when a research course is taught by counseling faculty ($M = 8.41, SD = 1.64$) compared to faculty affiliated with other disciplines ($M = 7.62, SD = 1.89$), $t(111) = -2.33, p < .05$, and there was a medium effect, $g = .45$.

Discussion

We sought to build on existing research by further exploring the instructional RTE, its contributions to research self-efficacy, and the influence of the

research instructor's discipline on students' perceptions of the instructional RTE and their levels of research self-efficacy. Our results indicated students had more positive perceptions of their instructional RTE and higher levels of research self-efficacy when their courses were taught by counseling faculty in comparison to other disciplines. This notion was supported by our qualitative findings, and participants suggested courses being taught by counseling faculty shaped their satisfaction level with their research training, their ability to apply material from their research in their own projects, and their comfort in the dissertation process, which is consistent with Borders' et al. (2020) findings. When courses were taught by instructors of other disciplines, participants experienced a gap between the conceptual material and its relevance and applicability to counseling contexts. As a result, participants recommended more research courses to be taught by counseling faculty in CES doctoral programs to improve their research training.

Consistent with Borders et al. (2020), students suggested their research coursework greatly influenced their confidence, perceived competence, and perceived self-efficacy in conducting research. Our tested model suggested the instructional RTE and students' internal states were statistically significant predictors of students' research self-efficacy, and this model accounted for 57.6% of the variance in research self-efficacy. Specifically, students' research self-efficacy increases as their perceptions of their instructional RTE increases. Higher levels of research self-efficacy were associated with higher levels of positive research predispositions and lower levels of research anxiety. Prior research shows interest in research as a predictor of research self-efficacy among CES students (Lambie & Vaccaro, 2011). In our final model, interest in research was not a statistically significant predictor. It is possible that the effect of interest in research is accounted for by other variables in the model. Also, contrary to research on interpersonal factors (Borders et al., 2020; Gelso et al., 2013; Livingi et al., 2021), research mentoring experiences was not a statistically significant predictor in the final model. Like interest in

research, it is possible the instructional research training environment and research mentoring experiences share common variance.

While attitudes toward research were strong contributors to students' research self-efficacy, the instructional RTE predicted research self-efficacy above and beyond these internal states, which was further illustrated by the qualitative findings. Students were more likely to be satisfied with their research training when their instructional RTE built on their positive research predispositions, such as learning "more than [they] could have anticipated." Foundational material in their research coursework helped students "address [their] anxiety approaching research" and "demystified" the research process. When courses were taught by instructors of other disciplines, when students' perceived a lack of support or competence from faculty, or when the information was overloading, students were more likely to experience increased research anxiety and felt less efficacious in their ability to become successful researchers and scholars. As students felt more research anxiety and perceived less self-efficacy in their ability to apply the knowledge learned in class, they reported feeling fatigued, unmotivated, and burned out. It appears the instructional RTE shapes CES students beyond simply providing a foundation for research knowledge and skill development, as suggested by previous research (e.g., Borders et al., 2012; Lamar & Helm, 2017; Wester & Borders, 2014). It also shapes how CES students internalize their ability to become effective researchers, the types of positions they will pursue postgraduation, and their wellness during their doctoral program.

Limitations

First, the sample consisted of mostly White females, with only some diversity across racial, ethnic, and gender identity. While demographic characteristics of our sample are consistent with CES students (CACREP, 2015), greater diversity in our sample may provide a more complete picture of CES students' perceptions of research training and increase the generalizability of our results. Second, we used self-report instruments and open-ended

responses to explore students' perceptions of their doctoral training, limiting the transferability of our findings. Additionally, open-ended responses on a questionnaire provide limited qualitative data, and a more in-depth process might yield more nuanced and contextualized findings. Third, we did not collect information associated with the type of CES program (e.g., full-time, online), the Carnegie Classification (e.g., R1), or other relevant factors to the RTE, such as faculty loads and funding of graduate students. Also, we did not control for personal characteristics, such as gender identity, racial or ethnic identity, age, or the number of research courses completed, which could offer a more holistic representation of the results.

