

The Confessions of an NIH Grant Proposal Reviewer

Liane Reif-Lehrer

When I became a reviewer on an NIH study section in 1976, my perspective on how to write a grant proposal changed dramatically. Previously, in more than a decade of writing applications as a biochemist, I had been cavalier about the presentation of proposals, even disregarding the standard NIH format, which I found awkward. After all, it was the science that mattered. But money was still plentiful in the 1960s, and I was in the habit of receiving the funding I applied for, despite my use of what could be called an "aberrant" style.

But then I became a reviewer—and proposals looked very different to me. I saw how the presentation might tilt the odds for or against an applicant, and how that shift, however slight it might be, could make the difference in a close contest between competing applicants. It became clear to me that no bad idea could be disguised by good writing to look like a good idea. And a good idea, poorly presented, could be underrated, overlooked, or misunderstood.

Although no one told me such things when I was learning to write NIH proposals, the elements of good presentation are simple: adherence to the standard format; clear and concise writing; paragraph organization that permits intelligent skimming; built-in answers to anticipate questions and objections; and appropriate supplementary material. Attending to these mundane-sounding matters can make a big difference to the reviewers as they move through the process from their own in-depth review to study section meeting.

My own experience on an NIH study section seems to be typical. I had six weeks to read some hundred proposals and do an intensive review of at least 8 to 10 of them. I also had to keep my research lab going and fulfill my departmental administrative duties, not to mention spend time with the kids, make sure that the most important chores around the house got done, and occasionally say hello to my husband.

When did I have time to review grant proposals? In the car on the way to work (when it was my husband's turn to drive), while waiting for meetings to begin, occasionally during lunch hour, and most often, late at night when the house had quieted down. That usually meant from 11:00 p.m. until the wee hours of the morning.

During these suboptimal worktimes, it was easy to become irritated with an applicant. Long-winded presentations or information presented in an ambiguous fashion—which cost me time trying to figure out what the applicant intended—caused subtle annoyance. When someone made me work especially hard to get the information I needed to submit in my reviewer's report, I could feel myself "taking points off." Often when I had finally managed to separate the science from the rhetoric, I had to exercise the utmost self-control to judge the science impartially. (I know of reviewers who have deferred proposals for rewriting because the originals were too confusing, sometimes causing a delay of months.)

Sloppy Labwork

I noticed other psychological mechanisms coming into play. For example, once I lost patience with an applicant for writing a disorganized section, I was much more likely to notice other faults in the proposal. Also, when a proposal was sloppy, it was difficult not to extrapolate that the applicant's labwork was sloppy as well.

At the other extreme, the easier the applicant made it for me to get the information necessary to assess the application, the more likely I was—if the science was sound—to have a positive feeling about the proposal. I've discussed this tendency with other members of review boards, and they acknowledge that a happy reviewer tends to be a positive reviewer. So now I urge attendees in my grant-writing workshops to make an extra pass through their manuscripts looking for spots that could be misunderstood, asking relentlessly whether the language is clear and concise.

In the course of reviewing, it became totally clear to me why it is important to follow the instructions in NIH's standard PHS 398 form. For applications on which I was a primary reviewer, I had

to write a report assessing (1) the scientific and technical significance of the proposed research, (2) its originality, (3) the adequacy of the outlined methodology, (4) the applicant's track record, (5) the suitability of the facilities (including such factors as who else is around to talk to), and (6) the budget. Now that's a lot for any reviewer to be thinking about, and by presenting information clearly and in order, the applicant can appreciably decrease the time the reviewer must expend to write this report. Standardization also made comparative assessment easier, again saving time for a reviewer.

Another detail that affected my reaction to a proposal was the judicious addition of supplementary material. I resented having to hunt down hard-to-find reprints, such as articles from Soviet and Japanese journals. It was difficult not to be more kindly disposed toward the applicant who included copies of the English translations.

I often could not give the same detailed attention to proposals for which I was not a primary reviewer. However I was expected to be familiar with the contents of all proposals assigned to my study section and to participate in the discussion at the review meeting. I had to depend on the abstract, the description of the specific aims, and my ability to skim through the rest of the material looking for segments that related to my expertise. Those sections I read more carefully so that I could have some impact on the discussion.

Good writing helps during this process, but bad organization could mislead the reviewer. If the topic sentence of a paragraph was full of unimportant words, I would move on to the next paragraph. This was sometimes detrimental for the applicant—as well as embarrassing for me when I learned from my peers that important information had been buried at the end of one of those paragraphs. My suggestion to proposal-writers: Once you think the manuscript is finished, go through it again to see if you have told the reviewer up front what is in each paragraph.

At study section meetings, I've found that some proposals were easier to defend than others. During the meeting, the reviewer can act as an advocate or an adversary for a grant application. However, in the often-tense atmosphere of the study section meeting, that reviewer's judgment is being judged by peers. Even when I wanted to be an advocate of an applicant's proposal, I found myself nitpicking for fear of overlooking some error in the proposal that another reviewer might have discovered.

Downward Spiral

This coverage of the possible weak points in the proposal could feed into another psychological phenomenon at the study section meeting, the so-called downward spiral. The longer the discussion about a proposal goes on, the more likely it is that the reviewers will unearth criticism.

An applicant can discourage these risky discourses by providing answers to predictable questions. Frequently the study section members delved into the applicability of the methods proposed to solve the problem or into contingency plans if the experiments didn't work out. When we ran across a proposal without an explanation of how the data would be analyzed, the outcome of the discussion could be bad for the applicant.

By advocating the importance of good writing in proposals, I don't mean "good" in a literary sense. As the reviewer I was extremely interested in the creativity of an applicant's science, but when it came to the writing, I was not at all interested in creativity. What I wanted was accuracy, clarity, and brevity.

Overall, the best guide to proposal presentation is to think about what the reviewers need to know and to remember that they are real people: overworked, pressured, and interested in looking competent before their peers. All other things being equal, it's hard for them not to be favorably inclined toward grantees who save them time and make their lives easier.

Liane Reif-Lehrer was associate professor at Harvard Medical School and senior scientist at the Eye Research Institute of Retina Foundation for many years. She has now moved to full-time consulting in Belmont, Massachusetts on proposal writing and other technical topics.