

Guidelines for Conducting and Reporting Mixed Research in the Field of Counseling and Beyond

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This article provides guidelines for conducting, reporting, and evaluating mixed research studies in 3 sections: research formulation, research planning, and research implementation. To date, no such guidelines are available. Detailed descriptions of each subsection are included. The authors hope that these standards assist researchers from the field of counseling and beyond.

To identify a mixed method study (hereinafter referred to as either a *mixed research study* or *mixed research*), Tashakkori and Creswell (2007) documented seven indicators, stating that a study can be considered as representing mixed research if one or more of the elements are present. Although these guidelines are useful for helping the researcher identify whether the study represents mixed research, they do not provide any information as to how to report mixed research studies. Unfortunately, although the *Handbook of Mixed Methods in Social and Behavioral Research* (Tashakkori & Teddlie, 2003) contained 26 groundbreaking chapters, it did not contain any guidelines for reporting mixed research studies. Even the latest American Educational Research Association (AERA; 2006) standards for reporting on empirical social science research in AERA publications dichotomized research into qualitative and quantitative research, with no recognition that research could involve the combination of both approaches (cf. Tashakkori & Teddlie, 2003). A few authors of mixed research textbooks (e.g., Creswell & Plano Clark, 2006) have provided some guidelines for reporting the results of mixed research studies; however, these guidelines have tended to be somewhat brief in nature and to lack a comprehensive framework for reporting mixed research studies.

What the field of counseling needs are guidelines for reporting mixed research, as well as standards for evaluating such research. As such, we believe that our guidelines complement those provided by Choudhuri, Glauser, and Perego (2004) for writing qualitative manuscripts for the *Journal of Counseling & Development* (JCD), as well as those provided by AERA (2006).

As noted by AERA (2006), reports of empirical studies should be both warranted and transparent. *Warranted* implies that sufficient evidence is documented to justify the findings and inferences made. *Transparent* implies that information regarding the process of the study needs to be included. Our guidelines, then, are an attempt to help counseling researchers write mixed research reports that are both warranted and transparent.

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Our reporting standards are based on the framework of Collins, Onwuegbuzie, and Sutton (2006). These methodologists have conceptualized mixed research as involving the following 13 distinct steps: (a) determining the mixed goal of the study, (b) formulating the mixed research objective(s), (c) determining the rationale of the study and the rationale(s) for mixing quantitative and qualitative approaches, (d) determining the purpose of the study and the purpose(s) for mixing quantitative and qualitative approaches, (e) determining the mixed research question(s), (f) selecting the mixed sampling design, (g) selecting the mixed research design, (h) collecting quantitative and/or qualitative data, (i) analyzing the quantitative and/or qualitative data using quantitative and/or qualitative analysis techniques, (j) validating/legitimizing the mixed research findings, (k) interpreting the mixed research findings, (l) writing the mixed research report, and (m) reformulating the mixed research question(s). These 13 steps compose the following three major stages: research formulation stage (i.e., goal of the study, research objective, rationale for mixing, purpose of mixing, research question[s]), research planning stage (i.e., sampling design, research design), and research implementation stage (i.e., data collection, data analysis, data validation/legitimation, data interpretation, report writing, reformulation of the research question[s]). Thus, our reporting standards are divided into three general areas—research formulation, research planning, and research implementation—which can be subdivided into 13 subareas.

Research Formulation Stage

Review of the Related Literature

The research formulation stage involves the first five steps of the mixed research process. This stage involves an identification of the goal, objective, rationale, purpose, and question(s). Unless the mixed research study is nested within designs such as grounded theory, wherein researchers “work up and out from data” (Charmaz, 2000, p. 530), the review

of the literature plays a pivotal role in the research formulation process. Thus, the researcher should make explicit the role that the literature review played. Furthermore, we recommend that researchers use the framework of Onwuegbuzie, Collins, Leech, Dellinger, and Jiao (2007). These authors recommend that researchers apply mixed research techniques to the literature review process—referred to as *mixed research syntheses* (Sandelowski, Voils, & Barroso, 2006). Onwuegbuzie, Collins, et al. (2007) defined a mixed research synthesis as “an interpretation of a selection of published and/or unpublished documents available from various sources on a specific topic that optimally involves summarization, analysis, evaluation, and synthesis of the documents” (p. 2). In a mixed research synthesis, reviewers treat each relevant article as data that generate both qualitative and quantitative information, yielding analyses of quantitative and qualitative data, and metainferences (i.e., inferences from qualitative and quantitative data being integrated into a coherent whole). In particular, authors can use quantitative data to enhance inferences stemming from qualitative findings, qualitative data to enhance inferences stemming from quantitative findings, or both. In addition, authors should incorporate finding articles in which the researcher(s) summarizes quantitative (i.e., meta-analysis; cf. Glass, 1976) or qualitative (i.e., metasynthesis, metasummary; cf. Sandelowski & Barroso, 2003) results across the extant literature. Thus, not only should authors summarize the major findings of studies, but they should provide contextual information as well.