Implications

Wester and Borders (2014) proposed the content being taught and/or students' ability to understand or apply the content may explain the lower quality submissions in counseling research. Our results and findings suggest students believe they are receiving an abundance of content yet struggle with understanding or applying it within the context of counseling. The discipline of the instructor seems to be a critical characteristic hindering students' comprehension and integration of course material into their work as researchers, ultimately impacting their perceptions of their instructional RTE and their levels of research self-efficacy. Based on these results and findings, it would behoove counseling programs to "house" at least one of their CES doctoral research courses and assign instructors who are passionate, experienced, knowledgeable, and enthusiastic about counseling research.

For some programs, moving research courses into counseling departments may not be possible due to a number of sociopolitical or financial factors that impact the program structure. In these cases, programs might consider how they can offer students more structured, applied experiences with counseling faculty, such as through independent studies, project-based assignments with faculty mentorship, research experiences during their doctoral internship, or brown-bagged events focused on applying research content to counseling.

According to Randazzo et al. (2021), sociopolitical, institutional, and financial factors are contributors to faculty's perceptions of global RTE, but they do not appear to be statistically significant differences in faculty research self-efficacy. Future research should focus on the role of institutional and programmatic variables (e.g., institutional classifications, format, enrollment type) in students' perceptions of the RTE and their research self-efficacy. Moreover, future researchers should investigate ways programs incorporate applied experiences into research training for CES students and how these varied approaches affect student research self-efficacy formation or growth.

If CES doctoral programs are unable to, or decide to, forgo moving research courses to their programs and choose to offer other structured, applied experiences, it is critical for them to evaluate whether some students are receiving preferential treatment by potential research mentors. In our sample, approximately one-fourth of participants described the sentiment of "secret research covens" in their programs that prevented all students from having access to quality research training, conveying that some students are more valuable to the program than others, which is harmful to students' research self-efficacy. Counselor educators are charged with providing equitable and accessible training in the core area of research and scholarship (CACREP, 2016). Therefore, CES doctoral programs must ensure research mentorship is available to all students. While results regarding formal research mentoring relationships and programs are mixed (Brown et al., 2009), in the absence of quality counseling research coursework, formalized research mentoring programs may ensure that all CES students are being adequately trained in research and scholarship. Future researchers should consider investigating inclusion and exclusion of doctoral students in research opportunities in CES doctoral programs.

References

- Balkin, R. S. (2020). The challenge of counseling research in developing a signature pedagogy for quantitative methods. *Teaching and Supervision in Counseling*, 2(2), 47–52. <https://doi.org/10.7290/tsc020206>
- Baltrinic, E. R., & Wachter Morris, C. (2020). Signature pedagogies: A framework for pedagogical foundations in counselor education. *Teaching and Supervision in Counseling*, 2(2), 1–11. <https://doi.org/10.7290/tsc020201>
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191–215. <https://doi.org/10.1037/0033-295X.84.2.191>
- Barrio Minton, C. A., Fernando, D. M., & Ray, D. C. (2008). Ten years of peer-reviewed articles in counselor education: Where, what, who? *Counselor Education and Supervision*, 48, 133–143. <https://doi.org/10.1002/j.1556-6978.2008.tb00068.x>
- Bieschke, K. J., Bishop, R. M., & Garcia, V. L. (1996). The utility of the research self-efficacy scale. *Journal of Career Assessment*, 4, 59–75.
- Bishop, R. M., & Bieschke, K. J. (1994). Interest in Research Questionnaire [Unpublished scale]. The Pennsylvania State University.
- Borders, L. D., Wester, K. L., Fickling, M. J., & Adamson, N. A. (2014). Research training in doctoral programs accredited by the Council for Accreditation of Counseling and Related Educational Programs. *Counselor Education and Supervision*, 53, 145–160.
- Borders, L. D., Wester, K. L., & Driscoll, K. H. (2020). Research development of doctoral students: Supports and barriers across time. *Counselor Education & Supervision*, 59(4), 297–315. <https://doi.org/10.1002/ceas.12190>
- Brown, R. T., Daly, B. P., & Leong, F.T.L. (2009). Mentoring in research: A developmental approach. *Professional Psychology: Research and Practice*, 40, 306–313.
- Clauset, A., Arbesman, S., & Larremore, D. B. (2015). Systematic inequality and hierarchy in faculty hiring networks. *Science Advances*, 1(1), e1400005. <https://doi.org/10.1126/sciadv.1400005>
- Cobb, C. L., Zamboanga, B. L., Xie, D., Schwartz, S. J., Martinez, C. R., Jr., & Skaggs, S. (2020). Associations among the advisory working alliance and research self-efficacy within a relational-efficacy framework. *Journal of Counseling Psychology*, 67(3), 361–370. <https://doi.org/10.1037/cou0000389>
- Council for Accreditation of Counseling and Related Educational Programs. (2015). *CACREP vital statistics 2014: Results from a national survey of accredited programs*. Author.
- Council for the Accreditation of Counseling and Related Educational Programs. (2016). *2016 CACREP standards*. <https://www.cacrep.org/for-programs/2016-cacrep-standards/>
- Deemer, E. D., Martens, M. P., Haase, R. F., & Jome, L. M. (2009). Do mastery approach goals and research outcome expectations mediate the relationship between the research training environment and research interest? Test of a social cognitive model. *Training and Education in Professional Psychology*, 3, 250–260. <https://doi.org/10.1037/a0017384>
- Elo, S., & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing*, 62(1), 107–115. <https://doi.org/10.1111/j.1365-2648.2007.04569.x>

