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The Challenge of Counseling Research in Developing a Signature Pedagogy for Quantitative Methods

Richard S. Balkin

Research in counseling is at risk of becoming impertinent, if not irrelevant, with an overemphasis on perceptions of counselors or counselors in-training, and a lack of evidence supporting client-centered outcomes and community needs. Students seeking doctoral degrees in training may have limited interest in research, and research courses are typically taught outside of the discipline by individuals unaffiliated with the counseling profession. Research courses may not be aligned with the needs of counseling researchers who focus on individuals and small groups. Developing a signature pedagogy emphasizing tools and methods consistent with the needs of emerging counseling researchers may be important to elevating counseling research and expanding outreach opportunities to communities, agencies, and stakeholders.

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Research in counseling is at a crossroads with an overwhelming focus on topics that fail to connect to client-centered outcomes or generate findings that attract external funding opportunities. Concern over the type of research conducted in counseling appears warranted. If the dissertation is viewed as the primary outcome of research training, the majority of dissertations in counselor education lack application to client-centered outcomes or potential funding opportunities. Rather, counseling dissertations seem overwhelmingly focused on counselor training, school counselor training and environment, and multicultural/social justice competence of counselors in training (Richards et al., 2018). A likely outcome is that graduating students pursuing academic positions may lack a research agenda built off of their dissertation research that is impactful and fundable. For a profession focused on “empower[ing] diverse individuals, families, and groups to accomplish mental health, wellness, education, and career goals” (Kaplan et al., 2014, p. 366), much of the research generated through dissertations appears focused on perceptions of counseling and competence for counselors and counselors in training.

An apparent obstacle in developing researchers in counselor education is the lack of association of research with the practice of counseling. In this regard, Baltrinic and Wachter Morris (2020) noted the role of signature pedagogy in counselor education, implying that the absence of a signature pedagogy could result in reduced preparation for students to engage in practices specific to the profession. More specifically, the emphasis on educational research, as opposed to counseling research, diminishes the understanding and application of research to counseling.

Part of the problem may be related to both interest in research and anxiety related to research courses, particularly those related to statistics. Anxiety related to statistics likely impacts research anxiety and students’ overall interest in research (Borders et al., 2014; Lamar et al., 2019; Perepiczka et al., 2011). Students may not be choosing to pursue a doctorate in counselor education in order to do research but rather as a desire to teach and train counselors. In addition, the limited structure of research experiences, especially early in doctoral programs (Borders et al., 2014), may result in a poor promotion of impactful research in counseling. Research training is also problematic with respect to formal

instruction in research techniques. Despite counselor licensure in all 50 states, national certification, established standards of practice in all 50 states, and an international presence, the majority of research coursework in counselor education is not taught within the context of counseling. Borders et al. (2014) indicated research training for aspiring doctorates in counselor education is most often taught outside of the counseling program.

Examining the Fit

Promoting a research identity in counselor education appears to be an important objective identified in extant literature (Borders et al., 2014; Lamar et al., 2019; Lambie & Vaccaro, 2011; Peterson et al., 2016; Richards et al., 2018; Sinclair et al., 2014; Szymanski et al., 1994; Wester et al., 2019). However, the majority of counselor education programs do not teach the courses in research methodology (Borders et al., 2014), and tools learned may lack application within the counseling profession. Counselor education programs are often housed in schools or colleges of education where research methods courses are taught across education disciplines to avoid duplication of courses. The duplication of courses is primarily a fiscal concern, and the unique needs of counseling research are ignored. The result is an inability to promote a signature pedagogy for students in counselor education due to the lack of broad and specific features noted by Baltrinic and Wachter Morris (2020). Broad features would include the utilization of research related to counseling to address methods and results and the proposition of research questions specific to counseling. Lectures and activities to address surface structures would promote topics consistent with counseling research and discussion of methods to conduct counseling research; the use of assignments promoting utility of research methods related to counseling would advance deep and implicit structures to encourage a research identity and contribution to the counseling profession.

In the absence of a signature pedagogy for quantitative research in counselor education, students are often tasked with learning processes and procedures including hand computations, statistical software applications, and transferring output to written results for research consumption. Consider the em-

phasis on the use of hand computations to teach statistics, which is often viewed as a necessary skillset to apply meanings to numbers. In a search for the use of hand computations to teach statistics, extant research is extremely limited, relying on dated conceptual articles with no analysis of how hand computations impact student learning and understanding of statistics. For example, Khamis (1991) asserted hand computations for teaching statistics to clinical professionals (e.g., M.D., R.N., psychologists, and social workers) reinforces the skills necessary to evaluate data. However, no studies appear to be conducted to support this assertion. Hand computations may be helpful to teach concepts such as descriptive statistics, correlation coefficients, ANOVA, and so forth. Yet, at some point hand computations may no longer be taught for advanced procedures as students rarely learn or recall elements of matrix algebra used in multivariate statistics. Hand computations of eigen values may not be necessary to understand their interpretation in statistical output for multivariate procedures. The extent to which hand computations appear essential for some analyses and not others is circumspect. More likely, hand computations are used due to the tradition and anecdotal belief of their utility. However, to include hand computations with simpler processes and not include them with other, more complex processes seems counterintuitive, and perhaps even hypocritical. Moreover, this example is likely one of many that include focus on outdated methodologies with limited application to counseling research. Consider the following examples in which discussion appears nonexistent regarding teaching counseling research:

- How important is it to teach independent and dependent t -test prior to teaching the F -test in analysis of variance, given that (a) the F -test has broader applications and (b) the t -test is simply a special case of ANOVA?
- Should one-tailed tests continue to be emphasized in hypothesis testing, given their lack of utility in counseling research?
- Should outdated methods that have been routinely critiqued for their inaccuracy continue to be taught (e.g., stepwise regression [Thompson, 1989, 2001], [M]ANCOVA [Miller & Chapman, 2001], univariate post hoc analysis for

MANOVA [Dimitrov, 2013; Enders, 2003], etc.)?

- Should single case research design be given more priority in research methods given the nature and participant pool for counseling services and research?

Coursework in quantitative methods typically focus on techniques related to the general linear model rooted in large data procedures (e.g., ANOVA, regression, etc.). Disciplines within the school of education include students that have access to classroom, school, and school district data taught by educational researchers who specialize in these techniques. Counselors, however, often do not have access to such large amounts of data, and the focus of their work is with individuals and small groups. Once again, the absence of a signature pedagogy has deleterious effects to the learning outcomes of students in counselor education and reinforces the lack of applied research to counseling. In the development of a signature pedagogy, quantitative researchers in counselor education should examine the alignment of surface structures — the teaching methods and content that align with counselor identity (Baltrinic & Wachter Morris, 2020).

Aligning Quantitative Research Methods With Counseling Research

The basis of quantitative research in counseling has been focused on null hypothesis statistical testing (NHST) to examine group differences, changes over time and trends, and relationships among variables. NHST, and more specifically the general linear model, requires larger sample sizes that may not be conducive to client-centered outcome research. Hence, pedagogy of quantitative techniques in counseling research need to emphasize other elements in addition to NHST. The *Publication Manual for the American Psychological Association* (APA; 7th ed.) requires estimates of effect size and confidence intervals on estimates. Balkin and Sheperis (2011) noted the importance of power analysis when conducting NHST. Valentine et al. (2015) and Barrio-Minton and Lenz (2019) provided recommendations of representations beyond NHST including boxplots; stem and leaf displays; and tables, charts, and graphical representations of variance accounted for and variance overlap. Even when NHST is employed, students should view such reporting as

essential to the analysis and not merely a supplement to NHST.

Single Case Research Design (SCRD)

Lenz (2015) and Ray (2015) identified SCRD as a viable alternative to NHST to evaluate client-centered outcomes. Sample sizes may be small, “but most investigations will typically be completed with at least three participants as a safeguard against attrition” (Lenz, 2015, p. 389). Graphical representations of the data and a variety of effect size measures provide information on the functional relationship between an intervention and measured outcome and the trend of that data over time. SCRD lends well to mixed methods, as the small number of participants allows for observations, interviews, and documents to be collected and analyzed with the quantitative data to provide a more complete picture of the effect of a treatment or intervention.

Group Time-Series Analyses

SCRD may represent a time-series analysis for individual cases, but sometimes counseling researchers are interested in group performance over time. Panel studies include the same participants across two or more time points; cohort studies evaluate a specific population (e.g., a rural high school) over time but do not necessarily include the same participants (students in high school across multiple years); trend studies are similar to cohort studies in that a specific population over time is studied but lack a common characteristic (e.g., students in high school across multiple years over various high schools in a variety of regions; Balkin & Kleist, 2017). Similar to SCRD, graphical representations may be presented to identify data trends. Depending on the sample size, NHST may be utilized, such as repeated measures ANOVA. Otherwise, descriptive reporting of trends becomes essential with representations of visual analysis being paramount to the presentation of findings.

Between Group Analyses

Between group analyses typically evaluate the effect of an intervention or demographic characteristic(s). Univariate and multivariate procedures (e.g., ANOVA, MANOVA) are common. Sample sizes required for such analyses may make these

tools ill-conceived for counseling research. Hence, counseling researchers may need to employ additional graphical methods to address group differences and emphasize other metrics, such as effect size and confidence intervals, over NHST results.