Moreover, literature reviews should be comprehensive, current, and rigorous, containing primary sources that are relevant to the research problem under investigation, with clear connections being made between the sources presented and the present study (Boote & Beile, 2005). The literature review should contain references that have been compared and contrasted adequately. Also, the theoretical/conceptual framework should be delineated clearly. Most important, however, the author should assess the findings stemming from each individual study and the emergent synthesis for trustworthiness, credibility, dependability, legitimation, validity, plausibility, applicability, consistency, neutrality, reliability, objectivity, confirmability, and/or transferability (Onwuegbuzie, Collins, et al., 2007). Indeed, authors should provide a concise, logical, and coherent articulation of the validity of inferences presented in the individual studies that make up a review of literature as a means of providing legitimacy for the review of literature (Dellinger & Leech, 2005, 2007). For a comprehensive model for assessing results of empirical research—whether qualitative, quantitative, or mixed research—we refer the reader to Dellinger and Leech’s (2007) Validation Framework.

Goal of the Study

Authors should provide explicit information about the goal of the study. Newman, Ridenour, Newman, and DeMarco

(2003) identified the following nine goals for conducting research: (a) predict; (b) add to the knowledge base; (c) have a personal, social, institutional, and/or organizational impact; (d) measure change; (e) understand complex phenomena; (f) test new ideas; (g) generate new ideas; (h) inform constituencies; and (i) examine the past. In mixed research studies, the researcher(s) may have two or more goals—one or more goals each for the quantitative and qualitative phases.

Research Objective

In mixed research studies, as in all studies, the research objective should be made explicit. Five major standard research objectives are relevant for the quantitative and qualitative phases of the study: (a) exploration, (b) description, (c) explanation, (d) prediction, and (e) influence (Collins, Onwuegbuzie, & Sutton, 2006). Specifically, *exploration* involves primarily using inductive methods to explore an idea, issue, concept, construct, phenomenon, or context to develop tentative hunches, hypotheses, inferences, or generalizations. *Description* entails identifying and describing the antecedents, correlates, etiology, and/or nature of phenomena. *Explanation* refers to developing or expanding theory to elucidate the relationship among concepts and determine reasons for occurrences of events. *Prediction* involves using prior knowledge/experience or existing theory to forecast what will occur at a later point in time. *Influence* pertains to the manipulation of one or more variables to produce a desired or expected outcome. Both the qualitative and quantitative phases of each mixed research study can be linked to one or more of these five research objectives. This relationship between the research objective and phase should be delineated.

Rationale for Mixing

Authors should make clear the rationale of the mixed research study—that is, why the study is needed. The rationale is the most important aspect of a study because it identifies the gap in the literature. Furthermore, a rationale should be presented for the research formulation as it relates to the underlying participant(s) or group(s), particularly in terms of the historical, cultural, linguistic, social, and/or psychological composition of the sample members (AERA, 2006).

In addition to specifying the rationale of the mixed research study, researchers should also outline the rationale for using mixed research techniques rather than mono-method procedures. Collins, Onwuegbuzie, and Sutton (2006) have conceptualized the following four major rationales for mixing quantitative and qualitative approaches: participant enrichment, instrument fidelity, treatment integrity, and significance enhancement. *Participant enrichment* refers to the mixing of qualitative and quantitative techniques for the rationale of optimizing the sample. *Instrument fidelity* involves procedures used by researchers to maximize appropriateness and/or utility of the quantitative and/or qualitative instruments used in the study.

Treatment integrity involves the mixing of quantitative and qualitative techniques for the rationale of assessing the fidelity of interventions, programs, or treatments. This rationale is particularly pertinent for counseling research in which a treatment (e.g., cognitive behavior intervention) is administered to participants either randomly (i.e., experiment) or nonrandomly (i.e., quasi-experiment). For an intervention to possess integrity, it should be implemented exactly as intended.

