

Research Training in Doctoral Programs Accredited by the Council for Accreditation of Counseling and Related Educational Programs

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Abstract:

Faculty in 38 doctoral counselor education programs accredited by the Council for Accreditation of Counseling and Related Educational Programs identified the quantitative and qualitative designs and other research topics that were covered in required and elective course work, discipline of course instructors, and opportunities for doctoral students' hands-on research experience. Results indicated a wide range of research training offerings and modest faculty satisfaction.

Keywords: research training | doctoral counseling programs | research competence

Article:

A sense of urgency regarding counseling research has permeated the profession in recent years, reflecting a national concern about the quality of research across the social and behavioral sciences (Walker, Golds, Jones, Bueschel, & Hutchings, 2008). Editors of *Counselor Education and Supervision* (CES; Black & Helm, 2010; Kline & Farrell, 2005) have noted ongoing concerns regarding the quality of research studies submitted to the journal. Indeed, for approximately 20 years, Fong and Malone (1994) and Wester, Borders, Boul, and Horton (2013) identified some of the same problems with counseling research, including sampling errors, inappropriate statistical analyses, lack of research questions, lack of statistical power, and missing psychometric information for measures. Others (Barrio Minton, Fernando, & Ray, 2008; Blancher, Buboltz, & Soper, 2010; Crockett, Byrd, Erford, & Hays, 2010; Erford et al., 2011; Ray et al., 2011; Wester et al., 2013) have pointed to an overreliance on descriptive (vs. experimental, process) research methods and relatively simple statistical analyses in published research, as well as the lack of theoretical grounding for research questions. Because the purpose of research is to increase knowledge and improve counseling practice, these limitations in counseling research are of great concern (Sink & Mvududu, 2010; Wester et al., 2013).

Many authors of these critiques of counseling research have speculated that research training was one source of the problems they found. Kline and Farrell (2005) inferred from their review of

research submissions to CES that there is “a great divergence in the preparation of counselor educators as researchers” (p. 174). Similarly, Wester et al. (2013) noted that ongoing concerns with the quality of published research certainly led to questions about what was being taught in counselor education programs. Henson, Hull, and Williams (2010) asserted such a link between research training in education programs and the application of quantitative methods in published articles. Counselor education department chairpersons also reported concerns about the quality of research preparation they observed in recent graduates of counselor education programs who applied for academic positions (Barrio Minton, Myers, & Morganfield, 2012, April 11). Before conclusions can be reached and changes in research training in counselor education might be proposed, however, information is needed on the research topics that are being taught.

Unfortunately, little is currently known about the content of research training in counselor education programs. Galassi, Stoltz, Brooks, and Trexler (1987) found that doctoral counseling programs (N = 50) required an average of 7.63 semester credit hours of general research courses and 6.53 hours in statistics. In 43% of the programs, students typically completed a research experience with a faculty member; on average, they began hands-on research experience in their 2nd year. More recently, Okech, Astramovich, Johnson, Hoskins, and Rubel (2006) surveyed counselor educators (N = 167) who graduated between 1960 and 2005 about their own doctoral research training. Participants reported completing a mean of 5.21 credit hours in quantitative research methods and 1.96 hours in qualitative methods; about half expressed the need for additional training in both methods. On the basis of variance in training and perceived proficiency reported by their participants, Okech et al. called for a comprehensive review of doctoral research curricula. Indeed, neither Galassi et al. nor Okech et al. included a detailed accounting of the content of doctoral research methods and statistics courses. Thus, available information regarding research training is general and outdated, and therefore cannot shed light on potential connections between current concerns about research quality and research training. In addition, accreditation guidelines (Council for Accreditation of Counseling and Related Programs [CACREP], 2009) are somewhat general, requiring learning outcomes for quantitative (univariate and multivariate) and qualitative research, instrument development, program evaluation, and writing skills. Such general requirements provide program flexibility but limited guidance.

Thus, the purpose of this study was to gather current and more detailed information regarding research training in counseling doctoral programs that also would provide baseline data for studying changes and trends in training content and delivery over time (cf. Aiken, West, & Millsap, 2008; Aiken, West, Sechrest, & Reno, 1990). We developed a comprehensive survey of research topics that could be covered in doctoral courses. Three specific research questions guided this study: (a) What research topics are taught in required and elective courses in CACREP-accredited doctoral programs and who teaches them? (b) What hands-on experiences do counseling doctoral students have with research during their program? and (c) What is the overall satisfaction of counselor educators regarding their current research training for doctoral students and what changes would they like to make?