Correlational Analyses

Correlational analyses utilize several tools (e.g., regression, structural equation modeling, hierarchical linear modeling) to evaluate relationships among variables. Correlational research has been devalued in recent years. Participants are not randomized to treatment conditions, so correlational research is not helpful to evaluate the efficacy of treatment (Thompson et al., 2005). In fact, the 2005 APA Presidential Taskforce on Evidence-Based Practice in Psychology did not include correlational studies as sufficient evidence (APA, 2006). In addition, Norcross (2014) recommended moving beyond correlational research to clinical associations related to client progress. However, correlational studies may be the most dominant form of quantitative research in counseling, with Erford et al. (2011) noting that correlational studies were the most popular analysis in the *Journal of Counseling & Development* from 1994 to 2009. The examination of psychosocial variables and the importance to the associations is pertinent to understanding counseling processes (Balkin & Kleist, 2017). Correlational research is a viable form of research to understand the complexities and nuances of counseling (Balkin & Kleist, 2017), particularly when mediators and moderators are taken into account (Norcross, 2014). Similar to other types of NHST, large sample sizes are required, and findings should include reports of statistical power, effect size estimates, associated confidence intervals, and graphical representations of relationships.

Instrument Development and Evaluation

An understanding of instrument development is pertinent to counseling researchers. The development and utilization of psychosocial measures are fundamental to quantitative investigations. The development of instruments requires large sample sizes and may require coursework that often goes beyond requirements in counselor education doctoral programs, with focus on exploratory and confirmatory factor analysis and structural equation

modeling. An understanding of these concepts is essential, even if the practice of instrument development remains an advanced concept.

Instrument development and the aforementioned statistical tools can be integrated into evaluations to serve counseling programs, academic institutions, and the community. Counseling researchers should conceptualize their practice as not only adding to the knowledge base of the profession but also as a mode to provide service to the variety of stakeholders that benefit from counseling services.

Developing a Signature Pedagogy for Counseling Research

The opportunity for counseling programs to deliver their own research curriculum may remain elusive until evidence toward the benefits of a signature pedagogy are established. Counseling programs are rarely known for developing external funding opportunities, so the investment in an infrastructure that has limited evidence of benefit to the university or stakeholders is a significant obstacle to taking ownership of a signature pedagogy in counseling research. Research curricula delivered by professionals unaffiliated with the counseling profession emphasize tools and skills that often do not meet the needs of counseling research. To create an impact and change the current structures, counselor education needs to lay claim to its unique needs with respect to the teaching of research. Similar to how counseling programs use external accreditation (i.e., CACREP) to advocate for student–faculty ratios and resources, the development of a signature pedagogy could be used to advocate for the necessary development of coursework that enriches counseling research. In response to this challenge, counselor education programs may need to consider the following activities:

1. Development of courses that exist outside the research curricula. These courses could emphasize counseling assessment and outcomes, evaluation, and consultation; instrument development; single case research design; and others;
2. Development in grant writing strategies and aligning counseling interest with research interests of funding agencies;

3. Investigation of outcomes with analytic tools that facilitate the demonstration of effective services and interventions and less reliance on correlational studies;
4. Outreach to community organizations that can benefit from assessment and evaluation services, thereby aligning counselor education and training as a resource to communities;
5. Focus on client-centered outcomes and less on counselor perceptions of training.

If counselor educators are going to be effective champions for course development separate and distinct from the current research courses taught across graduate programs in education, advocacy alone is insufficient. Counseling research must be relevant, and this cannot happen with an overwhelming focus on perceptions of counseling students and counselors regarding their training. For universities to invest in the resources necessary for counseling programs to adopt their own research strategies and courses, the production of research that is consumable, fundable, and promotes the welfare of stakeholders is essential. Without this change, no amount of advocacy is likely to be sufficient in developing separate research courses that better meet the needs of counseling students.

The development of a signature research pedagogy should extend beyond what is taught and also include how research should be taught to counselors. Research is limited in areas of pedagogical delivery. Interest in research is varied and many students approach their research courses with a strong degree of anxiety (Borders et al., 2014; Lamar et al., 2019; Perepiczka et al., 2011). Delivery of a signature pedagogy should consider these dispositions and advance strategies that promote learning, self-efficacy, and conveyance of the role and importance of research in counseling to clients, communities, and stakeholders. Evaluating and perhaps abandoning long-held beliefs about outdated strategies (e.g., stepwise regression) and skills (e.g., hand computations) and embracing new products could be essential to the development of a signature pedagogy. One example is the advancement of open-source software for statistical analysis. Independent researchers, as well as organizations and agencies, cannot access research software, such as SPSS,

which are cost prohibitive. However, the advancement of open-source statistical software, such as JASP (<https://jasp-stats.org>), provides a valuable resource for storing and evaluating data. JASP uses an interface similar to SPSS that is user-friendly and comprehensive.

Conclusion

Counselor education programs have the opportunity to elevate their profession through more purposeful research engaged in client-centered outcomes and community initiatives. Developing an orientation toward evidentiary analyses is pertinent to aligning counseling research with the needs of external funding agencies and stakeholders. A successful transition toward the aforementioned outcomes requires a recognition of the limitations of current research pedagogy. Embracing the nature of counseling services oriented toward individuals and small groups and enhancing knowledge of alternatives to NHST is essential to fostering the type of research that can support counseling research as effective, impactful, and fundable. Further establishment of these aforementioned outcomes may provide the momentum to assume ownership of a counseling-specific research pedagogy that serves future educators, researchers, and the community.

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