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Exploring the Nature of Research Questions in Mixed Methods Research

In our editorial to the second issue of the *JMMR* (Creswell & Tashakkori, 2007), we summarized some of our perspectives about the characteristics of strong, publishable mixed methods articles. Among the attributes discussed, we proposed that a strong mixed methods article should

- demonstrate the need for mixed methods to answer research questions that include clearly interconnected qualitative and quantitative components,
- present distinctly identifiable qualitative and quantitative data (or one transformed to the other) that are analyzed and presented separately,
- make identifiable inferences or conclusions on the basis of the results of appropriate qualitative and quantitative data analyses, and
- clearly integrate the results of the two or more (qualitative and quantitative) strands of the study into coherent conclusions or inferences that are more comprehensive and meaningful than those of the qualitative or quantitative strands alone.

In this editorial, we begin to address the nature of mixed research questions.

A strong mixed methods study starts with a strong mixed methods research question or objective. Numerous scholars have reiterated the fact that research questions are shaped by the purpose of a study and in turn form the methods and the design of the investigation (for examples, see Brewer & Hunter, 2005; Bryman, 2007; Collins, Onwuegbuzie, & Jiao, this issue; Creswell & Plano Clark, 2007; Krathwohl, 2004; Newman & Benz, 1998; Rao & Woolcock, 2003; Tashakkori & Teddlie, 1998). Obviously, such mixed methods research questions and objectives clearly demand the use and integration of both qualitative and quantitative approaches or methods. (It should be kept in mind that not all research questions and objectives benefit from using mixed methods.) Consequently, when a project explores mixed research questions with interconnected qualitative and quantitative components or aspects (e.g., questions including “what and how” or “what and why”),¹ the end product of the study (conclusions and inferences) will also include both approaches.

Despite this clear importance, the attributes of strong mixed methods research questions have remained relatively unexplored by mixed methodologists or have just started being explored by mixed methods writers (e.g., Creswell & Plano Clark, 2007). Options for formulating, stating, and exploring research questions in mixed methods research are important issues for discussion. Mixed methodologists have repeatedly placed mixed methods on a continuum that includes qualitative, quantitative, and mixed approaches rather than using the dichotomy of qualitative or quantitative (for reviews, see Newman, Ridenour, Newman & DeMarco, 2003; Teddlie, Tashakkori, & Johnson, in press). Following this suggestion, a basic issue remains open for debate: How does one frame a research question in a mixed methods study? Should it be stated as a combination of separate qualitative and quantitative questions or as a single question that is general and incorporates

both? To explore possible answers to this question, let us review some of the models and practices we have observed in the current literature.

The current state of the art reflects the use of multiple research questions for qualitative and quantitative strands of the research. More recent thinking calls for an explicit “mixed methods question” in addition to separate qualitative and quantitative questions. Thus, it is important to outline the possibilities for writing research questions into mixed methods studies:

1. Write separate quantitative and qualitative questions, followed by an explicit mixed methods question (or, more specifically, questions about the nature of integration). For example, if a study involves concurrent quantitative and qualitative data collection, this type of mixed question could ask, “Do the quantitative results and the qualitative findings converge?” (Creswell & Plano Clark, 2007, p. 107). If a study is more sequential, the question might be “How do the follow-up qualitative findings help explain the initial quantitative results?” or “How do qualitative results explain (expand on) the experimental outcomes?” (for further examples, see Creswell & Plano Clark, 2007, Table 5.2). Creswell and Plano Clark (2007) advocated the inclusion of such specific questions that make explicit researchers’ intent as to how they will mix the quantitative and qualitative strands in a study.
2. Write an overarching mixed (hybrid, integrated) research question, later broken down into separate quantitative and qualitative subquestions to answer in each strand or phase of the study (Teddlie & Tashakkori, in press). This is more frequent in parallel or concurrent studies than in sequential ones. Although this overarching question might be implicitly present, sometimes it is not explicitly stated. An example from recent literature is Parmelee, Perkins, and Sayre’s (2007) study exploring “how and why the political ads of the 2004 presidential candidates failed to engage young adults” (p. 2). The authors followed this implicitly stated question with three specific subquestions: “How does the interaction between audience-level and media-based framing contribute to college students’ interpretations of the messages found in political advertising?” “To what extent do those interpretations match the framing found in the ads from the 2004 U.S. presidential election?” and “How can political ads be framed to better engage college students?” (p. 4). As another example, in a parallel or concurrent design, a mixed methods question might be “What are the effects of Treatment X on the behaviors and perceptions of Groups A and B?” Consequently, the component questions that are drawn from the overarching mixed question might be “Are Groups A and B different on Variables Y and Z?” (the quantitative strand) and “What are the perceptions and constructions of participants in groups A and B regarding treatment X?” (the qualitative strand).
3. Write research questions for each phase of a study as the study evolves. If the first phase is a quantitative phase, the question would be framed as a quantitative question or hypothesis. If the second phase is qualitative, the question for that phase would be framed as a qualitative research question. This is found in sequential studies more than in concurrent studies.