Method

Respondents

One faculty member each at 38 CACREP-accredited, doctoral-level counselor education programs completed the survey. The 38 programs were located in 21 geographically diverse states representing all regions of the Association for Counselor Education and Supervision (ACES). Respondents represented relatively small and large programs in public and private universities, regional and national universities, and rural and urban areas; two online programs were also included. Carnegie classifications of the respondents' universities were similar to classifications of nonrespondents' universities except that there was a higher percentage of nonresponding doctoral/research universities (very high research activity: respondents = 38%, nonrespondents = 30%; high research activity: respondents = 49%, nonrespondents = 45%; doctoral/research: respondents = 8%, nonrespondents = 20%; master's-level: respondents and nonrespondents = 5%).

Measure

We could not identify a relevant established instrument. Thus, to create a comprehensive survey, we reviewed similar published surveys (e.g., Aiken et al., 2008; Galassi et al., 1987; Okech et al., 2006; Rossen & Oakland, 2008), research texts (e.g., Heppner, Wampold, & Kivlighan, 2008), and relevant CACREP (2009) Standards and considered questions raised by the aforementioned relevant literature. University colleagues reviewed several iterations of the survey for clarity; we then conducted a pilot study with colleagues at two doctoral programs, who supported the face and content validity of the survey and provided helpful feedback on wording and format. The final survey included five sections. The first section, Content in Doctoral Research Training, included response matrices for lists of specific topics under seven areas: quantitative research designs (e.g., experimental, longitudinal, Delphi method: 18 items), quantitative analyses (e.g., analysis of variance [ANOVA], regression, factor analysis, power analysis: 34 items), qualitative methods and analyses (e.g., grounded theory, narrative, discourse analysis: 12 items), sampling procedures (e.g., stratified random, snowball, purposive: 12 items), measurement and psychometrics (e.g., unidimensional scaling, classical test theory, evaluating validity and reliability: 12 items), research ethics (e.g., research integrity, institutional review board [IRB] procedures: two items), and research process (e.g., synthesize research on topic, frame significant research questions, choose appropriate methodology, follow formatting style of the American Psychological Association [APA], write grant proposals: 21 items). Using the matrices, respondents chose one or more of five options: (a) required or (b) elective course taught by counselor educators, (c) required or (d) elective course taught by "other" faculty, or (e) topic not taught. In the next three sections, respondents answered a series of open-ended questions and provided Likert-type ratings regarding students' hands-on experiences with research (e.g., When do doctoral students first become involved in research projects in your doctoral program?), overall satisfaction with current research training (1 = not satisfied at all, 5 = very satisfied), and desired changes in training (e.g., I would like to add training on these topics....) and barriers to those changes. Finally, respondents indicated the degree to which their responses reflected the opinions of other counseling faculty members in their program.

Procedure

We identified eligible programs through the CACREP website and then chose a contact person at each program on the basis of personal contacts or faculty positions listed on the program website

(e.g., coordinator of the doctoral program). Of the faculty members contacted at the 61 CACREP-accredited programs, two reported that their doctoral program no longer existed; 45 agreed to participate, and 38 completed the survey (64% of accredited programs).

After obtaining IRB approval, we e-mailed a personalized recruitment letter to each contact person. The informed consent and survey were sent electronically to individuals who agreed to participate. We send follow-up e-mails to participants throughout the data collection process (approximately 6 months). Participants were invited to return the surveys electronically or by mail. To protect anonymity, a research assistant assigned a numeric code to each survey and uploaded the responses.

Data Analysis

For each list of research topics, we computed frequencies, percentages, and means and standard deviations, where appropriate. For the brief responses to open-ended questions, two authors (the first and third) independently read them and noted categories that emerged. They then met several times to discuss and define the categories until they reached consensus on them and on the coding of responses.

Results

Results for each of the seven topic areas are summarized hereinafter. (A comprehensive table of topics and results is available from the first author.) Few faculty members added any topics under “other” in any of the topic areas or reported confusion regarding any items, further supporting the validity of the survey. Participants reported the disciplines of “other” faculty who taught topics (in required or elective courses). For quantitative research designs and analyses, sampling procedures, and measurement and psychometrics topics, other disciplines most often included educational research methodology, psychology, statistics, and health sciences. Other disciplines for qualitative approaches were educational leadership, teacher education, women's studies, and communications. Educational psychologists sometimes taught sampling, measurement and psychometrics, research ethics, and the research process.

