

Factors contributing to scholarly productivity of assistant professors in counseling

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This is the peer reviewed version of the following article:

Wester, K. L., Borders, L. D., Gonzalez, L. M., & Waalkes, P. L. (2019). Factors contributing to scholarly productivity of assistant professors in counseling. *Counselor Education and Supervision*, 58(3), 225-237.

which has been published in final form at <https://doi.org/10.1002/ceas.12152>. This article may be used for non-commercial purposes in accordance with [Wiley Terms and Conditions for Use of Self-Archived Versions](#).

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Abstract:

Doctoral research training and faculty departmental research culture were explored in relation to research interest, self-efficacy, and productivity among 49 counselor education assistant professors. Doctoral research training environment consistently held strong positive relationships with research interest and self-efficacy, suggesting that a solid foundation in research at the doctoral level is imperative for initial research productivity.

Keywords: scholarly productivity | research training | research culture | research self-efficacy | counselor education

Article:

In academia, there has been an increased push to produce research; even faculty at nonresearch universities are being asked to increase their research productivity (Eagan & Garvey, 2015; Lucas & Murry, 2002). Across decades (Glover, 2001; Lawrence, Celis, & Ott, 2014; Miller & Seldin, 2014), this push is partly due to decreased funding from legislatures at the state level and institutes of higher education, resulting in a need for faculty to prove their worth through scholarly products that increase university visibility and potential external funding. In addition to institutional-level pressures, individual faculty research productivity tends to be tied to obtaining academic positions, salary, promotion, tenure achievement, and merit increases, as well as recognition and prestige within a discipline (Glover, 2001; Leslie, 2002). Disciplines also benefit, in that the critical thinking behind scholarship helps advance a field (Walker, Golde, Jones, Bueschel, & Hutchings, 2008). Yet, not all campuses with rising research expectations provide research support (Youn & Price, 2009), and overall, research development postgraduation is a relatively neglected area of study (Åkerlind, 2008).

The push for research, and ultimately scholarly productivity, at the larger institutional levels comes at a time when counselor educators are stating the need for more research training (Milsom & Moran, 2015; Okech, Astramovich, Johnson, Hoskins, & Rubel, 2006). Department chairs in counselor education have questioned the quality of research training of faculty applicants (Barrio-Minton, Myers, & Morganfield, 2012; Lambie, Rubel, Smith, Spurgeon, & Wester, 2015), whereas counselor education faculty have stated that their research needs are not being met by colleagues within their department (Briggs & Pehrsson, 2008). Also, new counselor educators have identified conducting and publishing research as one of the most difficult challenges when entering a faculty role (Milsom & Moran, 2015).

Although no clear strategy has been identified for postgraduation research development, critical factors have been recognized at the doctoral student level. In line with social-cognitive theory, Kahn and Scott (1997) developed a theoretical model of factors that enhance scholarly productivity among doctoral students, with Kahn (2001) refining the model. Specifically, they hypothesized, and empirically supported, that the research training environment during doctoral studies is positively related to research self-efficacy and research interest, which both in turn influence scholarly activity of psychology doctoral students (Kahn, 2001). Since then, researchers have found that the combination of these factors lead to increased scholarly productivity among doctoral students in psychology (Deemer, Martens, Haase, & Jome, 2009; Hemmings & Kay, 2016; Kahn & Schlosser, 2010; Pasupathy & Siwatu, 2014), as well as in counselor education (Kuo, Woo, & Bang, 2017; Lamar & Helm, 2017; Lambie & Vaccaro, 2011). What is unknown is whether this model would apply to new counselor educators' scholarship.