Significance enhancement represents mixing qualitative and quantitative approaches for the rationale of maximizing interpretation of the findings. A researcher can use quantitative data to augment qualitative analyses, qualitative data to enhance statistical analyses, or both. Moreover, using quantitative and qualitative data analysis techniques within the same research often enhances the interpretation of significant findings (Onwuegbuzie & Leech, 2004a).

Purpose of Mixing

Every empirical article should have some type of purpose statement, which should provide a signpost for the reader that identifies the scope of the article. In particular, the purpose statement should reflect the problem that the researcher wants to investigate.

In addition to specifying the purpose of the mixed research study, the counseling researcher should also provide the purpose for using mixed research techniques. Collins, Onwuegbuzie, and Sutton (2006) have identified 65 purposes for mixing quantitative and qualitative approaches. Each of these purposes is directly linked to one of the four major rationales presented in the previous section.

Research Question(s)

Determining the research question(s) is a vital step in the mixed research process. Research questions play a pivotal role in the mixed research process, a role that is interactive, emergent, fluid, and evolving (Onwuegbuzie & Leech, 2006). Where possible, we advocate that counseling researchers pose mixed research questions. As defined by Onwuegbuzie and Leech (2006), "mixed methods research questions combine or mix both the quantitative and qualitative research questions. Moreover, a mixed methods research question necessitates that both quantitative data and qualitative data be collected and analyzed" (p. 483). Such questions have the potential to help researchers explore phenomena to a greater extent.

Research Planning Stage

Selecting the sampling design and mixed research design represents the research planning stage of the mixed research process. These two steps are interactive and recursive because choice of sampling design affects the selection of mixed research design, and vice versa.

Sampling Design

Authors should make explicit the sampling design of the study, which includes providing information about the sample size,

sampling scheme, and sample characteristics. The sample size for all quantitative and qualitative phases of the study should be specified. Furthermore, researchers should also specify the final sample size(s) in light of any attrition (Onwuegbuzie, Jiao, & Collins, 2007). Most important, authors should present all sample size considerations made for the quantitative phase(s) (i.e., a priori power; cf. Cohen, 1988) and qualitative phases (e.g., information-rich cases; cf. Miles & Huberman, 1994).

Onwuegbuzie and Leech (2007a) identified 24 sampling schemes (5 random sampling schemes and 19 purposive sampling schemes) that can be used to select participants in either the quantitative or qualitative phases of a mixed research study. Alongside lack of information about the sample size and sample characteristics, not specifying the sampling scheme makes it difficult for other researchers to replicate a study. Even more important, lack of information about the sampling design makes it difficult for readers to assess interpretive consistency.

Sampling designs are much more complex in mixed research studies than in mono-method studies because the former involves at least one extra layer of sampling (Onwuegbuzie & Collins, 2007; Teddlie & Yu, 2007). Thus, we recommend the use of Onwuegbuzie and Collins's model for choosing samples for mixed research studies. Specifically, this model provides a typology in which mixed research sampling designs can be classified according to (a) the time orientation of the components (i.e., whether the qualitative and quantitative phases occur concurrently or sequentially) and (b) the relationship of the qualitative and quantitative samples (i.e., identical vs. parallel vs. nested vs. multilevel). An identical relationship implies that exactly the same participants are involved in both the qualitative and quantitative phases of the study. A parallel relationship indicates that the samples for the qualitative and quantitative components of the study are different but are drawn from the same population of interest. A nested relationship denotes that the sample members selected for one phase of the study represent a subset of those sample members selected for the previous phase of the research. Finally, a multilevel relationship involves the use of two or more sets of samples that are extracted from different levels of the population of interest (e.g., counselors vs. counselees). The two criteria of time orientation and sample relationship yield eight different types of major sampling designs that mixed methods researchers have at their disposal (i.e., concurrent-identical, concurrent-parallel, concurrent-nested, concurrent-multilevel, sequential-identical, sequential-parallel, sequential-nested, sequential-multilevel). Another useful typology of sampling designs in mixed research has recently been provided by Teddlie and Yu. These methodologists subdivided sampling schemes into the following four types: probability, purposive, convenience, and mixed research sampling. Researchers should use typologies that have been conceptualized for mixed research to plan and implement their sampling designs as well as make explicit these designs to readers.

