

Teamwork, Infrastructure, Resources, and Training for Mixed Methods Research

This section discusses the following key considerations related to the process of engaging in mixed methods research:

- ❖ **Forming the Mixed Methods Research Team**
- ❖ **Leading and Guiding a Mixed Methods Research Team**
- ❖ **Building Infrastructure and Resources**
- ❖ **Training of the Mixed Methods Research Team**

Forming the Mixed Methods Research Team

- ❖ **The nature and structure of the mixed methods research team is significant:** Successful applications for NIH grants are highly likely to call upon the skills and insight of a team of researchers, and may well include investigators at various stages of their career trajectories.
- ❖ **The nature of the research question shapes the nature of the research team compiled to address them:** The questions that are driving the research initiative determine the expertise required to address them. The design follows from the questions: multidisciplinary, interdisciplinary, or transdisciplinary. There are different kinds of teams and ways of working together that are better suited to different kinds of questions.

Distinguishing among multidisciplinary, interdisciplinary, and transdisciplinary team research:

- Rosenfield (1992) created a taxonomy of three levels of collaborative research between social and health scientists: multidisciplinary, interdisciplinary, and transdisciplinary research. The basic definitions of each are outlined below in Box 1.

Box 1. Rosenfield's (1992) Taxonomy of Three Levels of Collaboration

Multidisciplinary (Level One): Researchers work in parallel or sequentially from a disciplinary-specific base to address common problems.

Interdisciplinary (Level Two): Researchers work jointly but from disciplinary-specific basis to address a common problem.

Transdisciplinary (Level Three): Researchers work jointly using a shared conceptual framework drawing together disciplinary-specific theories, concepts, and approaches to address common problems (p. 1351).

- ❖ Crabtree et al. (1994) provided a diagrammatic interpretation of the different ways in which disciplines contribute to each level of collaborative research (Crabtree, Miller, Addison, Gilchrist, & Kuzel, 1994).
- ❖ The boundaries between the different levels of collaboration are often somewhat blurry (Adler & Stewart, 2010). However, the idea of thoughtful and purposeful collaboration that goes beyond any one discipline has been central to the development of team science. It is hoped that such collaboration will make an important contribution to solving important health problems (e.g., Stokols, Hall, Taylor, & Moser, 2008; Adler & Stewart, 2010)



- ❖ **Successful mixed methods teams include breadth and depth of expertise:** The prioritization of breadth versus depth of expertise of team members is an early issue to be addressed in the formation of a team. The construction of a successful mixed methods team requires planning the integration of both varied methodological and disciplinary expertise. It is important for the team to include the breadth of disciplines relevant to the key questions and with the conceptual and analytic depth to answer them. Mixed methods research teams need to incorporate individual researchers who are collectively capable of conducting each aspect of the research (breadth). In addition, it is important that the team has sufficient capacity for researchers to support and challenge one another in each aspect of the research so as to produce the highest quality research (depth).
- ❖ **A mixed methods team is not simply a team of individual researchers with distinct methodological traditions and skills:** Successful mixed methods research requires that the team transcend distinct methodological and epistemological differences at least to some extent, so as to create processes for data collection and analysis that can integrate both qualitative and quantitative approaches. The point and processes of integration are important issues for careful deliberation. Ideally, multiple members of the research team should be engaged in the integration processes, rather than having integration fall to a single investigator.
- ❖ **The relationship of each member of the research team to mixed methods research:** One question likely to surface in forming a mixed methods team is whether all of the team members need to be mixed methods researchers. While all team members need to be open to a mixed methods perspective, it is not necessary or even possible for everyone to hold expertise in all methods employed in any research project. A successful leader of a mixed methods application will integrate team members who hold distinct methodological positions and expertise and those who cross methodological and disciplinary boundaries. The nature of these teams may be multidisciplinary, interdisciplinary, or transdisciplinary.
- ❖ **The capacity of a mixed methods research team takes time to develop:** A mixed methods perspective cannot simply be added at the end of the research development process by including a “mixed methods expert” on the team. Rather, in order for mixed methods research to be successful, this perspective and approach should be adopted by core team members, and evolve over time. The research development process should be organic and should start as soon as it becomes clear that mixed methods research is appropriate for addressing the proposed research questions.
- ❖ **A team that has a history of successful collaboration is in a strong position to demonstrate capacity for mixed methods research:** As in all research, but perhaps particularly so for mixed methods teams, a record of successful collaboration among the key personnel is critical to establishing the credibility of any proposed effort. The team will need to demonstrate indicators of competency and experience along methodological lines. The team will need to consider what products (such as publications) can demonstrate a collective history. Research products (such as publications) should represent the array of methods being used within the team (qualitative, quantitative, and mixed methods).
- ❖ **Mixed methods research is not ideal for every problem or person:** There are significant benefits to taking a mixed methods approach to addressing a research question in terms of innovation, creativity, and synergy, and, subsequently, the data generated. There are, however, also necessary tradeoffs in terms of complexity of process, time investment, and comfort with uncertainty. Not all research questions will benefit from such a tradeoff. Similarly, not all researchers are well suited to it.

