Beyond the R series: High-quality mixed methods activities in Fellowship, Career, Training, and Center grant applications

The National Institutes of Health, and many other supporters of biomedical, social and behavioral science research, fund a wide range of scientific activities beyond the traditional research (R series) grants. The foundation of all successful funding requests is a compelling presentation of research issues and the plans to address them.

Applications for other types of support also must convey a capacity in other key domains as well, such as mentorship and environment for career and training awards, and leadership, administrative structure, and integration across research activities for center grants and multi-project initiatives.

This section addresses how mixed methods research approaches influence the presentation of the key elements in each of these unique types of funding applications. Not all NIH Institutes and Centers (ICs) offer funding in these categories; often, an IC-specific mechanism may require unique capacity or activities. Nevertheless, across each type of special funding, there are common elements to consider when writing or evaluating an application that includes mixed methods research. A search of the NIH RePORTER database will identify specific examples of funding projects in specific fields, to serve as models.

Building Capacity in Individual Scholars: Fellowship and Career Awards

Fellowship Awards: F Series. As the name indicates, fellowships are training, not research, awards. They are awarded to applicants with “the potential to become productive, independent investigators in scientific health-related research fields.” A compelling application explains, “the need for the proposed training,” and “a research training proposal, sponsor, and environment which will satisfy those needs.” Evaluation criteria include assessment of the applicant, the sponsors, collaborators and consultants, the research training plan, the training potential, and the institutional environment and commitment to training.

Career Awards: K Series. Career awards provide individuals with protected time for focused activities that enhance a researcher’s capacity beyond her/his current expertise. Though some think of K awards solely for early-career stage investigators, there is an array of awards for postdoctoral, mid-career, and established investigators, and additional categories for clinician and quantitative researchers.

Criteria for evaluating K awards are like those for fellowships. They specifically assess the likelihood “for the candidate to maintain a strong research program, taking into consideration” the candidate, career development plan, research plan, mentors,
collaborators, or (for established investigators) the plan to provide mentoring, and the environment and institutional commitment.

**F and K Series: Issues Specific to Mixed Methods Research.** For career awards and fellowships that involve a mentor’s or trainee’s capacity in mixed methods, the following criteria may be relevant.

- **Candidates** should present compelling rationales for dedicated time for mixed methods training. For example, a competent quantitative applicant should articulate how mixed methods skills enhance the individual’s scholarship and, perhaps, the capacity of a larger research team. If trained in only one area (e.g., quantitative research), then there should be a clear plan to develop skills in both qualitative and quantitative research, as well as in mixed methods. Support letters should provide evidence that mixed methods is an important component to the candidate’s future scientific contributions.

- The **mentorship** plan is equally critical. If there is a single mentor, the application must demonstrate this individual’s capacity to guide and develop the candidate’s mixed methods abilities. Many environments do not have mixed methods researchers in all areas of science, however. Consequently, a candidate might propose mentors at different institutions. If the candidate proposes a collaborative mentorship model, there must be evidence that the proposed mentors have planned this carefully, and that each mentor has co-mentored similar candidates (ideally, together). A split mentorship model, in which one person will provide qualitative and one quantitative research guidance, is less likely to successfully improve the candidate’s capacity in mixed methods research. Split arrangements can be difficult for trainees to navigate, and can result in little attention to the trainees building skills they will need to integrate their training experiences, goals, and research findings.

  Mentors should demonstrate prior accomplishments including a list of previous trainees and their foci, skill sets gained, and career paths post-training. For more established candidates, the criteria are evidence of their own mentorship accomplishments and their prior contributions to mixed methods training of others.

  Letters of support from researchers in related fields also can demonstrate that mixed methods training will enable the candidate to make innovative contributions to relevant research areas. Expert opinion that explains how the field could benefit from mixed methods approaches, and that the candidate will be poised to benefit the field once trained will reinforce the case for the career training plan.

- As with mentorship, the most compelling evidence of a supportive adequate **training environment** to build mixed methods research capacity is the existence of other trainees, promising a supportive collective intellectual atmosphere for the candidate. In addition, an institution or group’s previous track record of training scholars in this area, and the current achievement of those former trainees, demonstrates environmental capacity.
Types and diversity of funding and scholarship of mentors and trainees constitutes another exemplar. For mixed methods scientists, the issues of separate mentorship also can carry over into the training environment. Thus, capacity should be documented by specific structural indicators of a mixed methods environment, such as journal clubs, classes, and seminars, rather than a list of separate qualitative and quantitative events and opportunities. If these do not yet exist in the home institution or environment, the application should include specific experiences, such as meetings, short courses, or other activities, that will supplement the home institution’s resources.

- Career and fellowship awards must explain how the proposed research training will be consistent with the candidate’s goals to develop as a mixed methods researcher. Thus, mapping specific experiences and activities within the research plan to opportunities for training and skill development is important. For mixed methods researchers, capacity-building must involve continued contact with the larger mixed methods community of scholars, and ongoing assessment of the degree to which full integration of methodologies is occurring in the candidate’s ongoing and emerging work. Structured opportunities, including courses, scientific meetings, and other training should be described. Products from the training should include the types of professional meetings where the candidate will present her or his work and how those audiences will enhance the trainee’s professional development. Similarly, journals to which the candidate plans to submit mixed methods work also should be discussed.

