

Conquering the Mega Grant: An Approach to Editing Proposals for Centers or Programs

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Nothing gets my heart pumping like the prospect of editing a “mega” grant—a complex, multiauthor, high-page-count grant proposal that includes numerous sub-projects or cores. I know the timeline will be short. The writers will be stressed. My caffeine intake will be alarming. But for an author’s editor in academic medicine, there is no better project to highlight just how necessary (and ultimately how satisfying) the work of an editor can be.

Large grants or cooperative agreements to fund research centers or programs (such as those supported by the National Institutes of Health’s P- and U-series mechanisms) are increasingly common as researchers and funders alike recognize the value of collaborative science. The successful development of these types of proposals is an enormous undertaking for principal investigators and their writing teams. Much has to happen even before the writing begins: Research ideas and resources need to be identified, collaborators courted, aims agreed on, and writing responsibilities assigned. Proposal sections are usually written by different authors who may or (more likely) may not have seen drafts of each other’s work. The total page count for central material alone can reach well over 100. And always, there is the ever-looming submission deadline. Those writing conditions certainly prompt, if not demand, the involvement of a skilled editor—one with not only excellent editorial skills but an aptitude for setting priorities, staying organized, communicating well with authors, and keeping calm under pressure.

In this column, I discuss three aspects of editing that I have found to be particularly valued by the authors of center and program grant proposals: editing for consistency, cohesiveness, and completeness. In my next column, I will offer advice on providing feedback and organizing the workflow for these types of complex proposals, with an emphasis on how an editor’s interpersonal skills can help to reduce stress and solidify good working relation-

ships with authors. My advice is drawn from my experiences in working with a variety of research teams in the University of Minnesota’s Academic Health Center for the last decade.

Editing for Consistency

In any writing project, changes made in one section of a manuscript can prompt changes in another. The ripple effect is magnified in center and program grants. With multiple stone throwers (authors) tossing ideas around in multiple ponds (proposal sections), an inordinate amount of splashing can ensue and can result in numerous inconsistencies in the document.

Some inconsistencies provoke only mild annoyance in the reader; others are serious enough to make reviewers question the principal investigator’s ability to manage the proposed program. Editors of center and program grants need to be the champions of consistency. It is perhaps our most critical role, especially when time is short and authors are focused on other pressing proposal-development tasks. Thus, I begin this column with strategies for promoting consistency in the proposal’s content, organization and format, language, and writing style.

Content. At a macro level, editors can evaluate whether a proposal’s core content is appropriately balanced in breadth and depth among sections. For example, if a program grant proposal includes three research projects but project 1 is much more extensively described than the others, I will always query the authors. In the absence of an explanation for the imbalance, a reviewer could easily conclude that “several of the proposed studies are insufficiently developed” and lose enthusiasm for the proposal as a whole. To avoid that, the authors of projects 2 and 3 may need to insert more experimental details while I work to trim project 1’s description.

Many smaller but important content-related inconsistencies can be identified during the editing process. Here are just a few examples from some of my past projects:

Between Author and Editor

continued

- The authors of a proposal for a new research center described plans to use the center's monthly newsletter to advertise the availability of pilot funding. However, no other references to such a newsletter appeared anywhere in the proposal, not even in the section titled "Center's Communication Plans".
- Two projects in a program grant application concluded with a well-crafted section on "anticipated problems and alternative solutions to the experimental approach". The third project, very conspicuously, did not.
- In the personnel section of a program grant application, the written descriptions of coinvestigators were discordant in their length and level of detail even though each investigator had the same level of responsibility in the program.
- For a grant seeking to train new investigators to conduct community-based research on health disparities in cancer, the proposed curriculum for community-based research methods was highly detailed but markedly light on the application of the methods to cancer research.

Inconsistencies such as these can be easily remedied if they are identified early enough in the writing process.

Organization and format. Readers respond well when complementary sections of a center or program proposal relay the same type of information in a standardized way. In the ideal scenario, the authors of different sections will strive for consistency by agreeing to follow a common template. In reality, editors can expect to receive drafts of sections that vary at least slightly, if not substantially, in their basic structure. Such variation is disorienting to reviewers and requires them to work harder to find the information that they want and need.

With the reader in mind, I work hard to ensure that a center or program proposal is consistent in its basic structural features from section to section. First, I examine the type of information included in each section (the document's "foundation") and how it is organized (the document's "framing"). Consider a proposal for a cancer-research center that will house three cores: a tissue-procurement facility, a cytogenetics laboratory, and an analytic-biochemistry group. In this example, I would edit the text so that the description of each core provides the same overall categories of information and in the same order. Each description might begin with a brief rationale for the core, which is followed by the specific resources and facilities to be provided, the leadership of the core, and anticipated use by the center's members.

With the document's overall organization secured, I would move on to cosmetic details: Does each section apply the same overall outlining structure? Are similar levels of headers used and formatted identically? Do all tables use the same construction, and do figure legends have the same font type, size, and style?

Some authors minimize the importance of consistency in formatting. We can help authors to understand that consistency in the visual presentation of material, especially a large volume of potentially densely written material, helps to train readers and makes it easier for them to find information and comprehend the material. The end result can be a better appreciation of the proposal's core ideas—something that all grant writers care deeply about.