In deciding on the sampling design, the author should make clear which of the three major types of generalizations are pertinent in the mixed research study: (a) statistical generalizations, (b) analytic generalizations, and (c) case-to-case transfer. Whereas statistical generalizability refers to representativeness, analytic generalizability and case-to-case transfer relate to conceptual power (Miles & Huberman, 1994). Sampling designs play a pivotal role in determining the type of generalizations that are justifiable. For example, whereas large and random samples tend to allow statistical generalizations, small and purposive samples tend to facilitate analytic generalizations and case-to-case transfers. Thus, authors should specify the individuals, groups, settings, contexts, activities, and the like to which the inferences/metainferences are intended to apply. Also, authors should delineate the basis on which the generalization can be made by elucidating "the logic by which the findings of the investigation should apply to the domains intended" (AERA, 2006, p. 38).

Research Design

Counseling researchers have a variety of sources from which to choose. For instance, in Tashakkori and Teddlie's (2003) handbook of mixed research, 35 mixed research designs are presented. In an attempt to simplify researchers' design choices, several researchers have developed typologies (e.g., Johnson & Onwuegbuzie, 2004). Most recently, Leech and Onwuegbuzie (2009b) conceptualized a three-dimensional typology of mixed research designs, in which mixed research designs can be represented as a function of the following three dimensions: (a) level of mixing, (b) time orientation, and (c) emphasis of approaches. *Level of mixing* refers to whether the mixed research is fully mixed or partially mixed. Fully mixed research designs, which represent the highest level of mixing, involve using both qualitative and quantitative research approaches within one or more or across the following four components of a study: (a) the research objective, (b) type of data and operations, (c) type of analysis, and (d) type of inference. In contrast, when partially mixed research designs are used, the qualitative and quantitative phases are not mixed within or across stages. Rather, both components are implemented either concurrently or sequentially in their entirety before being mixed at the data interpretation step (Leech & Onwuegbuzie, 2009b). *Time orientation* pertains to whether the quantitative and qualitative phases of the research study occur either concurrently or sequentially. Finally, *emphasis of approach* pertains to whether the quantitative and qualitative components of the study have approximately equal emphasis (i.e., equal status) regarding addressing the research question(s) or whether one component has relatively higher priority than does the other (i.e., dominant status). Leech and Onwuegbuzie's (2009b) typology thus can be characterized by a 2 (fully mixed vs. partially mixed) \times 2 (concurrent vs. sequential) \times 2 (equal status vs. dominant status) matrix derived by crossing these three dimensions, thereby yielding eight types of mixed research designs.

Teddlie and Tashakkori (2006) have also provided a useful framework for identifying mixed research designs. In addition, Creswell and Plano Clark (2006) have presented a framework for selecting mixed research designs. Whatever framework is used, it is essential that it is clearly described, the rationale for its use is provided, and any deviation from the selected design is noted. In addition to outlining the mixed research design, authors should provide an adequate description of the designs used in both the quantitative and qualitative phases of the study. For experimental and quasi-experimental research, the exact design should also be specified. Similarly, the exact nature of the case study and phenomenological research designs should be specified.

Research Implementation Stage

The next four steps—data collection, data analysis, data validation/legitimation, and data interpretation—are interactive and cyclical steps in the mixed research process. These steps represent the research implementation stage.

Data Collection

We recommend the use of Johnson and Turner's (2003) typology. These authors identified the following six specific data collection strategies in mixed research: (a) mixture of open- and closed-ended items on one or more questionnaires; (b) mixture of depth and breadth interviewing; (c) mixture of a priori and emergent/flowing focus-group strategies; (d) mixture of standardized open- and closed-ended predesigned tests; (e) mixture of standardized/confirmatory and less structured/exploratory observation, alternating between participatory and nonparticipatory researcher roles; and (f) mixture of nonnumeric and numeric documents, consisting of archived data based on open- and closed-ended items. Authors could use such a framework to specify the mixed research data collection strategy used.

In addition, authors should provide detailed information about all data collection instruments used for both the qualitative and quantitative phases. This information should include the developer of the instruments (with appropriate citations); the format of the instruments; when, how, and why they were administered; the context and focus of data collection; the duration of data collection; and information about the quality of the data collected (e.g., score reliability, score validity, interrater reliability).