Providing Institutional Training: T Series

The Ruth L. Kirschstein National Research Service Awards (NRSA) support the training of biomedical, behavioral, and clinical researchers through institutional research training grants. Dr. Kirschstein was the first female director of a major NIH Institute (NIGMS), served extended periods as acting NIH Director, helped develop the Sabin polio vaccine, and strongly advocated for research training (Davis, 2011). Congress renamed the program in Kirschstein’s honor in 2002. Though individual fellowships (F30-F33) technically fall within the NRSA rubric, they are discussed above with the individually-focused career awards.

Institutional training awards (T Series) allow institutions to recruit individuals for predoctoral and postdoctoral research training in specified shortage areas. The goal of this program is to prepare qualified predoctoral and/or postdoctoral trainees for careers that have a significant impact on health-related research needs.

- An important criterion for the overall impact evaluation of institutional training grants is the “likelihood that a program will exert a sustained powerful influence on the research field(s) involved.” Therefore, if a training program can offer mixed methods training as one component of its contributions, there is a great likelihood it can make a substantial impact given the growth of interest in mixed methods approaches.
• The criteria for mentorship, as well as the institutional environment and capacity (see F & K Series discussions), are even more important in an application for institutional training grants. When students from different backgrounds and perspectives interact, mixed methods trainees can benefit from multiple scientific perspectives and epistemologies. These are fundamental skills for emerging mixed methods scientists. In this case, it is even more important for faculty mentors to avoid creating disciplinary “camps,” and subgroups of students and skill sets within the program. If all students do not receive mixed methods training, there should be specific resources identified for the proportion of mixed methods trainees. Furthermore, the culture of the program should reflect the respectful inclusion of mixed methods as an equal partner area, so that all trainees are socialized accordingly.

Creating Collaborative Research Centers and Programs: P Series

For larger collaborative efforts, including center grants, the fundamental quality of the individual research projects proposed creates the foundation for the overall center. As reviewers evaluate center project application packages in relation to one another—not simply in relation to submissions from other institutions. Consequently, a submission must demonstrate synergies across research and educational within any single activity. Center and program-project grants are ideally suited to build or enhance mixed methods research capacity at an institution, particularly if the scientific area of focus can demonstrably benefit from such capacity.

• **Research Projects:** Center/program projects propose multiple independent research projects that together become greater than the sum of their parts. One overarching criterion is whether each individual project increases the impact of the individual investigation, as they occur within a center’s other proposed projects and activities. If one research activity uses only a qualitative approach and another a strictly quantitative approach, it could be tempting to describe the overall research as taking a mixed methods approach; however, without explicit mixed methods strategies throughout, knowledgeable reviewers may disagree with that description. A specific project focusing on mixing data, analytical strategies, inference, and interpretation from separate studies could be feasible. However, the value of this would depend both on the objectives desired and the feasibility of the mixed research process. It may be more feasible to design at least one of the projects as a stand-alone activity, which nevertheless contributes to the overall scientific goals of the center or program.

• **Cores:** In program projects, cores are organizational units that consolidate activities, resources, and multiple projects. They create synergies and economies of scale for resource use. As well, they often can serve to enhance the scientific impact of activities and to disseminate results. Methodology and analysis cores are crucial for mixed methods program projects/center grants. Cores allow staff and investigators tasked with different individual contributions to communicate effectively; cores ensure that equivalent methodologies, measures, and procedures are undertaken.
For mixed methods, a well-designed core, containing both the appropriate personnel and resources, will ensure high-quality products from both individual research projects and the entire center.

Beyond methodology cores, other types of cores focus on training and education, or dissemination and community participation activities. Administrative cores can facilitate input and feedback from external experts or manage IRB issues. Again, centers that include mixed methods research must use core resources to support the unique needs of this field. Therefore, IRB applications must be able to draw on mixed methods expertise to explain participant confidentiality, data collection, and dissemination issues to IRB members without such expertise.

Community-based advisory boards consist of people with disparate levels of sophistication toward research, and mixed methods, and provide another opportunity to tailor mixed methods to this audience. The dissemination core may create content for web and other media activities, help select venues such as journals and conferences where mixed methods work is accepted, and broadly bring capacity to the center to maximize impact of the research.

- **Resources and Environment**: Institutional capacity includes many of the considerations discussed for individual projects. Given the prominence of a center in most institutions, however, there should be clear institutional commitments to serve as an adequate home for the venture. Review of institutional capacity should consider evidence of previous similar successful activities and a supportive organizational culture for mixed methods. If the center will bring mixed methods research and training capacity to an organization where it has not existed previously, the application should make it apparent that this is a logical next step in the organization’s mission and growth.

- **Program Leadership**: Scientific leaders direct individual projects within centers; a center director is less involved in the management of each scientific project. Nevertheless, overall center leadership requires an individual who can create opportunities for balance and synergy within and across individual research teams and projects. Presenting the center to external stakeholder audiences requires the ability to communicate persuasively about the value of a mixed methods approach to the given scientific questions and issues the center proposes to address.

- **Program as an Integrated Effort**: One of the most important evaluative elements of a center grant review is the assessment of the program as an integrated effort. Successful program projects create systems of research activities and projects, all working toward a well-defined scientific goal. As discussed previously, many of the fundamental epistemological and methodological foundations of mixed methods research are based on integration, making a program project that includes mixed methods a compelling activity, if designed and presented carefully.

- **Impact**: Impact scores are assigned to program projects and centers by reviewers to assess the "scientific merit, impact, and coherence of the overall application as a
synergistic and interactive enterprise.” Given the substantial resources used by such centers and program projects, the return on investment must be moving a field forward in ways that are significantly different than those of individual projects. Further, reviewers must specify which audiences and communities of scholarship benefit from the resources given to this center activity, and in what ways, and to what extent.