We assert that Kahn and colleagues' (Kahn, 2001; Kahn & Scott, 1997) model would apply, given that factors in the model have been explored individually among faculty. Research self-efficacy (Åkerlind, 2008; Hemmings & Kay, 2016; Pasupathy & Siwatu, 2014), doctoral-level research training (Mallinckrodt & Gelso, 2002), and research culture within a department (Bland, Center, Finstad, Risbey, & Staples, 2005; Fox & Mohapatra, 2007) all are positively related to scholarly productivity of faculty in various disciplines. However, researchers' approaches thus far have been piecemeal, with the model neither applied in full to faculty nor applied to counselor educators at all. Given these individual findings, it seems reasonable to expect that the model proposed by Kahn and colleagues would apply to new faculty in counselor education. Exploring this model among counselor educators is important given the stated needs related to research training among faculty during their graduate training (Okech et al., 2006) and their new faculty positions (Barrio-Minton et al., 2012; Bodenhorn et al., 2014; Briggs & Pehrsson, 2008; Milsom & Moran, 2015).

Research training environment, whether doctoral training for students or departmental culture for faculty, includes both instructional and interpersonal components (Borders, Wester, & Gonzalez, 2018; Gelso, 1993, 1997). As noted by Gelso (1993, 1997), instructional components are the aspects of a research environment that include classroom instruction, connection of research to practice, and faculty and student engagement in research. Interpersonal components include mentorship, collaboration, and faculty excitement about research. Among counselor educators, the interpersonal component of a research environment has been identified as important. As an example, research mentorship has been stressed for new faculty (Borders et

al., 2011), given that mentorship during the first 3 years leads to greater job satisfaction, results in more success as an assistant professor (Magnuson, 2002; Magnuson, Black, & Lahman, 2006; Magnuson, Shaw, Tubin, & Norem, 2004), and is crucial in gaining promotion and tenure (Magnuson et al., 2006; Magnuson, Norem, & Lonneman-Doroff, 2009). A more current and comprehensive understanding of the impact of both doctoral and current research environment factors seems an important next step.

Accordingly, the goal of this study was to explore the impact of the research environments—both doctoral research training and current departmental research culture—of assistant professors in counselor education on their research interest, research self-efficacy, and research productivity. An additional purpose was to explore the individual impact of interpersonal and instructional components of research environments on each of the factors noted. The specific research questions were the following:

Research Question 1a: What is the relationship of doctoral research training environment and faculty departmental research culture on research interest?

Research Question 1b: What are the relationships of the instructional and interpersonal components in explaining research interest?

Research Question 2a: What is the relationship of doctoral research training environment and faculty departmental research culture on research self-efficacy?

Research Question 2b: What are the relationships of the instructional and interpersonal components in explaining research self-efficacy?

Research Question 3: What is the relationship of doctoral research training environment, faculty departmental research culture, research interest, and research self-efficacy on the scholarly productivity of assistant professors in counselor education?

Method

Participants

The present study was a descriptive correlational, cross-sectional study of assistant professors in counselor education. Of the final sample ($N = 49$), the majority identified as female ($n = 36$, 73.5%), with 24.5% identifying as male ($n = 12$) and 2.0% not indicating their sex ($n = 1$). Regarding race, most participants identified as White ($n = 39$, 79.6%), with 14.3% identifying as African American/Black ($n = 7$), 4.1% identifying as multiracial or other ($n = 2$), and 2.0% not answering this item ($n = 1$). Almost all had received a PhD ($n = 45$, 91.8%), with the remainder receiving an EdD ($n = 3$, 6.1%) or not responding to this item ($n = 1$, 2.0%). (Percentages may not total 100 because of rounding.) Over half reported current positions in a combined master's/doctoral program ($n = 27$, 55.1%); 42.9% reported being in master's-only programs ($n = 21$), and 2.0% did not provide their current program degrees ($n = 1$). Over three quarters ($n = 38$, 77.6%) reported graduating from a doctoral program accredited by the Council for Accreditation of Counseling and Related Educational Programs (CACREP). Most were in

tenure-track positions ($n = 45$, 91.8%), with 4.1% in clinical faculty appointments ($n = 2$). Only one faculty member indicated working in a non-CACREP-accredited program. Faculty had been in their current position for an average of 2.40 years ($SD = 1.76$). Over half ($n = 29$, 59.2%) indicated having no current research mentor.