Quantitative Research Designs

On average, faculty reported that 12.76 (SD = 4.03, range = 2–18) of 18 quantitative research designs listed in the survey were required in their doctoral programs, while 4.00 (SD = 4.41, range = 0–16) were electives. Within programs, five programs (13.2%) required courses that covered all 18 quantitative research designs, three (7.9%) required 17, and 10 (26.3%) required at least 14 quantitative research designs. Across designs, none were required in all 38 programs. The most frequently covered designs were experimental and quasi-experimental (n = 37 programs each), program evaluation (n = 35), outcome (n = 34), longitudinal and cross-sectional (n = 33 each), single subject (n = 31), and time series and nonequivalent control group (n = 30 each). Designs that were taught least frequently in either required or elective courses were Q-methodology (required in 31.6% programs, not taught in 30.8%), laboratory experiments (required in 44.7%, not taught in 25.6%), and Delphi methodology (required in 39.5%, not taught in 17.9%).

Of the quantitative research designs taught, counselor education faculty taught an average of 7.16 designs (SD = 6.36, range = 0–18); other faculty taught 11.11 (SD = 6.14, range = 0–18) designs. Faculty members in 14 programs indicated that specific quantitative research designs are duplicated in multiple classes taught by counselor education and other faculty (M = 2.08 designs, SD = 3.95), sometimes in both required and elective courses.

Quantitative Analyses

Of the 34 quantitative statistical analyses listed on the survey, faculty reported that an average of 24.63 (SD = 6.06, range = 12–34) were taught in required courses and 8.08 (SD = 8.08, range = 0–33) were covered in elective courses. Within programs, three (7.9%) required all 34 quantitative analyses in course content; seven programs (18.4%) required at least 30 of the 34. Across analyses, faculty in all 38 programs reported requiring instruction in t tests, ANOVA, statistical significance, and statistical software. In addition, 37 programs required course work in correlations and multifactor ANOVA; 36 required multiple regression and effect size; 35 required repeated measures; and 34 required course work in analysis of covariance, regression, power analysis, practical significance, clinical significance, and graphic displays of data. Analyses that were taught less frequently in either required or elective course work were growth curve analysis (required in 18.4%, not taught in 28.2%), cluster analysis (required in 42.1%, not taught in 15.4%), multidimensional scaling (required in 21.0%, not taught in 15.4%), structural equation modeling (SEM; required in 23.7%, not taught in 15.4%), and longitudinal data analysis methods (required in 50.0%, not taught in 12.8%).

In general, faculty members in other disciplines taught quantitative analyses: Eight programs (21.1%) reported that all analyses were taught by other faculty, and 12 (31.6%) reported that 30 to 33 analyses were taught by other faculty. In one program, all 34 analyses were taught by counselor educators. For required courses, counselor education faculty most commonly taught statistical significance concepts (46.2%), effect sizes (43.6%), practical significance (43.6%), and t tests (30.8%). Faculty members from other disciplines were most likely to teach correlations, ANOVA/multivariate analysis of variance (MANOVA), and multiple regression analyses (82%–87% each).

Qualitative Methods and Analyses

Of the 12 qualitative methodologies listed on the survey, faculty members reported that an average of 8.53 (SD = 3.05, range = 0–12) qualitative methodologies were taught in required courses, whereas 2.35 (SD = 3.53) were taught in elective courses. Within programs, two (5.3%) required all 12 qualitative methodologies, and 11 (28.9%) required 11 methods. Faculty from only one program indicated that students received no instruction in qualitative methodologies within required courses; only one to four qualitative methodologies were covered in required courses in three additional programs (7.9%). Across the approaches, none were taught in all 38 programs, although 36 required grounded theory, 34 required narrative and phenomenology, 33 required ethnography, 31 required case study, and 30 required participatory action research. The least covered topic was discovery-oriented methods (required in 52.6%, not taught in 15.4%).

Again, counselor educators typically did not teach this content; in 23 programs (60.5%), they did not teach qualitative methodologies in required or elective courses. Instead, other faculty taught 11 of 12 qualitative methodologies in 18 programs (47.4%) and 10 of 12 qualitative methodologies in five programs (13.2%). Overall, counselor educators taught an average of 3.26 (SD = 4.43, range = 0–12) qualitative methodologies and other faculty taught 7.97 (SD = 4.29, range = 0–11).