Leading and Guiding a Mixed Methods Research Team

- ❖ **The skills and outlook of the principal investigator or research leader are critical:** As in all successful research projects, the skills and perspective of the principal investigator or research leader is paramount in mixed methods research. However, constructing successful mixed methods research raises particular leadership issues. The leader of a mixed methods research team should espouse a broad perspective on the utility of different methodologies, an ability to support and acknowledge different team member contributions, an effort to maintain continual dialogue about issues in working together, a sensitivity to workloads of team members that may pose challenges to working on the project, and support for educating team members in different methodologies, when needed.
- ❖ **An effective leader for a mixed methods project should be experienced and interested in qualitative, quantitative, and mixed methods research:** Beyond the need for the research leader to be knowledgeable about the array of methods employed in the study, the training needs for any single individual in a mixed methods team



are dependent on the specific roles of each member, as well as the capacity of other team members. This is especially true for the leader of the mixed methods team. People in positions of team leadership will benefit from having a broad level of experience across qualitative, quantitative, and mixed methods methodologies. When the leader does not have such experience, there is a need to demonstrate a commitment to and an appreciation for the breadth of methodologies and disciplinary approaches integrated in the proposed work. The most effective mixed methods team leader may not be the greatest expert in any one approach, but rather the person who is able to bridge differences and create synergy.

- ❖ **A shared vision and defined roles within the mixed methods team is critical:** In the formation of a successful mixed methods team, it is essential to construct a shared vision of the purpose of a mixed methods approach as it relates to the research problem or question. It will be important to clearly demonstrate how the team will work together, how each individual's role is defined, and how these roles are interrelated, conceptually, spatially, and temporally. Defined roles will be important for effective data collection, analysis, integration, and interpretation. Achieving and maintaining a shared vision within the team requires a significant investment of time and energy on the part of the leader as well as other team members.
- ❖ **A mixed methods team can be structured as a linear relationship or as a spoked wheel:** In a linear structure, quantitative and qualitative perspectives and expertise will sit at either end of the research team and processes, with key individuals bridging these distinct perspectives. In a spoked-wheel structure, each individual member of the research team will be tied into some core component of the research initiative, possibly via the principal investigator and/or a common data source.
- ❖ **Different team perspectives need to be recognized and honored:** The priority given to different perspectives (both methodological and philosophical) in the overall design will likely be a function of team member characteristics, such as the seniority of team members and the leader of the team. These different perspectives, manifest in team/personality dynamics, should be recognized and honored throughout the application development process. Ideally, mixed methods teams will include experienced members from each of the methods/disciplines included in the design. Team leaders need to recognize that the most persuasive products result from significant engagement by each of the team members in the majority of tasks related to the project. Such engagement has the potential to significantly increase the time and efforts involved in the application writing process.