Data Analysis

Onwuegbuzie and Teddlie (2003) identified the following seven stages of the mixed data analysis process: (a) data reduction, (b) data display, (c) data transformation, (d) data correlation, (e) data consolidation, (f) data comparison, and (g) data integration. According to Onwuegbuzie and Teddlie, *data reduction* refers to reducing the dimensionality of the qualitative data and quantitative data. *Data display* involves

describing pictorially the qualitative data (e.g., graphs, charts, networks, matrices, lists, Venn diagrams, photographs) and quantitative data (e.g., tables, graphs). This stage is followed (optionally) by the *data transformation* stage, wherein quantitative data are converted into narrative data that can be analyzed qualitatively (i.e., *qualitized*; Tashakkori & Teddlie, 1998) and/or qualitative data are converted into numerical codes that can be represented statistically (i.e., *quantitized*; Tashakkori & Teddlie, 1998). *Data correlation* involves qualitative data being correlated with quantitized data or quantitative data being correlated with qualitized data. This stage is followed by *data consolidation*, wherein both qualitative and quantitative data are combined to create new or consolidated variables or data sets. The next stage, *data comparison*, entails comparing data from the qualitative and quantitative data sources. In the *data integration* stage, the final stage, both qualitative and quantitative data are integrated into either a coherent whole (i.e., *metainferences*; Tashakkori & Teddlie, 2003) or two separate sets (i.e., qualitative and quantitative) of coherent wholes. Authors should consider specifying which of the seven mixed data analysis steps were used.

When describing the quantitative phase, authors should specify and describe the statistical analyses (i.e., descriptive and inferential statistics) that were used, linking them to the research problem, purpose, question(s), and/or hypotheses. Authors should discuss the extent to which the assumptions that underlie these analyses were met, as well as any observations that might have distorted the findings (e.g., missing data, outliers). Regarding the qualitative phase, as conceptualized by Constas (1992), authors should delineate (a) where the responsibility or authority for the creation of categories resided, (b) what the grounds were on which one could justify the existence of a given set of categories, (c) what was the source of the name used to identify a given category, and (d) at what point during the research process the categories were specified. Furthermore, where possible, the author(s) should provide the name of the technique used to analyze the qualitative data (e.g., method of constant comparison). For a comprehensive, in-depth description of an array of qualitative data analysis techniques, we refer the reader to Leech and Onwuegbuzie (2007, 2008). Finally, any software used to analyze the quantitative and qualitative data should be disclosed (e.g., SAS, SPSS, NVivo, Ethnograph, ATLAS.ti).

Data Validation/Legitimation

The data validation/legitimation step involves assessing the legitimation of both the quantitative and qualitative data. For the quantitative phase, authors should provide a discussion of any threats to internal or external validity (cf. Cook & Campbell, 1979; Onwuegbuzie, 2003). In particular, authors could use frameworks such as Onwuegbuzie's (2003) Quantitative Legitimation Model, which contains 50 sources of invalidity for the quantitative component of the mixed research at the data collection, data analysis, and data interpretation steps

of the study, as well as the measurement models of Messick (1989, 1995) and Onwuegbuzie, Daniel, and Collins (2009) for assessing the psychometric properties of instruments. Authors should outline the steps taken to address each of these threats to internal validity, external validity, and measurement validity.

Regarding the qualitative phase, authors should describe in detail any threats to trustworthiness, credibility, dependability, authenticity, verification, plausibility, applicability, confirmability, and/or transferability of data (e.g., Creswell, 2007; Miles & Huberman, 1994). Authors should always describe all verification procedures used. We refer readers to Onwuegbuzie and Leech's (2007b) Qualitative Legitimation Model, which contains 29 elements of legitimation for the qualitative component of mixed research at the data collection, data analysis, and data interpretation steps of the study.

In addition to providing an in-depth discussion of legitimation issues pertaining to the quantitative and qualitative phases of a study, authors should outline issues pertaining to the overall mixed research study. Onwuegbuzie and Johnson (2006) have recently outlined a new typology of legitimation types in mixed research that contains the following nine legitimation types: sample integration legitimation, insider-outsider legitimation, weakness minimization legitimation, sequential legitimation, conversion legitimation, paradigmatic mixing legitimation, commensurability legitimation, multiple validities legitimation, and political legitimation.