Measures

Research self-efficacy. Research self-efficacy was assessed using the Faculty Research Self-Efficacy Scale (FaRSE; Wester, Gonzalez, & Borders, 2015). Using a 6-point Likert scale (1 = *strongly disagree*, 6 = *strongly agree*), respondents indicate the degree to which they believe that they have the ability to engage in a list of 21 research tasks, with higher scores reflecting higher research self-efficacy. Based on counseling research competencies (Wester & Borders, 2014), the FaRSE has adequate construct validity as evidenced by high correlations ($r = .71$) with the Research Self-Efficacy Scale (Bieschke, Bishop, & Garcia, 1996), as well as high internal reliability (Wester et al., 2015). In the current study, the Cronbach's alpha was .94.

Doctoral research training environment. Participants' perceptions of their doctoral research training environment were measured using the Research Training Environment Scale–Short Form (RTES-SF; Kahn & Miller, 2000), which is based on Gelso's (1993, 1997) research training environment theory. The scale consists of 18 items, which are rated on a 5-point Likert-type scale (1 = *disagree*, 5 = *agree*). For the current study, items were slightly altered from present to past tense given that participants were no longer in their doctoral training program. Prior to use, the past-tense version of the RTES-SF was sent to expert reviewers to assess for face and content validity. The RTES-SF can be used as a full-scale score, with higher scores indicating greater satisfaction and perception of research interest/mentoring in one's doctoral program, or it can be separated into two subscales: Instructional and Interpersonal. The RTES-SF has construct validity as evidenced by high correlations with the original RTES (Gelso, Mallinckrodt, & Judge, 1996), as well as high internal reliability (Kahn & Miller, 2000). In the current study, the RTES-SF total score and the Interpersonal and Instructional subscale scores had high internal reliability ($\alpha = .92$, $.88$, and $.78$, respectively).

Faculty departmental research culture. Assistant professors' perceptions of their current departmental research culture were assessed using the 18-item Faculty Research Culture Scale (FaRCS; Borders et al., 2018). With permission (J. H. Kahn, personal communication, March 10, 2014), the FaRCS was developed by altering items on the RTES-SF (Kahn & Miller, 2000) to reflect departmental research culture rather than a doctoral training environment. Similar to the RTES-SF, the FaRCS uses a 5-point Likert-type scale (1 = *disagree*, 5 = *agree*) and yields a total score as well as scores for the Interpersonal and Instructional subscales (Borders et al., 2018). In the current study, the Cronbach's alpha was high for the FaRCS total score (.94), as well as for the Interpersonal and Instructional subscale scores ($\alpha = .90$ and $.87$, respectively).

Research interest. The Interest in Research Questionnaire (IRQ; Bishop & Bieschke, 1994) is composed of 16 items that describe various research activities. Respondents are asked to indicate, on a 5-point Likert-type scale (1 = *very disinterested*, 5 = *very interested*), how interested they are in engaging in those activities. Reliability of scores was reported as high ($\alpha =$

.89), and construct validity was strong (see Bard, Bieschke, Herbert, & Eberz, 2000). Scores on the IRQ were also reliable in the current sample ($\alpha = .90$).

Scholarly productivity. Scholarly productivity was assessed through six items (taken from Kahn & Scott, 1997): (a) total number of published articles authored or coauthored in refereed journals; (b) published empirical articles authored or coauthored; (c) manuscripts submitted for review but not yet reviewed; (d) manuscripts currently under preparation for publication; (e) funded research activities; and (f) presentations made locally, regionally, or nationally. Kahn and Schlosser (2010) identified that these items entail both past and current research activity. Total productivity was computed by summing five of the six items (excluding the “published empirical articles” item in the total so as not to duplicate the counts provided in the “total number of published articles” item).