Sampling Procedures

A majority of the faculty members reported that most of the 12 sampling procedures were covered in required courses (M = 10.50, SD = 1.52, range = 4–12). Within programs, eight (21.1%) covered all sampling procedures in required courses, and 16 programs (42.1%) required 11. Across procedures, all 38 programs covered purposive sampling; 37 required simple random selection, stratified random sampling, cluster sampling, convenience sampling, and snowball sampling; 36 required systematic and volunteer sampling as well as the advantages and disadvantages of various sampling procedures; 31 required quota sampling; and 29 required existing (secondary) databases. Only eight programs required procedures for review of electronic medical records. Other faculty taught the majority of sampling procedures (M = 8.32, SD = 4.85 [other faculty]; M = 4.89, SD = 5.01 [counselor educators]).

Measurement and Psychometrics

We listed 12 techniques, methods, and analyses specific to measurement and psychometrics. Overall, percentages of programs requiring courses that covered these topics were much lower than those of previous topics. On average, 7.78 (SD = 4.21, range = 0–12) of the 12 measurement/psychometric topics were taught within required courses, with 3.75 (SD = 4.84, range = 0–12) covered in elective classes. Within programs, 11 faculty (28.9%) reported that all 12 measurement topics were covered in required courses, whereas faculty members in three programs (7.9%) reported not covering any measurement topics in required courses. Faculty in six programs (15.8%) indicated that all 12 measurement topics were provided in elective courses, with three of these indicating that some (but not all) of the 12 topics were discussed in required courses as well. Faculty in two programs (5.3%) indicated that seven measurement topics were not available in their required or elective courses. Across topics, the programs most frequently required students to complete methods of assessing validity and reliability of tests (n = 31 programs each), evaluation of test bias (n = 25), and item analysis and test construction (n = 24 each). Only 11 programs required Rasch models (not taught in 15.4%). Other less frequently covered topics were item response theory and multidimensional scaling (each required in 55.3%, not taught in 12.8%), unidimensional scaling (required in 60.5%, not taught in 10.3%), and classical test theory and modern test theory (each required in 55.3%, not taught in 10.3%).

Faculty in other disciplines taught most measurement and psychometrics topics (M = 8.25, SD = 4.77); counselor educators taught 4.14 (SD = 4.60) topics. Counselor educators most commonly taught methods of assessing validity and reliability of instruments (51.4% each) and test construction (38.5%).

Research Ethics

All 38 counselor education programs reported that research integrity and IRB policies (the two topics included in this section of the survey) were covered in required courses for their doctoral students, and two programs indicated that research ethics were also available in elective courses. Counselor educators in most programs ($n = 35$, 92.1%) taught research ethics in required courses; other faculty also covered research ethics in 19 programs (50.0%).

Research Process

Of the 21 components of the research process listed on the survey, faculty reported that an average of 19.08 ($SD = 2.70$, range = 11–21) were taught in required courses. Within programs, faculty in over half of the programs indicated that the majority (i.e., 20) or all 21 components were covered in required courses ($n = 25$, 65.8%); the minimum number of research process components reported in required courses was 11. Counselor educators taught the majority of these topics in required courses ($M = 17.66$, $SD = 5.16$), and other faculty taught an average of 5.60 topics ($SD = 6.99$, range = 0–21). Both counselor educators and other faculty covered some of the topics (51.3% of programs), whereas other topics were offered in both elective and required courses (20.5% of programs). A few faculty indicated that students learned components of the research process in noncourse offerings, that is, formal or informal mentoring ($n = 3$), a yearlong research and publication seminar ($n = 1$), and integrated instruction throughout the program ($n = 1$).

Across topics, all programs required five: complete a critical review of a research article, identify gaps in the literature, frame significant research questions, choose appropriate methodology, and identify strengths and weaknesses of various methods of inquiry. In addition, 37 programs required instruction in writing a logical, cogent rationale for a study, writing hypotheses accurately, and following data collection procedures; 36 required instruction in synthesizing research on a topic and using good writing skills; 35 required instruction in grounding research in theory, grounding research in practice, and following APA style format; and 34 covered the publication process. Topics taught less frequently included knowing how to review manuscripts (required in 73.7%, not covered in 15.4% of programs), finding sources for grant funding (required in 68.4%, not covered in 12.8% of programs), and knowing how to write grant proposals (required in 60.5%, not covered by 10.3% of programs).