Data Interpretation

In making inferences, authors should explicate the significance of all quantitative findings (Onwuegbuzie & Leech, 2004a). This significance can take the form of statistical significance (i.e., the probability of the observed finding under the null hypothesis), practical significance (i.e., the size of observed difference or relationship that is typically indexed by an effect size measure, such as a standardized difference, proportion of variance explained, or odds ratio; Kirk, 1996), clinical significance (i.e., the extent to which the intervention or treatment makes a real difference to the quality of life of the participants or to those with whom they interact; Kazdin, 1999), and economic significance (i.e., the economic value of the effect of an intervention or treatment; Leech & Onwuegbuzie, 2004). For statistically nonsignificant findings, authors should undertake a post hoc power analysis and discuss the extent to which low statistical power was a likely cause (Onwuegbuzie & Leech, 2004b). The significance of qualitative findings, which we define as results that have meaning or representation (Onwuegbuzie & Leech, 2004a), should also be presented clearly.

Teddlie and Tashakkori (2003) conceptualized the following four (nonexhaustive and not mutually exclusive) criteria for evaluating findings in mixed research studies: (a) *within-design consistency* (i.e., "consistency of the procedures/design of study and from which the inference emerged"; p. 40); (b)

conceptual consistency (i.e., “degree to which the inferences are consistent with each other and with the known state of knowledge and theory,” “consistency of inferences with each other within a study [cross-inference consistency],” and “consistency of inference with current state of knowledge and theory [theoretical consistency]”; p. 40); (c) *interpretive agreement* (i.e., “consistency of interpretations across people”; p. 40); and (d) *interpretive distinctiveness* (i.e., the “degree to which the inferences are distinctively different from other possible interpretations of the results and rival explanations are ruled out”; p. 40).

More recently, Tashakkori and Teddlie (2006) proposed an integrative model of quality that consists of design quality and interpretive rigor. In their model, *design quality* comprises (a) *within-design consistency* (as defined earlier), (b) *design suitability* (i.e., whether the methods of the study are appropriate for addressing the research question(s) and whether the design is consistent with the research question), (c) *design fidelity* (i.e., whether the procedures are implemented with quality and rigor; whether the methods are capable of capturing meaning, associations, or effects; and whether the components of the design, such as sampling and data collection procedures, are implemented adequately); and (d) *analytic adequacy* (i.e., whether the data analysis techniques are appropriate for addressing the research question[s]). *Interpretive rigor* consists of (a) *interpretive agreement* (as defined earlier), (b) *interpretive distinctiveness* (as defined earlier), (c) *interpretive consistency* (i.e., whether the inferences closely follow the relevant findings in terms of type, intensity, and scope and whether the multiple inferences made on the basis of the findings are consistent with one another), (d) *theoretical consistency* (i.e., whether the inferences are consistent with theory and the state of knowledge in the field), and (e) *integrative efficacy* (i.e., whether the meta-inference adequately incorporates inferences stemming from quantitative and qualitative phases of the study). Furthermore, Collins, Onwuegbuzie, and Jiao (2006) used the term *interpretive consistency* to denote the consistency between the inferences made by the researcher(s) and the sampling design (e.g., sampling scheme, sample size) used. Counseling researchers should discuss consistency types that are pertinent.

Report Writing

As noted by Onwuegbuzie and Johnson (2004), a well-written report should be highly descriptive of all steps of the mixed research process and should describe the context in which the mixed research study took place. Such contextualization not only helps the counseling researcher to assess how the quantitative and qualitative findings relate to each other but also provides information regarding the extent to which meta-inferences can be made. In particular, it is essential that mixed research reports reflect “the highest standards of ethical practice both with respect to human participation and with respect to the execution of professional conduct and judgment in research”

(AERA, 2006, p. 39). To this end, authors should ensure that their mixed research reports are accurate and complete; do not distort differences within and among individuals and groups; are free from plagiarism or misrepresentation of the ideas and conceptualizations of other scholars; and contain findings that are adequately accessible for reanalysis, further analysis, verification, or replication. Also, authors should always strive to report how all ethical considerations were addressed in the study, including the following: informed consent of the participants, confidentiality agreements between the participants and the researcher(s), incentives given for participation, funding sources, potential conflicts of interest, and biases (AERA, 2006). In addition, authors should specify study approval in accordance with an institutional review board either in the report or in the cover letter submitted to the editor. Indeed, as specified by the Standard I.B.7. of AERA (2000), mixed methods researchers should write their reports in such a way that they “communicate the practical significance for policy, including limits in effectiveness and in generalizability to situations, problems, and contexts.”