Procedure

A list of doctoral- and master’s-level programs was created as a sampling frame in the 2014–2015 academic year. No counselor education programs that were solely online were included, because it was believed that this would provide a different type of departmental culture compared with face-to-face or brick-and-mortar programs. All doctoral-level counseling programs at the time were included ($n = 60$) in the sampling frame; all but two were accredited by CACREP. Master’s-only programs ($n = 63$) were randomly selected from both CACREP ($n = 57$) and non-CACREP ($n = 6$) programs. Names and email addresses of assistant professors in counselor education were retrieved from departmental websites. Nineteen departments (master’s-only programs, $n = 10$; doctoral programs, $n = 9$) were removed from the sampling frame because no contact information was available on the website. This left a total of 104 programs (master’s-only programs, $n = 53$; doctoral programs, $n = 51$) for which names and emails for assistant professors in counselor education were available, and yielded email addresses for a total of 249 assistant professors in counselor education across 85 universities.

After receiving institutional review board approval, we contacted all participants with emails and asked them to complete an online survey with the measures noted above. The online survey was estimated to take approximately 20 minutes to complete. Fifteen individuals indicated that they were not appropriate for the study (e.g., not an assistant professor, not a counselor educator), and 12 emails bounced back, indicating an invalid email address. Of the resulting sample size of 222 possible respondents, 57 faculty entered and started the survey (25.7% initial response rate). Eight faculty were removed because of large amounts of missing data, leaving 49 faculty with complete data for all of the measures (22.1% response rate).

Data Analysis

We conducted a series of hierarchical regressions to explore the research questions. First, however, we conducted preliminary analyses to determine whether demographics (i.e., sex, race, years employed, having a research mentor, and being employed in a master’s-only vs. a master’s/doctoral program) should be included in the larger model given the influence they have had on research self-efficacy and productivity (Kahn, 2001; Kahn & Scott, 1997). In the preliminary analyses, independent-samples t tests and analyses of variance yielded no

statistically significant differences for any demographics with respect to doctoral research training environment (as measured by the RTES-SF) or faculty departmental research culture (as measured by the FaRCS). A statistically significant difference existed for race and research self-efficacy, $F(2, 47) = 4.25, p < .05$, and research interest, $F(2, 39) = 5.26, p < .05$. Post hoc Scheffé tests indicated that African American/Black counselor educators reported higher levels of research self-efficacy and interest than did those who identified as multiracial or other. No statistically significant differences existed between White counselor educators and those of any other racial group.

Table 1. Predictors of Research Interest and Self-Efficacy Among Assistant Professors in Counselor Education

Predictor	Dependent Variables							
	RQ 1: Research Interest				RQ 2: Research Self-Efficacy			
	<i>B</i>	<i>SE B</i>	β	<i>t</i>	<i>B</i>	<i>SE B</i>	β	<i>t</i>
Model 1								
Race ^a	-5.76	3.58	-.23	-1.61	-10.79	5.72	-.25	-1.88
Master's/doctoral ^b	6.31	2.86	.33	2.21*	6.42	4.71	.19	1.36
Doctoral training	0.18	0.08	.31	2.15*	0.53	0.14	.53	3.88**
Faculty culture	0.02	0.08	.05	0.30	-0.06	0.12	-.07	-0.48
Research interest					0.18	0.26	.10	0.67
Model 2								
Race ^a	-5.89	3.66	-.24	-1.61	-8.10	5.64	-.19	-1.44
Master's/doctoral ^b	5.62	2.90	.29	1.94	7.87	4.54	.24	1.73
RTES-SF								
Interpersonal	-0.25	0.29	-.23	-0.85	1.48	0.45	.77	3.30**
Instructional	0.72	0.34	.57	2.12*	-0.58	0.54	-.26	-1.07
FaRCS								
Interpersonal	0.10	0.27	.10	0.37	-0.70	0.40	-.39	-1.74
Instructional	-0.00	0.28	-.00	-0.02	0.45	0.41	.25	1.10
Research interest					0.30	0.26	.17	1.16