- Fong, M. L., & Malone, C. M. (1994). Defeating ourselves: Common errors in counseling research. *Counselor Education and Supervision*, 33, 356–362.
- Gelso, C. J. (1993). On the making of a scientist-practitioner: A theory of research training in professional psychology. *Professional Psychology: Research and Practice*, 24, 468–476.
- Gelso, C. J., Baumann, E. C., Chui, H. T., & Savelle, A. E. (2013). The making of a scientist-psychotherapist: The research training environment and the psychotherapist. *Psychotherapy*, 50, 139–149. <https://doi.org/10.1037/a0028257>
- Greeley, A. T., Johnson, E., Seem, S., Braver, M., Dias, L., Evans, L., Kincade, E., & Pricken, P. (1989). Research Self-Efficacy Scale [Unpublished scale].
- Hollingsworth, M. A. (2000). The role of research training environment, past research attitudes, and mentoring relationships in predicting current research attitudes and behaviors. (Unpublished doctoral dissertation), University of Maryland College Park, Ann Arbor.
- Hollingsworth, M. A., & Fassinger, R. E. (2002). The role of faculty mentors in the research training of counseling psychology doctoral students. *Journal of Counseling Psychology*, 49, 324–330. <https://doi.org/10.1037/0022-0167.49.3.324>
- Hsieh, H. F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research*, 15(9), 1277–1288. <https://doi.org/10.1177/1049732305276687>
- Kahn, J. H., & Miller, S. A. (2000). Measuring global perceptions of the research training environment using a short form of the RTES-R. *Measurement and Evaluation in Counseling and Development*, 33(2), 103–119. <http://psycnet.apa.org/psycinfo/2000-05649-003>
- Kahn, J. H., & Scott, N. A. (1997). Predictors of research productivity and science-related career goals among counseling psychology graduate students. *The Counseling Psychologist*, 25, 38–67. <https://doi.org/10.1177/0011000097251005>
- Kleinheksel, A. J., Rockich-Winston, N., Tawfik, H., & Wyatt, T. R. (2020). Demystifying content analysis. *American Journal of Pharmaceutical Education*, 84(1), 7113. <https://doi.org/10.5688/ajpe7113>
- Kline, W. B., & Farrell, C. A. (2005). Recurring manuscript problems: Recommendations for writing, training, and research. *Counselor Education and Supervision*, 44, 166–174.
- Kuo, P. B., Woo, H., & Bang, N. M. (2017). Advisory relationship as a moderator between research self-efficacy, motivation, and productivity among counselor education doctoral students. *Counselor Education and Supervision*, 56(2), 130–144.
- Lamar, M. R., & Helm, H. M. (2017). Understanding the researcher identity development of counselor education and supervision doctoral students. *Counselor Education and Supervision*, 56, 2–18.
- Lambie, G. W., Hayes, B. G., Griffith, C., Limberg, D., & Mullen, P. R. (2014). An exploratory investigation of the research self-efficacy, interest in research, and research knowledge of Ph. D. in education students. *Innovative Higher Education*, 39(2), 139–153.
- Lambie, G. W., & Vaccaro, N. (2011). Doctoral counselor education students' levels of research self-efficacy, perceptions of the research training environment, and interest in research. *Counselor Education and Supervision*, 50, 243–258.
- Livint, R., Gunnesch-Luca, G., & Iliescu, D. (2021). Research self-efficacy: A meta-analysis. *Educational Psychologist*, 56(3), 215–242. <https://doi.org/10.1080/00461520.2021.1886103>
- Morrison, M. A., & Lent, R. W. (2014). The advisory working alliance and research training: Test of a relational efficacy model. *Journal of Counseling Psychology*, 61(4), 549–559.
- Moser, L., Berlie, H., Salinitri, F., McCuiston, M., & Slaughter, R. (2015). Enhancing academic success by creating a community of learners. *American Journal of Pharmaceutical Education*, 79(5), 70. <https://doi.org/10.5688/ajpe79570>
- O'Cathain, A., & Thomas, K. J. (2004). "Any other comments?" Open questions on questionnaires: A bane or a bonus to research? *BMC Medical Research Methodology*, 4(25). <https://doi.org/10.1186/1471-2288-4-25>
- Papanastasiou, E. C. (2014). Revised-Attitudes Toward Research Scale (R-ATR): A first look at its psychometric properties. *Journal of Research in Education*, 24(2), 146–159.
- Petko, J. T., Sivo, S. A., & Lambie, G. W. (2020). The research self-efficacy, interest in research, and research mentoring experiences of doctoral students in counselor education. *The Journal of Counselor Preparation and Supervision*, 13(1).
- Randazzo, M., Priefer, R., & Khamis-Dakwar, R. (2021). Project-based learning and traditional online teaching of research methods during COVID-19: An investigation of research self-efficacy and student satisfaction. *Frontiers in Education*, 6, 1–16. <https://doi.org/10.3389/feduc.2021.662850>
- Sawitri, D. R., Creed, P. A., Nurtjahjanti, H., & Prasetyo, A. R. (2020). Development and initial validation of Perceived Research Environment Scale for higher education academics. *Journal of Psychoeducational Assessment*, 38(2), 195–208.
- Wester, K. L., & Borders, L. D. (2014). Research competencies in counseling: A Delphi study. *Journal of Counseling & Development*, 92, 447–458.
- Wester, K. L., Borders, L. D., Gonzalez, L. M., & Waalkes, P. (2019). Factors contributing to scholar productivity of assistant professors in counseling. *Counselor Education & Supervision*, 58(3), 225–237. <https://doi.org/10.1002/ceas.12152>