Faculty members also estimated the percentage of their students who typically elected to take courses in statistics, research methods, or measurement and psychometric courses beyond the required sequence. Responses ranged from 1% to 85% of students. In 17 programs, 10% or less of students typically elected to take additional courses; in eight programs, at least 50% of students typically took additional electives. Faculty were invited to provide comments to explain their responses. Three said that students chose elective courses that fit the research design they planned to use in completing their dissertation. Two faculty members reported that some of the topics not covered in the curriculum were learned in a predissertation research project, which was required of all students. Another said that reading and critiquing research studies were emphasized in all doctoral classes, not just the research courses.

Doctoral Students' Hands-On Experience With Research

Faculty reported research requirements for admission to the doctoral program, described when and how students first become involved in research projects, and summarized feedback from students about their research experiences. Only three reported that research experience was required for admission to the doctoral program, although two of these noted that this experience was the research course completed as part of the student's master's degree program. One faculty member reported that students were required to have completed a master's thesis or equivalency project prior to the dissertation project. Several indicated that research experience was preferred and gave the applicant "bonus points" in the selection process. One respondent wrote, "We would like to move toward this." Another faculty member stated, "This would be difficult given the limited pool of applicants."

In about half of the programs, faculty reported that doctoral students were involved experientially in research during their 1st year ($n = 21, 55.3\%$); 7.9% ($n = 3$) were involved in their 2nd year, and 7.9% were not involved until their 3rd year or during the dissertation process. In an additional 11 programs (28.9%), experiential involvement in research depends on a variety of factors, including whether the student's major faculty member or mentor involved the student, whether the student took the initiative to join a research team, or when students took a particular course. The ways that students became involved in their 1st year included both formal and informal avenues, such as required research internships and apprenticeships, required assignment to a research team with faculty members, or hands-on activities in specific courses and research seminars.

We also asked participants what feedback doctoral students gave about their research experiences; responses were categorized as positive, negative, or relevant to context (e.g., part-time program). With few exceptions, faculty reported that they received very positive feedback from students; only two reported having received negative feedback. Several faculty members said that students often found their research experiences to be challenging or intimidating, but later described them as quite valuable. Feedback from students gave strong endorsement to being involved in research early in their program. One faculty noted that students "appreciate the purposeful nature of getting them involved." Another wrote, "We strongly believe that the first experience a student has with research should NOT be his/her dissertation. Our doctoral students wholeheartedly agree! The expectation that they will be involved in a research team (one of the requirements they must fulfill before they start their comprehensive exams) is critical to our program." Several faculty members said that student feedback depended on the context, particularly students' career goals; students seeking a faculty position were more interested and positive than were those planning to become counseling practitioners. In addition, students who were employed full time faced struggles concerning research participation. Three respondents pointed to challenges around counselor educators' involvement with students in research. One wrote, "We need more research-involved professors; students get a good foundation for research but have very little opportunity to implement any."

Faculty Satisfaction With Research Training for Doctoral Students

On a scale of 1 (not satisfied at all) to 5 (very satisfied), half of the faculty indicated that they were mostly satisfied with their current research training ($n = 22, 57.9\%$); seven reported "mixed" feelings about their program's research training, and three indicated being somewhat satisfied (mean overall satisfaction = 3.59, $SD = .66$). None indicated that they were very

satisfied or not satisfied at all. Participants believed other counseling faculty would agree with their satisfaction ratings ($M = 3.92$, $SD = .89$).

Satisfaction seemed to be linked to early student involvement in the research process. Statistical analyses could not be conducted because of the small sample size and low power, but it appeared that faculty who indicated lower levels of satisfaction with their research training reported less formal or certain involvement in research experiences for their doctoral students. Of those who were somewhat satisfied with their program (a rating of 2 on a 5-point Likert scale, $n = 3$), 33.3% said that their doctoral students become involved in experiential research during the 1st year of their doctoral program; the other 66.7% reported that it depended on when students become formally involved in research. Of faculty reporting “mixed satisfaction” (i.e., rating of 3, $n = 7$), 42.9% said that students become involved in their 1st year, and 14.3% said that they become involved in their 2nd year; this means that approximately 43% provide no formal involvement in research prior to students’ 3rd year or during the dissertation process. Of those reporting the most satisfaction (rating of 4, $n = 21$), 57.1% said that students become formally involved in research during the 1st year of their program, and 4.8% said that students become involved during their 2nd year. Thus, 62% of the programs require experience with research prior to students’ 3rd year or during the dissertation process.