Note. $N = 49$. RQ = research question; Master's/doctoral = master's/doctoral program; Doctoral training = doctoral research training environment; Faculty culture = faculty departmental research culture; RTES-SF = Research Training Environment Scale–Short Form; FaRCS = Faculty Research Culture Scale. ^aAfrican American/Black is the reference category. ^bMaster's-only program is the reference category. * $p < .05$. ** $p < .01$.

Table 2. Predictors of Scholarly Productivity Among Assistant Professors in Counselor Education

Predictor	<i>B</i>	<i>SE B</i>	β	<i>t</i>
Model 3				
Race ^a	10.74	9.75	.16	1.10
Master's/doctoral ^b	14.71	7.44	.29	1.98
Doctoral training	-0.06	0.26	-.04	-0.24
Faculty culture	0.13	0.19	.10	0.71
Research interest	0.50	0.40	.19	1.26
Research self-efficacy	0.66	0.26	.43	2.51*

Note. $N = 49$. Master's/doctoral = master's/doctoral program; Doctoral training = doctoral research training environment; Faculty culture = faculty departmental research culture. ^aAfrican American/Black is the reference category. ^bMaster's-only program is the reference category. * $p < .05$.

Additionally, faculty in master's-only programs were found to significantly differ from those in master's/doctoral programs on research interest, $F(1, 39) = 5.83, p < .05$, and scholarly productivity, $F(1, 46) = 10.47, p < .01$, with faculty in master's/doctoral programs reporting higher levels of both. Therefore, we included race and master's/doctoral programs in all regression analyses. Race was dummy coded, with African American/Black as the reference category. Post hoc statistical power ranged from .92 (Model 1; see Table 1) to .99 (Model 3; see Table 2) given the sample size, effect size, and number of variables.

Results

Research Interest

In line with Kahn and colleagues' (Kahn, 2001; Kahn & Scott, 1997) model, we conducted a hierarchical regression to explore factors related to research interest (see Table 1). The model was significant, $F(4, 39) = 8.41, p < .05, R^2 = .30$, explaining a large amount of variance (30%). Both current master's/doctoral setting and doctoral research training environment (RTES-SF) were positively related to research interest, with no relationship between research interest and race or faculty departmental research culture (FaRCS). Faculty employed in master's/doctoral programs had a higher level of research interest than did those employed in master's-only programs.

We conducted a second regression to explore the discrete relationships of the Interpersonal and Instructional subscales of the RTES-SF and FaRCS to research interest. This model was also significant, $F(6, 39) = 3.01, p < .05, R^2 = .35$, explaining a large amount of variance (35%; see Table 1). Neither race nor master's/doctoral setting was significantly related to research interest. The only research environment subscale significantly related to research interest was the Instructional subscale of the RTES-SF.

Research Self-Efficacy

To explore factors related to research self-efficacy, we used a hierarchical regression. The model was significant, $F(5, 39) = 5.68, p < .01, R^2 = .46$, explaining a large amount of variance (46%; see Table 1). The only significant predictor was doctoral research training environment, which was positively related to research self-efficacy. In the second model, individual subscales of RTES-SF and FaRCS were explored in relation to research self-efficacy. This model was also significant (see Model 2 for Research Question 2 in Table 1), $F(7, 39) = 5.33, p < .01, R^2 = .54$, explaining a large amount of variance (54%). The only factor related to research self-efficacy in this model was the Interpersonal subscale of the RTES-SF.