Language. Consistency in language is another characteristic of well-written grant proposals. When terms are carefully defined and then used consistently, comprehension is enhanced and the chances of miscommunication minimized. As a very simple example, readers are more likely to grasp the roles of different project personnel quickly if their titles are consistent throughout the proposal (for example, coinvestigators, core directors, and sub-project leaders).

In some types of clinical or epidemiologic research, readers need clear and consistent descriptions of the specific population being targeted. For example, in a proposal to test different dietary interventions for obese children, the projects should be consistent in how they define the body-mass index cutoff for *obesity* and the age range for *children*. I recall querying the authors of a center proposal to ask whether the target population was *recent immigrants*, *refugees*, or both. Some of the authors seemed to be using the two terms arbitrarily and interchangeably, and others were specific in using one term or the other.

Readers crave consistency especially in the use of scientific or technical terms, particularly if the proposal is not in their field of expertise. That applies to the naming of instruments, assays, biologic pathways, molecules, disease states, intervention groups, and more.

Writing style. Consistency in writing style can be difficult to achieve in a large center or program proposal that is crafted by multiple authors. Grant reviewers are fairly forgiving of stylistic incongruity. But given enough time, an author's editor can smooth out even those rough edges. Sections written by an author who favors long and complex sentences can be edited to match the shorter and more direct sentence structures used by other authors. Similarly, text from an author who shies away from first-person constructions can be easily revised for stylistic consistency. Over multiple pages, such small adjustments can have a large, favorable impact on readers.

Editing for Cohesiveness

In addition to consistency, grant reviewers respond positively to proposals that "fit together nicely" or "tell a story" (which implies a cohesive beginning, middle, and end). In the traditional, single-project proposal, reviewers expect the project's aims to be unified by a common, central hypothesis. Similarly, the most compelling center and program grants are those that are built around a cohesive theme—those

that go beyond a very broad umbrella term, such as *cardiovascular disease* or *genetics*.

The good news is that if the many potential consistency issues outlined in the previous section are addressed, a proposal will already have some semblance of cohesiveness. But there are other ways in which we as editors can work with grant writers to make a document's cohesiveness even more apparent.

For one thing, we can ask our authors what unifying themes they are trying to communicate in the larger proposal. If the authors had not previously considered that, merely posing the question will be a step forward. Once the authors have identified the major themes of their proposal, we can use our editing skills to bring those core concepts to the attention of readers. For example, in one recent proposal, the authors presented an overall conceptual model that guided the diverse work to be conducted in the different research, training, and outreach cores.

Helpful repetition is another technique for building cohesiveness. If the leader of one subproject uses a well-designed figure to illustrate the interconnections among experiments, we can suggest a corresponding figure for the other subprojects.

In some proposals, cohesiveness is not just desirable, it is critical. For example, if two projects funded by the same program grant will be recruiting from the same population, reviewers will expect the recruitment efforts to be coordinated to avoid duplication of effort and to promote favorable interactions between researchers and members of the target community.

Editing for Completeness

One thing is certain in the grant-review process: Reviewers can't critique what

writers don't describe. If asked to score content that is missing or that is insufficient in depth, reviewers have no choice but to score low.

Always a concern, *completeness* is a special challenge in center and program grants. The instructions for these types of proposals are typically long and complex—sometimes more than the proposals themselves. It's not uncommon for authors to miss a required section completely or inadvertently minimize the attention paid to it. Even more likely is diffusion of responsibility among multiple authors, each erroneously assuming that someone else is covering that key point in his or her section. Editors can prevent those missteps, especially when time is short and the grant coauthors have little time to review one another's drafts.

Consider this example, which I have encountered numerous times: A common review criterion for center and program grants is, "How well do the proposed efforts take advantage of existing resources at the applicant's institution?" However, the very same application kits typically do not prompt authors to include a section that specifically describes how they are leveraging local resources. Less experienced grant writers—and even senior investigators who are under intense time pressure—can forget to revisit the review criteria and rely instead on the section-by-section instructions. When the funder's review criteria and instructions don't explicitly align, important content can be left out. Editors can fill the gap by pointing out the omission or, if they are more "hands on", actually creating a first draft of the missing text.

A more subtle example of editing for completeness harks back to my comments about consistency. If the author of one

subproject provides a detailed and compelling description of future work that might stem from his or her project's results, reviewers might expect the same for other subprojects and be disappointed not to find it, even if it is not specifically required by the application instructions. As editors, we are in a good position to identify such potentially "high-profile" paragraphs and encourage their consistent use in other sections of the proposal.

Final Points and Future Column

To some extent, my categorization of "highly valued" editing tasks for center and program proposals is arbitrary, and it is certainly incomplete. I haven't even touched on editing for conciseness or clarity—two key tenets of all scientific prose. What I hope that other editors take away from my discussion is the idea that for grant proposals of this scope, even with so many factors working against the authors (time being the most ferocious enemy), we can successfully support writers by keeping our editing eye on the prize: a final document that is free of distracting inconsistencies, cohesive in its presentation, and completely responsive to the stated (and sometimes unstated but still desirable) review criteria. As for *how* to make that all happen when we are embroiled in the pressure-cooker environment of grant-proposal writing—well, that is the subject of my next column.

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