

# CONCLUSION

## Lessons learned for teaching mixed research: A framework for novice researchers

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For the past decade, mixed research has been growing in popularity (Johnson & Onwuegbuzie 2004). The articles in this special issue of the *International Journal of Multiple Research Approaches* (IJMRA - ISBN 978-1-921348-02-0) represent the first compilation of manuscripts devoted to mixed research for novice researchers. From these articles, it is evident there are two main areas that novice researchers need to understand in order to conduct rigorous mixed research studies. First, novice researchers need to know how mixed research is conducted and what elements lead to credible results that, in turn, yield quality meta-inferences (i.e. inferences from qualitative and quantitative data being integrated into a coherent whole; Tashakkori & Teddlie 1998). Second, novice researchers need examples of exemplar research studies. Having exemplar studies to read and critically analyze should, in turn, assist novice researchers in carrying out rigorous studies. Therefore, it is important for novice researchers to consider how the articles in this special issue relate to these two areas.

Each of the six articles in this special issue can be arranged by whether they are methodologically based or represent empirical (mixed) research studies. Methodological articles can be delineated as manuscripts in which the purpose is to explain one or more aspects of the research process. We have categorized the following four articles from the current issue of *IJMRA* as being methodological:

- (a) *Understanding divergence of quantitative and qualitative data (or results) in mixed methods studies* (Pluye, Grad, Levine & Nicolau 2009);
- (b) *How the novice researcher can make sense of mixed methods designs* (Niglas 2009);
- (c) *Understanding how mixed methods research is undertaken within a specific research community: The case of business studies* (Molina-Azorin 2009); and
- (d) *Mixed data analysis: Advanced integration techniques* (Onwuegbuzie, Slate, Leech & Collins 2009).

Empirical research exemplars can be described as articles that are based on empirical data collected to address one or more specific

research questions. We have identified the following two articles from the issue as empirical research exemplars:

- (a) *Utilizing mixed methods to assess parasocial interaction of one entertainment-education program audience* (Kawamura, Ivankova, Kohler & Perumean-Chaney 2009); and
- (b) Teachers' attitudes about teaching English in India: An embedded mixed methods study (Christ & Makarani 2009).

Mapping these articles onto the many steps that are necessary when conducting mixed research can help the novice researcher, the student, and those teaching mixed research, to identify lessons learned from these articles. Collins, Onwuegbuzie and Sutton (2006) conceptualized the following 13 steps of the mixed research process: (a) determining the mixed goal of the study; (b) formulating the mixed research objective(s); (c) determining the rationale(s) for mixing quantitative and qualitative approaches; (d) determining 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 qualitative data; (i) analyzing the quantitative and qualitative data; (j) legitimating the mixed research findings; (k) interpreting the mixed research findings; (l) writing the mixed research report; and (m) reformulating the mixed research question(s). By following these steps, the novice researcher can produce a rigorous mixed research study. It is imperative that the novice researcher clearly understands each step and completes each in an appropriate manner.

By mapping the articles onto the steps, the researcher can assess what articles in the issue – both methodologically and empirically based – will be beneficial in furthering understanding of each particular step. Each of the articles can be mapped onto the 13 steps. Indeed, many of the articles in this special issue can be mapped onto multiple steps.

Unfortunately, no articles provide any discussion of the first two steps of the mixed research process, namely, determining the mixed goal of the study (Step 1) and formulating the mixed research objective(s) (Step 2). However, excellent examples of Step 3, determining the rationale(s) for mixing quantitative and qualitative approaches, are provided by two articles (Kawamura et al.; Christ & Makarani). Determining the purpose(s) for mixing quantitative and qualitative approaches and determining the mixed research question(s), Step 4 and Step 5 respectively, are exemplified well in two articles (Molina-Azorin; Christ & Makarani). But, no article contains an extensive discussion of mixed sampling designs (i.e. Step 6).

The methodological article by Niglas and the Molina-Azorin article both focus on Step 7, namely mixed research designs. With regard to collecting mixed data (Step 8), both empirical articles make a useful contribution. However, the article by Kawamura et al. is particularly helpful in providing a transparent description of the mixed data collection process. For a new framework for designing and conducting mixed data analyses (Step 9), the article written by Onwuegbuzie et al. is a helpful article to read. Kawamura et al. provide a useful application of how to integrate quantitative and qualitative findings. The article by Pluye et al. focuses on Step 10, validating/legitimating the mixed research findings, and Step 11, interpreting the mixed research findings. Unfortunately, the final step of the mixed research process, Step 13, namely, reformulating the mixed research question(s), is not presented in any of the articles.

## CONCLUSION

In the landmark *Handbook of Mixed Methods Research*, Teddlie and Tashakkori (2003) identified the following six unresolved issues and controversies in the use of mixed methods in the social and behavioral sciences that still prevail: (a) the nomenclature and basic definitions used in mixed methods research; (b) the utility of mixed methods research; (c) the paradigmatic underpinning for mixed methods research; (d) design issues in

mixed methods research; (e) issues in making inferences in mixed methods research; and (f) the logistics of conducting mixed methods research. Further, Onwuegbuzie (2007) has identified the following four crises or challenges that researchers face when undertaking mixed methods research:

- representation (i.e. the difficulty in capturing the lived experience using text in general and words and numbers in particular)
- legitimation (i.e. the difficulty in obtaining findings and/or making inferences that are credible, trustworthy, dependable, transferable, and/or confirmable)
- integration (i.e. the challenge in determining how to mix or combine quantitative and qualitative research techniques, methods, approaches, concepts or language within a single study) and
- politics (i.e. the tensions that come to the fore as a result of combining qualitative and quantitative approaches (including any conflicts when different quantitative and qualitative researchers collaborate in a mixed methods study), the contradictions and paradoxes when qualitative and quantitative data are compared and contrasted, and the difficulty in persuading consumers of mixed methods research to value both the qualitative and quantitative findings).

We acknowledge and reverberate Teddlie and Tashakkori's (2003) six unresolved issues and Onwuegbuzie's (2007) four crises. However, we believe that these unresolved issues and challenges are subsumed by what we term a meta-challenge, namely the challenge of teaching and conducting mixed methods research in an optimal manner. We believe that all six articles in this special issue on mixed research for novice researchers are excellent.

All of these articles provide powerful exemplars of one or more phases of the mixed research process. Unfortunately, no article provided exemplars of all 13 steps of the mixed research process. Moreover, no article provided an exemplar of the 1st, 2nd, 6th, and 13th steps. This lack of attention to these steps can give an incomplete picture of the mixed research process. Thus, we believe that all 13 steps should be taught to students in mixed methods courses. In any case, we encourage all those representing the mixed research community to engage in conversation about how to teach mixed methods research in effective ways that promotes the conduct of rigorous mixed research studies.

To this end, we welcome the upcoming special issue of *IJMRA* on teaching mixed methods (ISBN 978-1-921348-10-5).

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