Scholarly Productivity

The assistant professors reported having a range of three to 131 total scholarly products ($M = 34.9, SD = 23.1$). Specifically, they reported an average of 5.9 ($SD = 4.7$) published or in-press articles, including an average of 3.5 ($SD = 3.7$) empirical articles; 25.1 presentations ($SD = 18.7$); and 1.2 funded research projects or grants ($SD = 1.4$). We used a regression to explore factors that were related to faculty scholarly productivity (see Table 2). This model was significant, $F(6,$

38) = 4.48, $p < .01$, $R^2 = .46$, with a large amount of variance explained (46%). Only research self-efficacy was positively related to scholarly productivity. All other variables in the model were not statistically significantly related to the amount of faculty scholarship. We conducted a separate regression to explore whether specific relationships emerged with the Interpersonal and Instructional subscales of the FaRCS and RTES-SF. This model was significant, $F(8, 38) = 3.23$, $p < .01$, $R^2 = .46$, with only research self-efficacy significantly related to scholarly productivity.

Discussion

This study was the first to explore Kahn and colleagues' (Kahn, 2001; Kahn & Scott, 1997) model of scholarly productivity among faculty, as well as to include the impact of both the doctoral and faculty research environments. Overall, their model was partially supported by our findings, with doctoral research training environment significantly influencing faculty research interest and self-efficacy; in turn, research self-efficacy was the only predictor of scholarly productivity.

Overall, within the doctoral research training environment, the instructional component (i.e., taught a wide variety of research methodologies and applied perspectives of statistical analysis, experienced encouragement to develop and pursue own scholarly interests, and gained an understanding of how research connects directly to practice) had a positive influence, regardless of whether pretenured counselor educators were interested in research. However, it was the interpersonal component of the doctoral research training environment that positively related to counselor educators' research self-efficacy. It should be noted that doctoral research training environment explained a large amount of variance in both research interest and self-efficacy.

Surprisingly, the research culture within the faculty's department did not directly influence current levels of research interest, self-efficacy, or scholarly productivity. This finding conflicts with previous research, which has identified that components of a departmental environment, such as departmental size, collaborations, and mentorship, are influential on faculty research productivity (Bland et al., 2005; Fox & Mohapatra, 2007; Saral & Reyhanliog̃lu, 2015). However, these researchers did not include the influence of doctoral research training environments or research self-efficacy. The inclusion of one's doctoral research training environment and experience may negate the impact of the current departmental environment on faculty members, at least early in their careers. Doctoral research training may be the foundation imperative for later faculty interest and efficacy, and may propel a new faculty member forward in the engagement and production of scholarship.

Implications

Given the direct influence of the doctoral research training environment on the research interest and self-efficacy of assistant faculty in counselor education, and that faculty research self-efficacy was the only predictor of scholarly productivity in our sample, it seems important to focus on research training in doctoral programs. Gelso's (1993) 10 ingredients of effective research training environments is a good place to start. Gelso and colleagues (Gelso, 1993; Gelso, Baumann, Chui, & Savela, 2013) mapped out these ingredients, with four interpersonal

ingredients and six instructional ingredients. Gelso and colleagues (Gelso, 1993; Gelso et al., 2013) noted that the interpersonal component of a training environment includes faculty modeling scientific behaviors and attitudes, exhibiting passion for research, enjoying the research process (not solely engaging in research because it is required), and allowing students to see successes as well as failures and struggles in research. Also in the interpersonal component, research is reinforced, both formally and informally, through awards and finances to fund research or travel to conferences, as well as through public acknowledgments in newsletters, program communications, and other settings. Additionally, students get involved in research early in their training (Gelso, 1993).

Gelso et al. (2013) mentioned that too many doctoral students get involved in research too late in their training program, and that engaging in research in the 1st year is imperative. This ingredient has been found to be lacking in many counselor education programs, with 50% of doctoral training programs noting that hands-on experience in research does not typically occur in the 1st year, and 8% of programs indicating the first hands-on research experience is the student's dissertation (Borders, Wester, Fickling, & Adamson, 2014). Getting involved is linked to another interpersonal component in Gelso's (1993; Gelso et al., 2013) model—emphasizing research as a social-interpersonal experience. This can include creating a research partnership between a student and an adviser or between two students, participating on research teams, or engaging in community collaborations. The goal of this last interpersonal ingredient is to reveal that research does not have to occur in isolation.