These three practices offer different perspectives about research questions in mixed methods research. They raise questions about whether only quantitative and qualitative questions should be written, whether a single mixed methods question should be written to emphasize the nature of mixing and integration, or whether a single mixed (hybrid, integrated) question should be written that transcends the subsequent qualitative and quantitative subquestions.

Also, placing mixed methods on a (multidimensional) continuum of qualitative and quantitative approaches (rather than a third option, added to the dichotomy of qualitative

and quantitative approaches) creates an interesting dilemma: Should or can mixing occur at the research purpose or question, or should it be kept limited to the methods of the study (data, methods of data collection, data analysis stage)?

Mertens's (2007) article in this issue addresses various important considerations regarding research questions. She suggests the necessity of an overarching concern or purpose for changing the lives of the participants in a study and discusses how a researcher's transformative worldview might or should affect his or her research questions, data sources, design, conclusions, and policy recommendations in a "cyclical transformative" way. By inference, such a concern and purpose would necessitate overarching mixed questions, similar to Option 3 above, which evolve as the project progresses. Examples of such overarching questions in Mertens's article include "What were the factors that allowed the sexual abuse to happen?" and "What would need to be changed in order to reduce the probability that it would recur?" (p. 214). Mertens concludes that the transformative paradigm "provide[s] a framework that is useful for raising questions about the assumptions that underlie research and the contribution of research to enhancing human rights" (p. 224).

Christ's article in this issue is an example of developing research questions in a sequential manner while asking a specific question about the nature of mixing or linking qualitative and quantitative findings. He provides strong arguments for a recursive process in which research questions of one strand of a sequential mixed methods study initiate or shape the questions of another strand in a continuous manner. The mixed methods question revolves around the consistency between the results of various strands of a longitudinal study. An interesting aspect of Christ's article is the fact that contrary to many sequential mixed methods studies, both the quantitative and the qualitative questions were exploratory.

Scott et al.'s article in this issue provides partial examples for the first and second approaches to research questions. The authors frame an overarching question while asking a question about the nature of mixing or linking. First, they pose an overarching question to drive the entire study (what are the effects of social support on the adjustment of widows following the deaths of their spouses?), with the goal of understanding widows' "experiences of loss and social support" and "day-to-day appraisals of social support during the transition into widowhood" (p. 244). Clearly, this general question potentially includes both quantitative and qualitative types of subquestions. The authors answer these subquestions (or objectives) by collecting and analyzing relevant data. However, they also implicitly pose a question regarding integration, exploring the degree to which "the quantitative and qualitative findings . . . inform each other" (p. 244).

Collins et al.'s article in this issue presents the results of a sequential mixed study answering two broad research questions set forth from the start: (a) What was the "prevalence of sampling designs utilized in mixed methods research" (p. 279)? and (b) To what extent was there "interpretive consistency" among published research articles that could be identified as mixed? Although the strands were conducted sequentially (first a quantitative analysis of the articles, then a qualitative analysis of the sequence of and relationship between the quantitative and qualitative components of each article), the nature of the two questions did not change as a result of this sequence. An interesting issue emerging for debate is the necessity (or lack thereof) of separate typologies for each component or stage

of a mixed methods study, including the research questions. For example, is it possible (or necessary) to explore a parallel or concurrent set of research questions in a sequential mixed design?

We hope this brief overview demonstrates the necessity of paying close attention to how investigators frame their research questions and the need for further discussions of this issue in mixed methodology. On the basis of this review, we would like to make three broad suggestions for mixed methods articles, with the hope of advancing the debate regarding research questions in mixed methods:

1. Mixed methods studies need at least one explicitly formulated mixed methods question or objective about the nature of mixing, linking, or integration (i.e., how the findings of various strands relate to one another). Such a question about the nature of integration follows the qualitative and quantitative types of questions and emerges from the specific need to use mixed methods (e.g., elaboration, complementarity). Answers to the question should be explicitly explored and presented at the end of the article.
2. Mixed methods studies will benefit from at least one overarching mixed (integrated, hybrid) question that provides the possibility of subsequent qualitative and quantitative types of sub-questions. Such a question effectively links the components or strands (qualitative and quantitative) and objectives and questions of the study and sets the stage for comprehensive mixed methods inferences and conclusions at the end.
3. The nature and form of research questions might be different in sequential and parallel or concurrent mixed methods studies. In parallel studies, the component questions are framed from the start. In sequential studies, the questions of a second (or later) strand emerge as a result of the findings of the first (or earlier) strand. Regardless of this variation, mixed methods studies benefit from a dynamic process in which the component (strand) questions are reexamined and reframed as the two or more strands of the study progress.

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John W. Creswell
Editors

Note

1. See Creswell and Plano Clark (2007, pp. 103-104) for a discussion of differences between qualitative and quantitative research purposes and questions.

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