We asked faculty to identify the changes they would make in their doctoral research training if resources were not an issue. Responses were categorized as no changes desired; desire to delete courses; and desired changes for adding topics, courses, hands-on experiences, instructors, and instruction. Only three faculty members indicated that they desired no changes, and only two wanted to delete any current research training components (e.g., a statistics course). Two faculty members reported recent reviews of their research training and changes already made, and one reported a current review. Others identified a number of topics they would like to add: advanced statistics or methods (quantitative, qualitative, or mixed methods; $n = 9$), writing for publication ($n = 6$), grant writing and funding ($n = 4$), measurement ($n = 2$), and program evaluation ($n = 1$). Three desired counseling-specific research courses, which would be required early in the doctoral program. Three faculty members wanted to add practical training that would help students apply what they were learning in statistics classes to research problems in counseling, eight desired more structured research experiences for their students, and two thought that more consistency was needed in research internship experiences.

Few faculty members expressed a desire to make changes related to instructors of research courses. Seven reported good working relationships with noncounseling faculty who taught research courses, and two reported negative experiences. Another seven wanted other faculty to make course content more relevant to counseling students. One wrote, “While it would be great to see more research courses taught by counselor educators, the reality is that there are few in the field who have the training needed to teach these courses well.”

Faculty identified resources, politics, impact on students, and faculty qualifications as barriers to making the desired changes. It was not a surprise that faculty cited resources as the primary barrier to making desired changes in research training ($n = 20$), including more funding in general and specific to graduate assistantships, more faculty, and lower teaching course loads. Four identified politics outside the program (e.g., “Administrators do not see this as a priority

area”), and six cited politics that were internal to the program (e.g., “department too involved in bureaucratic quibble to focus on its own doctoral program,” “differences of opinion among counseling faculty”). Four cited faculty concerns about increasing requirements, including the impact on cost to students and time to completion; one faculty member mentioned the challenge of part-time students. Three specified the lack of qualified counseling faculty (e.g., “We lack counseling faculty, or have them already assigned otherwise, who have both breadth and depth in research”; “Most are not well versed in research and have a teaching focus”). One noted that their program had a large percentage of assistant professors who were trying to balance their own research demands and how to integrate students into the faculty members’ research activities.

Faculty members believed that other counseling faculty in their program would agree with their desired changes ($M = 3.92$, $SD = .91$, range = 2–5). Four specifically mentioned conversations among program faculty about research training (“We discussed this questionnaire at yesterday’s faculty meeting. I think we are all essentially in agreement here”; “As a faculty, we work well together. We are typically on the same page when it comes to program needs and changes”). However, five noted some differences of opinion; two noted a “generation gap,” with newer faculty being “more engaged with the research training dialogue,” whereas older faculty believed that “what currently is done is more than they had in training.”

Discussion

Results of this study provide a window into the research training offered in CACREP-approved counseling doctoral programs, reflecting a fairly wide range of course content as well as doctoral student involvement in research. In terms of quantitative research, faculty in most programs were teaching most of the traditional research designs, with more emphasis on field methods than laboratory methods. Most often, fairly basic quantitative analyses (i.e., t tests through regression) are required. Several analyses quite appropriate for field-based clinical questions, which involve complex human experiences (e.g., multivariate, SEM) and are necessary for studies of client change and counselor development (e.g., longitudinal), are less frequently covered. Comparisons with previous surveys (e.g., Galassi et al., 1987; Okech et al., 2006) of counselor education research training are difficult, given the vast differences in questions asked. However, similar results have been reported for other disciplines. In psychology, Aiken et al. (2008) reported that laboratory methods were covered more often than were field methods “despite the increased importance of longitudinal and field/community research” (p. 45). Aiken et al. (2008) found that programs offered in-depth coverage of ANOVA and multiple regression but not more advanced approaches (e.g., multivariate procedures, SEM). Similarly, Rossen and Oakland (2008) reported that most doctoral-level psychology programs required introductory quantitative methods; advanced methods typically were offered as electives. In a review of education program websites, Henson et al. (2010) found that most required quantitative courses were at the introductory or intermediate level.

In terms of qualitative research, typically a range of approaches are being taught, although historical methods (e.g., grounded theory, phenomenology) are taught more frequently than newer approaches (e.g., consensual qualitative research, discourse analysis). For other disciplines, only Rossen and Oakland (2008) asked about coverage of qualitative analyses. They found that a qualitative course was required by 19% of psychology programs, was an elective in

40%, and was needed or desired by 21%. Qualitative courses were more prevalent in doctor of psychology programs than in doctor of philosophy programs and those that self-identified as practitioner-oriented rather than research-oriented.