Reformulation of the Research Question(s)

As part of the mixed research report, counseling researchers should outline ways that the research question(s) could be reformulated, which, in turn, would lead to a reformulation of the research goal, research objective, rationale of the study and rationale for mixing, and/or research purpose or purpose of mixing in subsequent studies. This, in turn, would lead to a reformulation of Steps 7–11. Thus, the mixed research report should include recommendations for future research that culminate in a validation, replication, or extension of the underlying study.

Conclusion

Combining or mixing quantitative and qualitative research approaches enables researchers, including researchers from the field of counseling, to be more flexible, integrative, holistic, and rigorous in their investigative techniques as they attempt to address a range of complex research questions that come to the fore. More specifically, mixed research helps counseling researchers to attain participant enrichment, instrument fidelity, treatment integrity, and significance enhancement (Collins, Onwuegbuzie, & Sutton, 2006). Thus, it is somewhat disturbing that a dearth of mixed research studies has been published in the counseling literature (Hanson, Creswell, Plano Clark, Petska, & Creswell, 2005; Leech & Onwuegbuzie, 2009a). Nevertheless, a relatively small proportion of published mixed research studies has been reported in other fields, such as school psychology (Powell, Mihalas, Onwuegbuzie, Suldo, & Daley, 2008), special education (Collins, Onwuegbuzie, & Sutton, 2007), and the area of stress and coping (Onwuegbuzie, Jiao, et al., 2007).

One reason for the limited use of mixed research investigations in counseling research and beyond might stem from the

lack of guidelines given for conducting and reporting mixed research studies in these fields. As such, we have presented guidelines for both conducting and reporting mixed research. These guidelines have been itemized in the Appendix. Although these guidelines have been developed for authors, editors, reviewers, and readers of counseling journals such as *JCD*, we believe that they are useful for other research fields. In addition, we hope that these standards can play a role in the training and preparation of researchers from the field of counseling and beyond.

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APPENDIX

Guidelines for Conducting and Reporting Mixed Research for Counselor Researchers

1. Research Formulation

- 1.1.1. Treat each relevant article as data that generate both qualitative (e.g., qualitative findings, literature review of source article, source article author's conclusion) and quantitative (e.g., *p* values, effect sizes, sample size score reliability, quantitative results) information that yield a mixed research synthesis.
- 1.1.2. Subject each document selected as part of the literature review to summarization, analysis, evaluation, and synthesis.
- 1.1.3. Provide literature reviews that are comprehensive, current, and rigorous; that have been compared and contrasted adequately; and that contain primary sources that are relevant to the research problem under investigation, with clear connections being made between the sources presented and the present study.
- 1.1.4. Present clearly the theoretical/conceptual framework.
- 1.1.5. Assess the findings stemming from each individual study and the emergent synthesis for trustworthiness, credibility, dependability, legitimation, validity, plausibility, applicability, consistency, neutrality, reliability, objectivity, confirmability, and/or transferability.
- 1.1.6. Present the goal of the study (i.e., predict; add to the knowledge base; have a personal, social, institutional, and/or organizational impact; measure change; understand complex phenomena; test new ideas; generate new ideas; inform constituencies; and examine the past).
 - 1.2.1. Specify the objective(s) of the study (i.e., exploration, description, explanation, prediction, and influence).
 - 1.3.1. Specify the rationale of the study.
 - 1.3.2. Specify the rationale for combining qualitative and quantitative approaches (i.e., participant enrichment, instrument fidelity, treatment integrity, and significance enhancement).

(Continued on next page)



APPENDIX (Continued)

Guidelines for Conducting and Reporting Mixed Research for Counselor Researchers

1. Research Formulation (Continued)

- 1.4.1. Specify the purpose of the study.
- 1.4.2. Specify the purpose for combining qualitative and quantitative approaches (e.g., identify representative sample members, conduct member check, validate individual scores on outcome measures, develop items for an instrument, identify barriers and/or facilitators within intervention condition, evaluate the fidelity of implementing the intervention and how it worked, enhance findings that are not significant, compare results from the quantitative data with the qualitative findings).
- 1.5.1. Avoid asking research questions that lend themselves to yes/no responses.
- 1.5.2. Present mixed research questions (i.e., questions that embed both a quantitative research question and a qualitative research question within the same question) when possible.

