

- integrates or “mixes” (merges, embeds, or connects) the two sources of data so that their combined use provides a better understanding of the research problem than one source or the other,
- includes the use of a mixed methods research design and integrates all features of the study consistent with the design,
- frames the study within philosophical assumptions, and
- conveys the research using terms that are consistent with those being used in the mixed methods field today.

We use these methods-oriented criteria with our students completing mixed methods studies and in reviewing manuscripts submitted for publication. They are a set of criteria consistent with ideas set forth in this book. At a more applied level, an approach we used with articles submitted to the *Journal of Mixed Methods Research* (JMMR) might be helpful to start thinking about how to apply criteria to a mixed methods article. Bear in mind that these procedures addressed the “research” approach used in the study, not the content or topic of focus of the study. Although our procedure did not always follow the lockstep guide identified next, we tended to use these steps:

1. *We looked in the methods section first.* We examined the methods section to see if the researcher collected both quantitative and qualitative data in response to research questions or hypotheses. We looked for the typical qualitative approaches of open-ended interviews, observations, documents, or audiovisual materials and the closed-ended data forms of quantitative research consisting of instruments, observational checklists, and documents reporting numeric data. Sometimes this division was unclear because one form of data (e.g., patient records) could be viewed as having both qualitative data (notes from provider) and quantitative data (values reported on screening tests).
2. *Next we examined the method section in detail.* We looked at the methods to determine whether they were pursued thoroughly. This meant that we examined the qualitative methods to see if they were detailed persuasively and the quantitative methods to determine if they were developed rigorously (see Chapters 6 and 7 on data collection and data analysis).

3. *Next we looked at the results and discussion for evidence of mixing of data.* We were interested in whether the researcher actually “mixed” the two methods as opposed to collecting data for both strands and keeping them separate throughout the study. This was sometimes difficult to pinpoint. Helpful in assessing whether mixing

occurred was evidence that the author mentioned a rationale for why the two strands were being collected (e.g., qualitative was being collected in order to explain the quantitative results). This rationale could be found anywhere in the study from the beginning, to the methods, or to the end. Other signs for mixing consisted of tables or figures that contained both databases, separate phases of the study with one devoted to quantitative data and the other qualitative (or vice versa), or results or interpretation sections in which the authors explicitly brought together the two databases.

4. *Finally, we looked for mixed methods terms.* The use of mixed methods terms in a study denoted that the authors made a conscious attempt to use mixed methods procedures, were familiar with the literature on mixed methods, and sought to have their study understood and evaluated by readers as a mixed methods study. We looked for mixed methods terms in such places as the title (did they include the words *mixed methods*), in their method discussion and a specification of a type of mixed methods design, in their rationale for their choice of research approach, and in the advantages they cited for mixed methods in the conclusions of the article.

Another approach for considering quality in mixed methods research is to study researchers’ perceptions. Bryman, Becker, and Sempik (2008) asked specifically about quality criteria for mixed methods research in a mixed methods study of researchers’ perceptions. The quantitative results found that over two thirds of the surveyed researchers felt that different criteria should be used to judge the quality of the quantitative and qualitative components of a mixed methods study. The analysis of the interview data identified four themes concerning criteria that can be applied to mixed methods studies:

- The use of mixed methods needs to be relevant to the research questions
- There needs to be transparency about the mixed methods procedures
- The findings need to be integrated or mixed
- A rationale for the use of mixed methods needs to be provided

An alternative approach to evaluating mixed methods studies is to consider mixed methods within the larger process of research. In 2008, O’Cathain, Murphy, and Nicholl (2008) developed a set of criteria for Good Reporting of a Mixed Methods Study (GRAMMS). Building on this work, O’Cathain (in press) provided a recent set of evaluation criteria in which she pointed out that evaluation discussions in mixed methods have been derived from literature reviews, from