Our respondents reported a range of sampling procedures. Measurement and psychometric topics, however, were covered less frequently, with only the basics of test critique (e.g., reliability and validity) and test construction typically covered. In addition, some respondents' descriptions of measurement and psychometric courses reflected confusion; for example, using tests with clients sometimes was listed as the course content. Although such limited attention is of concern to the counseling field, similar results have been reported for psychology (Aiken et al., 2008; Rossen & Oakland, 2008) and education (Henson et al., 2010), where coverage of measurement topics was found to be typically basic and brief.

In contrast, our participants reported that both research ethics topics (i.e., research integrity and IRB policies) were covered, often multiple times. They also said that components of the research process, including literature review, construction of research questions, and writing for publication, also are taught in doctoral research courses; often, research process topics are covered through noncourse activities such as research teams and research apprenticeships, although these were not always required of all doctoral students. These topics were not included in studies in other disciplines.

It appears that doctoral programs require most CACREP-specific learning outcomes, through formal or informal methods, with the exceptions of MANOVA and writing grant proposals and limited attention to measurement issues. Nevertheless, the range of research training offerings was quite diverse, with some programs covering relatively few topics in only one or two required courses and some programs covering the majority of topics in three, four, or five required courses.

Across all topics, noncounseling faculty most often taught quantitative, qualitative, sampling, and measurement topics; counselor educators most often taught research ethics and research process components. This arrangement worked well for most programs. However, although some counseling faculty enjoyed collegial relationships with faculty in other disciplines, a few believed that courses taught outside the counseling program lacked relevance for their doctoral students' interests.

Doctoral students in few programs elected to take courses beyond the required minimum, and those in part-time programs often did not have the time to engage in noncourse research activities. For programs with robust research training, students perhaps did not need elective courses to become well-rounded and well-informed researchers. For programs with limited required research courses and experiences, however, this could be a concern, suggesting that without additional course work, doctoral students may not develop the ability to "contribute to and promote scholarly counseling research" (CACREP, 2009, p. 54), as required by CACREP, and, by extension, may be contributing to flaws and limitations found in current published research (Wester et al., 2013).

Hands-on and low-challenge research experience early in one's doctoral program is a critical component of a constructive research training environment (Gelso, 2006). This experience seems particularly critical for doctoral counseling students, because our respondents reported that very few students had any prior research experience, perhaps because the emphasis in master's-level counseling programs is on developing students' practitioner skills. Thus, new doctoral students face a steep learning curve, which could be greatly aided by early, developmentally appropriate research experiences. Such early experiences, however, are not found in all doctoral programs; only about one half offer a structured research experience during the students' 1st year, although overall the percentage of students completing a research experience with a faculty member seems to have increased somewhat since Galassi et al.'s (1987) survey. For three programs, doctoral students rarely were involved in research until they began work on their dissertation. In about one third of the programs, students' opportunities for research involvement were serendipitous, depending on students' initiative or whether their faculty advisor was involved in research. Although students initially often found that working with faculty on research was daunting, almost all later deemed it quite valuable to their development and research self-efficacy. The exceptions were part-time doctoral students and those with nonacademic career goals.

Faculty respondents were moderately satisfied with the doctoral research training in their programs. Almost all ($n = 35$) desired changes, most typically adding methods or topics not currently covered and creating more opportunities for student involvement in research. It was not surprising that the main barriers to these changes involved resources, especially funding for graduate assistantships and faculty (either replacing retired faculty or adding new faculty). Some faculty (approximately 15%) expressed concerns about their program faculty's interest in research and their research abilities.

The counseling research competencies endorsed by ACES (Wester & Borders, 2011) highlight the need for breadth of knowledge and depth of skill. There was evidence of breadth in quantitative methodologies and statistics, research process, and sampling procedures, as indicated by the number of topics covered in required course work. However, breadth of knowledge appeared to be lacking for other topics. Qualitative approaches were the methodologies least covered in required course work, and some measurement topics were not covered in required course work. Depth of skill was more difficult to gauge. When students become involved in research, in formal and informal ways, may be relevant to achieving depth, depending on the scope of the experience. Covering topics in multiple courses also might enhance depth. In addition, faculty in six programs indicated that students chose one of their required research courses on the basis of their dissertation methodology (e.g., advanced quantitative or advanced qualitative methods), perhaps a sign of their seeking more depth in their chosen methodology.