That the instructional component did not directly affect research self-efficacy or scholarly productivity seems to contradict reports that faculty need and request more training in research, more mentorship, and more assistance in research (e.g., Briggs & Pehrsson, 2008; Milsom & Moran, 2015; Okech et al., 2006). An expert panel in a Delphi study on developing research competencies suggested that competency includes continued development and education around research (Wester & Borders, 2014). Thus, it may be that instruction and mentorship appear in a different format at the faculty level, or that continued instruction does not affect research self-efficacy or productivity directly. The lack of influence at the faculty departmental level in our sample, then, may be due to a lack of resources, collaboration, or mentorship within the department or institution of employment. Given that others have acknowledged the importance of the department and overall institution on faculty research productivity (Bland et al., 2005; Borders et al., 2011), it seems important to encourage counseling programs to enhance their environment around research. Feuer, Towne, and Shavelson (2002) and Hanover Research (2014) stressed that it is the responsibility of each environment to develop and promote a research culture.

The lack of impact of the faculty research environment in the current study may be due to assistant faculty still drawing on their doctoral research training. Faculty at all levels continue to mention the influence of their training program, mentors, and dissertation chairs on their current research confidence, interest, and knowledge (Gibson, Dollarhide, Leach, & Moss, 2015). Although doctoral training may be foundationally important, other researchers have stated the importance of continued mentoring and collaboration at the faculty level (e.g., Lawrence et al., 2014; Pasupathy & Siwatu, 2013). It may be that, early in an educational career, reliance on collaboration and mentoring that occurred within one's doctoral program affects research self-

efficacy, which in turn leads to increased scholarly productivity. However, it may also be that the research culture of one's department as a faculty member may affect one's career moving forward. In our study, nearly 60% of faculty reported that they did not have a current research mentor.

Limitations

Limitations of this study need to be acknowledged. First, the response rate and total sample size were low. However, a 22% response rate is typical for online surveys (Nulty, 2008), and the sample size provided enough statistical power to conduct the analyses given the large amount of variance explained in each of the models. Second, the sample primarily included faculty who identified as female and White, but these demographics are representative of most studies within counselor education (e.g., Brown-Rice & Furr, 2015; Neuer Colburn, Grothaus, Hays, & Milliken, 2016). Third, given the lack of demographic information on nonrespondents, we were unable to explore whether they differed from respondents on any demographic information.

Fourth, in terms of programs, no information was collected on the Carnegie classification of faculty institutions. This could be important, given that faculty in research-intensive universities would be expected to produce at higher rates compared with those in institutions classified at lower research classifications or teaching classifications. Nevertheless, programs within a research-intensive university may still vary in their research productivity.

Fifth, the cross-sectional nature of this study explored faculty's reflections on their doctoral research training environment and linked those perceptions to current levels of research interest, self-efficacy, and productivity. Not known are participants' actual experiences in their doctoral research training or how research interest and self-efficacy may have changed since graduation. Longitudinal studies are needed to explore changes across time from student to new faculty member to determine the true trajectory of research development, as well as the influence of research mentorship, doctoral research training, and faculty departmental research culture. Finally, only the quantity of scholarship was assessed, although determining quality is also important.

Conclusion

Knowing that doctoral-level research training provides a critical foundation for future interest and efficacy in research among untenured counselor educators reveals the need to examine how training programs are effectively providing both instructional and interpersonal components to counselor education doctoral students. Although the findings in this study are notable, future researchers should explore this linear relationship among a larger sample of faculty, including posttenured faculty. Nevertheless, it does seem, given the strength of the relationship and variance explained, that doctoral research training is a critical foundation to the development of researchers and scholars in counselor education.

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