2. Research Planning

- 2.1.1. Specify the initial and final sample sizes for all quantitative and qualitative phases of the study.
- 2.1.2. Present all sample size considerations made for the quantitative phase(s) (i.e., a priori power) and qualitative phases (e.g., information-rich cases).
- 2.1.3. Present the sampling scheme for both the quantitative and qualitative phases of the study.
- 2.1.4. Describe the mixed sampling scheme (i.e., concurrent-identical, concurrent-parallel, concurrent-nested, concurrent-multilevel, sequential-identical, sequential-parallel, sequential-nested, and sequential-multilevel).
- 2.1.5. Clarify the type of generalization to be made (i.e., statistical generalization, analytic generalization, and case-to-case transfer) and link it to the selected sampling design, sampling scheme, and sample size(s).
- 2.2.1. Outline the mixed research design.
- 2.2.2. Specify the quantitative research design (i.e., historical, descriptive, correlational, causal-comparative/quasi-experimental, and experimental).
- 2.2.3. Specify the qualitative research design (e.g., biography, ethnographic, auto-ethnography, oral history, phenomenological, case study, grounded theory).

3. Research Implementation

- 3.1.1. Outline the mixed data collection strategy.
- 3.1.2. Present information about all quantitative and qualitative instruments and the process of administration.
- 3.2.1. Outline the mixed data collection strategy (i.e., data reduction, data display, data transformation, data correlation, data consolidation, data comparison, and data integration).
- 3.2.2. Provide relevant descriptive and inferential statistics for each statistical analysis.
- 3.2.3. Discuss the extent to which the assumptions (e.g., normality, independence, equality of variances) that underlie the analyses were met, as well as any observations that might have distorted the findings (e.g., missing data, outliers).
- 3.2.4. Specify the statistical software used.
- 3.2.5. Specify where the responsibility or authority for the creation of categories resided (i.e., participants, programs, investigative, literature, or interpretive), what the grounds were on which one could justify the existence of a given set of categories (i.e., external, rational, referential, empirical, technical, or participative), what was the source of the name used to identify a given category (i.e., participants, programs, investigative, literature, or interpretive), and at what point during the research process the categories were specified (i.e., a priori, a posteriori, or iterative).
- 3.2.6. Specify the name of the technique used to analyze the qualitative data (e.g., content analysis method of constant comparison, discourse analysis, componential analysis, keywords in context, analytic induction, word count, domain analysis, taxonomic analysis).
- 3.2.7. Specify the qualitative software used.
- 3.3.1. Discuss the threats to internal validity, external validity, and measurement validity and outline the steps taken to address each of these threats to internal validity, external validity, and measurement validity.
- 3.3.2. Discuss the threats to trustworthiness, credibility, dependability, authenticity, verification, plausibility, applicability, confirmability, and/or transferability of data and outline all verification procedures used.
- 3.3.3. Discuss mixed research legitimation types (i.e., sample integration legitimation, insider-outsider legitimation, weakness minimization legitimation, sequential legitimation, conversion legitimation, paradigmatic mixing legitimation, commensurability legitimation, multiple validities legitimation, and political legitimation).
- 3.4.1. Interpret relevant types of significance of the quantitative findings (i.e., statistical significance, practical significance, clinical significance, and economic significance).
- 3.4.2. Conduct post hoc power analysis for all statistically nonsignificant findings.
- 3.4.3. Interpret the significance (i.e., meaning) of qualitative findings.
- 3.4.4. Discuss criteria for evaluating findings in mixed research studies (e.g., within-design consistency, conceptual consistency, interpretive agreement, interpretive distinctiveness, design suitability, design fidelity, analytic adequacy, interpretive consistency, theoretical consistency, integrative efficacy).
- 3.5.1. Describe all steps of the mixed research process.
- 3.5.2. Describe the context in which the mixed research study took place.
- 3.5.3. Ensure that the mixed research report is accurate and complete; does not distort differences within and among individuals and groups; is free from plagiarism or misrepresentation of the ideas and conceptualizations of other scholars; and contains findings that are adequately accessible for reanalysis, further analysis, verification, or replication.
- 3.5.4. Present all ethical considerations that were addressed in the study (e.g., informed consent, confidentiality, incentives, funding sources, potential conflicts of interest, biases).
- 3.5.5. Specify study approval in accordance with an institutional review board either in the report or in the cover letter submitted to the editor.
- 3.5.6. Present recommendations for future research that culminate in a validation, replication, or extension of the underlying study.

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