Teamwork, infrastructure, resources, and training for mixed methods research

This section discusses four key considerations related to the mixed methods research process:

1. Forming the Mixed Methods Research Team
2. Leading and Guiding a Mixed Methods Research Team
3. Building Infrastructure and Resources
4. Training the Mixed Methods Research Team

**Forming the Mixed Methods Research Team**

The nature and structure of a mixed methods research team arises from the research questions and the expertise required to address them. Rather than including a single “mixed methods expert” on a grant application, successful mixed methods research projects transcend distinct methodological and epistemological differences at least to some extent, to create processes for data collection and analysis that integrate both qualitative and quantitative approaches. The point and processes of integration are important issues for careful deliberation. Ideally, multiple team members work together to integrate the data, rather than leaving integration to a single investigator. Successful NIH-funded projects generally involve the skills and insights of a team of researchers from multiple disciplines, and often include investigators at various career stages.

Regardless of discipline or career stage, all collaborators must identify as members in the research team by learning one another’s argot (e.g., diagnostic terms, learning approaches) and developing a common language that facilitates a mixed methods approach designed to answer the study’s research questions (Curry et al., 2012). The process of sharing one another’s expertise and developing shared terminology concurrently develops reciprocal knowledge and trust as well as recognition of each member’s unique expertise (see Burke, 1966, 1969; Elwood, 1999).

Moreover, 21st-century technologies facilitate optimal expert collaborations across countries and continents so long as there is cyber-infrastructure to support collaborations. Additional possibilities to consider include community-based (i.e., non-academic) collaborators and social-organizational psychologists to facilitate and/or resolve issues impeding working in partnership (Stokols et al., 2008; Bennett, Gadlin, & Levine-Finley, 2010; Börner et al, 2010; Falk-Krzesinski et al., 2011). Team science expressly involves investigators with diverse skills and knowledge to study complex social problems with multiple causes (Börner et al., 2010; Falk-Kresinksi et al., 2011; National Research Council, 2015; Stokols et al., 2008; Tebes, Thai, & Matlin, 2014).

Obviously, previous successful collaborations among key personnel enhance the credibility of any proposed project. In such cases, the team should indicate its collective methodological competency and experience, delineate previous team accomplishments
Successful team qualities include breadth, depth and history. All team members need to be open to a mixed methods perspective; however, it is not necessary or even possible for all investigators to be expert in all methods in any research project. A mixed methods project leader involves colleagues with distinct methodological positions yet disciplinary breadth to pose then answer a research project's key questions. Mixed methods research teams need to incorporate individual researchers who collectively have the breadth to conduct every aspect of a project. Concurrently, teams must have sufficient collective depth to support and challenge its members in each project aspect to produce the highest quality research.

Leading and Guiding a Mixed Methods Research Team

The leader of a mixed methods research team should espouse a broad perspective on the value of different methodologies, support and acknowledge different team member contributions, maintain continual dialogue about issues in working together, be sensitive to workloads of team members that may pose challenges to working on the project, and support team members’ education in different methodologies when needed.

An effective mixed methods project leader should have experience and interest in qualitative, quantitative, and mixed methods research. A mixed methods team leader need not be an expert in any one approach, but must have sufficient expertise across methodologies to be able to cultivate synergy and resolve differences among team members with more distinct expertise.

A mixed methods team shares a vision and understands its members roles. A successful mixed methods team constructs a purposeful vision that relates to the research problem or question. Once constructed, the vision can help members delineate everyone’s respective role, and how they collaborate conceptually, spatially, and temporally. Structure is another important consideration. In a linear structure, quantitative and qualitative perspectives sit at either end of research team processes, with key individuals bridging these distinct perspectives. In a spoked-wheel structure, each team member will participate in some core component of the research initiative via the principal investigator and/or a common data source. Defined roles facilitate effective data collection, analysis, integration, and interpretation. Achieving and maintaining a shared team vision requires a significant investment of time and energy on everyone involved.

Ideally, mixed methods teams 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 member engagement in most tasks including the application writing process and subsequent publications.
Building Infrastructure and Resources

All research initiatives benefit from a well-resourced and dynamic research environment. In most ways, mixed methods applications have considerable overlap with complex single-method studies in terms of resource and infrastructure needs. That said, there are aspects of mixed methods research that warrant explicit consideration.

**Mixed methods research likely requires a wider array of computer software and staff 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. 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.

**Mixed methods teams benefit from being able to call upon other experienced and informed colleagues at their respective institutions.** Institutional capacity in training opportunities, research capabilities, and institutional knowledge related to the various methods are important factors that may need to be incorporated into a mixed methods study. Departments, centers, and individuals beyond those actively engaged in the proposed research can serve as useful support for the ongoing work.

**Effective mixed methods research teams require collaborative workspace.** Research space for mixed methods research accommodates various data collection approaches, including possible primary data collection. It is also especially valuable to prioritize the need for the research team to meet regularly, either physically or virtually. Frequent and ongoing interaction will benefit group productivity and research quality. Teams working across an academic campus or the globe should consider creating a virtual space in which to collaborate on instrument development, data sharing, and analytic collaboration among other tasks.

Training the Mixed Methods Research Team

Participation in a mixed methods research team can build methodological capacity for its members when the members prioritize collaborative educational opportunities for all its members. 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 within a mixed methods team will be defined largely by explicit and shared understanding of each member’s expectations and goals.

**A mixed methods research project may require training some or all the research team.** Many researchers have a stronger foundation in either quantitative or qualitative methods of inquiry and the philosophical traditions that underpin each. The increasing
acceptance of mixed methods approaches has changed this reality; however, many researchers remain formally trained in one approach and hold supplemental training in the other. The issue of how to demonstrate competence across methods within the team is worth careful consideration. A publication from a NIH-funded team provides a self-rated mixed methods skills assessment (Guetterman et al., 2017).

Mixed methods analyses benefit from team members’ comfort with multiple types of data and analysis methods and approaches. As mixed methods research involves data integration, the analytic process benefits from multiple perspectives to illuminate all the data. Team members need familiarity with multiple data sources to engage fully in analyses and implications.

When additional training is necessary in either qualitative, quantitative, or mixed methods research, it may be most effective to engage in collective training that edifies, strengthens, and builds additional capacity.