The results help explain some, but not all, problems previous researchers have found in counseling research. Wester et al. (2013) found that *Journal of Counseling & Development* (JCD) authors often did not report psychometric information about measures used in their quantitative research; the limited attention to measurement and psychometric topics in doctoral programs seems relevant. Similarly, the reliance on descriptive studies and fairly basic statistical analyses in JCD articles (Wester et al., 2013) seems to reflect the content most typically taught,

although a number of other research designs reportedly are being taught in many doctoral programs, albeit less so. Other problems frequently cited by previous researchers, however, should not occur in research articles, because sampling methods, statistical significance, power analysis, writing research questions, and grounding research in theory are currently being taught in doctoral programs. The gap between training and application of these and other research topics cannot be explained by our results.

Limitations

The gap between research training and application may be explained by information we did not gather. We can report what research topics are being taught and what research experiences students have, but not how well courses are taught and the extent to which students are mentored. For example, several faculty respondents lamented that research training was not relevant to counseling students and wished for more practical application; others applauded practical application (e.g., manipulation of actual data) in their research courses. In addition, the research topics were covered in relatively few courses in some programs but in multiple courses in other programs, suggesting differences in depth of coverage.

We did not discern any obvious differences between respondents and nonrespondents, except for the higher percentage of nonresponding universities classified as doctoral/research. Nevertheless, response bias may exist, because the scope of research training in unrepresented programs is unknown, and faculty in programs that offer limited research training may have been less inclined to respond. Respondents were not anonymous; thus, they may have overreported their offerings (social desirability). It should be noted, however, that some reported not covering topics required by CACREP (2009) Standards. In addition, our power analysis did not allow us to conduct any tests of relationships among the variables (Balkin & Sheperis, 2011); in fact, the power analysis indicated that for a power of .80 (one-tailed, directional hypothesis) and a moderate effect size, we would need responses from 67 programs, which is larger than the population of 61 CACREP-accredited programs at the time of the study. The use of a researcher-created instrument certainly also should be noted. Thus, the results represent a fairly comprehensive (in terms of content) although incomplete (in terms of programs included, ability to test relationships among variables) description of research training in CACREP-accredited doctoral programs.

Implications

Our results provide a point of comparison for counselor educators interested in reviewing their doctoral research training offerings. In fact, one faculty respondent wrote that completing the survey “really forced me to think more deeply about the research experiences we provide our students. I guess I didn't realize how unhappy I was with what we do until I thought about it in this way.” Several others made positive statements about recent revisions, such as moving to a more rigorous research sequence and creating more structured ways for students to become involved in research. Indeed, when research training was emphasized in the program, faculty members' sense of pride was evident in their comments. When research training was limited, the frustration of the faculty members often was evident. Thus, the results may (a) provide some support for those advocating for additional resources to make desired changes and (b) encourage

conversations among educators in programs that require limited subjects, focusing on how their offerings fit the mission and goals of their doctoral program. Research courses and hands-on experience are not the only important components of a positive research training environment (Gelso, 2006), but they do provide the foundation of skills and knowledge needed to develop competent researchers (Wester & Borders, in press).

Individuals who apply to doctoral programs may use the results of our study as a basis for examining the research training offered by programs of interest to help them find the best fit for their professional goals as a researcher. Current students can use the results to select elective course work for topics that are not covered in required courses or advocate for improvements in the breadth of research training that is currently available to them.

Critical questions still need to be answered, including the impact of research courses and research experiences on doctoral students' research self-efficacy and productivity, both during and after their doctoral training. Longitudinal studies would help to identify the aspects of research training that are developmentally appropriate across students' doctoral trajectory.

Conclusion

Within the counseling profession, this study is part of a larger effort to address research quality, perhaps beginning with ACES's 2007, October strategic plan, which included a commitment to "provid[ing] and disseminat[ing] premier research and scholarship" (ACES Strategic Planning Committee, 2007, October, p. 2). Since then, ACES leaders have offered preconference workshops (ACES INFORM) for enhancing counseling professionals' research knowledge and skills. ACES research mentorship guidelines (Borders et al., 2012; Wester et al., 2009) and research competencies specific to counseling (Wester & Borders, 2011, in press) have been developed. In addition, Hunt and Trusty (2011) edited a special section of JCD, which provided guidelines for developing and reporting high-quality research studies in that journal. We hope that this study offers an additional resource that supports faculty efforts to create "a climate of scholarly inquiry" (CACREP, 2009, p. 52) within their counseling doctoral programs. As one faculty respondent wrote, "the advancement of counseling as a uniquely recognized profession will depend, in part, on our ability to produce original and meaningful research. Doctoral students are the hope for our profession to achieve this."

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