Building Infrastructure and Resources

- ❖ **All research initiatives benefit from being conducted in a well-resourced and dynamic research environment:** It is necessary to have access to resources that benefit the specific needs and requirements of a particular initiative. In most ways, mixed methods proposals will have considerable overlap with complex single-method studies in terms of resource and infrastructure needs. An adequate library service, for example, is important for all studies. However, there are aspects of mixed methods research that warrant explicit consideration in terms of necessary resources and support.
- ❖ **Mixed methods research is likely to require a wider array of computer software needs than a single method study:** Both statistical and qualitative analysis software are likely to be integral tools for successful mixed methods projects. This raises issues in relation to establishing necessary analytic expertise for both qualitative and quantitative methods.
- ❖ **Mixed methods teams will benefit from being able to call upon other experienced and informed colleagues at their own institutions:** Institutional capacity in terms of training opportunities, research capabilities, and institutional knowledge related to the various methods are all important factors that may need to be incorporated into a mixed methods study. Departments, centers, and individuals beyond those who are actively engaged in the proposed research can serve as useful support for the ongoing work.
- ❖ **Effective mixed methods research teams require collective as well as individualized workspace:** Research space for mixed methods research will need to accommodate various data collection approaches, including possible primary data collection. It is also especially valuable to prioritize the need for the research team to have the ability to come together on a regular basis (either physically or virtually). Frequent and ongoing interaction will benefit the productivity of the group and the quality of the research. For some teams (particularly those working long distance and even globally), the creation of virtual space in which to collaborate may be most effective.



- ❖ **Flexibility for staffing support:** The various data collection and analytic approaches incorporated into mixed methods research require specific types and levels of staffing support, and careful management throughout the research process.
- ❖ **Team members can profit from mixed methods training and workshops:** Mixed methods research raises many distinct challenges in terms of the education and management of the research team. Identifying and making available formal coursework, short in-person workshops, and online courses on mixed methods are likely to improve collaboration, research products, and future capacity.
- ❖ **Mixed methods teams may benefit from the ability to work together virtually:** Establishing virtual spaces and tools that facilitate brainstorming, instrument development, data sharing, and analytic collaboration will be increasingly important for effective mixed methods teams.

Training of the Mixed Methods Research Team

- ❖ **Engaging in mixed methods research can serve as a learning opportunity for team members:** It is possible to prioritize collaborative educational opportunities for all members of a mixed methods team in the research design in order to build methodological capacity throughout the team. Effective prioritization is most likely to occur when research leaders understand and appreciate each team member's desire to expand their methodological perspective. Productivity and effective collaborations on a mixed methods team largely will be defined by explicit and shared understanding of each member's expectations and goals.
- ❖ **Mixed methods research is likely to require additional training some or all of the research team:** Until recently, it has been almost inevitable that all researchers will have a stronger foundation in and comfort with either quantitative or qualitative methods of inquiry, and the philosophical traditions that underpin each. The increasing acceptance of mixed methods approaches may be changing this reality – but only slowly. It is still the case that most researchers are formally trained in one tradition, potentially with supplemental training in the other. It is also the case that many researchers have only formal training in one tradition, and only an interest in or experience with the other. The issue of how to adequately demonstrate competence across methods within the team is worth careful consideration.
- ❖ **Appropriate and effective training for mixed methods research need not necessarily occur in a traditional classroom setting:** Embracing an explicit mixed methods approach to conducting health research is still relatively new, and thus many researchers come to mixed methods long after their formal training is complete. Similarly, while the numbers of programs that provide courses in mixed methods continues to grow, this type of training is not available to all. It is both appropriate and necessary for those interested in and/or engaging in mixed methods research to be self-directed in their learning – including taking part in mixed methods conferences and immersing oneself in the growing mixed methods literature both within health and from other areas of scientific inquiry.
- ❖ **Mixed methods analysis benefits from team members' comfort with multiple types of data and analysis methods and approaches:** Mixed methods research involves integration of data such that the analytic process benefits from multiple perspectives and data sources. In order for team members to fully engage with the analytic process, it is necessary to establish familiarity and comfort with the various data sources generated and analytic approaches undertaken.
- ❖ **Mixed methods research can benefit from adopting training and materials from other scholarly disciplines:** To the extent that additional formal training is either desirable or needed for members of a research team, training from other research areas (such as education, or more broadly the social, behavioral, or cognitive sciences) may be modified for a health application.
- ❖ **Building mixed methods expertise should explicitly prioritize collective capacity:** When additional training is necessary for some team members in either qualitative, quantitative, or mixed methods research, it may be most effective to create collective training that the team (or parts of it) can engage in together. Such collective training can identify areas of capacity strengths and possible shortfalls.



Key References and Resources

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