Author Information

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

The authors reported no financial support for the research, authorship, and/or publication of this article.

The authors have agreed to publish and distribute this article in *Teaching and Supervision in Counseling* as an open access article distributed under the terms of the Creative Commons – Attribution License 4.0 International (<https://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly attributed. The authors retain the copyright to this article.

C. Missy Moore, PhD, is an assistant professor in the Department of Counseling and Human Development Services at the University of Georgia. Dr. Moore has two primary areas of specialization in her research: applied measurement and wellness and impairment. In these areas, Dr. Moore focuses her work on instrument development, applying measurement principles to improve counseling practice, program evaluation, stress and coping, counselor burnout, and wellness among helping professionals and clinical populations. 

John McCall, PhD, is an assistant professor of school counseling at Auburn University. His research interests include chemical and behavioral addictions, adverse childhood experiences, and self-regulation paradigms.

Todd Bolin, LMHC, LMFT, is a licensed mental health counselor, licensed marriage and family therapist, and an AAMFT approved supervisor.

Austen Bingham, LPC, is a doctoral candidate at The University of Georgia and a licensed professional counselor and clinical supervisor in private practice. His research areas include counselor development and social justice in supervision.

How to Cite this Article:

Moore, C. M., McCall, J., Bolin, T., & Bingham, A. (2024). Perceptions of the instructional research training environment and research self-efficacy. *Teaching and Supervision in Counseling*, 6(1), 39–53. <https://doi.org/10.7290/tsc06u7fc>