

Recommendations to the National Science Foundation

Implementation of Postdoctoral Mentoring Provision, America COMPETES Act.

Supporting Data

As reported in the landmark Sigma Xi Postdoc Survey, the following practices contribute to higher rates of postdoctoral productivity and satisfaction, and lower rates of conflict with colleagues and supervisors: 1) the provision of structured oversight, 2) the use of an individual development/training plan, and 3) access to professional development programs/services. The definition of “structured oversight” includes the presence of formal policies governing postdoctoral status and training within the institution. Any effort to promote effective mentoring of postdoctoral scholars on research grants, such as the NSF’s, should take these factors into consideration, and encourage their implementation.

Request for Data

The NSF Geosciences Directorate has experience with fostering professional development and mentoring for postdocs supported on its research grants. It would be helpful to learn the following information, since the Directorate issued its guidelines on this topic in August, 2006:

- How many proposals supporting postdoctoral employees have been submitted?
 - Of those, how many included mentoring/professional development plans?
 - Of those, how many were approved?
- Of those approved, how many make reference to postdoc mentoring in their annual or final reports?
 - Of those reporting on postdoc mentoring, what are the most common activities described?
- What plans, if any, does the Directorate have for evaluating the impact of this guideline?

NPA Recommendations:

Proposal Development Resources

The NPA recommends that the NSF Grant Proposal Guide be revised to provide clear direction on how mentoring goals relate to the broader impact statement and the merit review process. In particular, we recommend a link/referral to an expanded delineation of the critical components of any mentoring plan, such as those documented above. The NPA would be pleased to collaborate with the NSF in developing such a resource.

Proposal Review Resources

The NPA recommends that review panels be provided with similar direction to that stated above in evaluating the quality and efficacy of the mentoring plans. Reviewers should be instructed to incorporate these considerations into their scoring of each proposal. This should include explicit guidance in the Fastlane review forms, either as part of the Broader Impacts review summary or as a separate section focusing on mentoring.

Program Officer Actions

The NPA recommends that NSF Program Officers be provided with similar direction in evaluating the quality and efficacy of the mentoring plans. Proposals that are deemed insufficient in this regard should be rejected.

Reporting Mechanisms

The NPA recommends that annual and final reports include specific information about progress to date in addressing postdoctoral mentoring. These reports should also include information on the average number and range of years of postdoctoral experience of all supported postdocs. This information will be helpful in assessing the quality of mentoring, particularly as it pertains to more senior postdocs since these individuals may need more intensive focus on career advancement. Reports with insufficient information, or that demonstrate insufficient attention to these issues, may be subject to intervention by the Program Officer.

Other Options for Consideration

The NPA recommends that final reports include “exit” information for any postdoctoral scholars supported by these grants. In particular, what are the career plans or immediate career outcomes for postdocs supported on these grants? This would be similar in nature to the NRSA termination form currently in use by the NIH.

The NPA further recommends that NSF consider requesting information from prospective PIs as to the status of their *former* postdoctoral trainees for the past decade, perhaps as part of the required biographical sketch for each investigator. The inclusion of such information can be an indicator of the PI’s attention to the career development and outcomes of his or her past postdocs and can highlight for all PIs the realities of the career climate for early career scientists. This recommendation is similar to one made by the National Research Council’s Committee on Bridges to Independence, in its 2005 report on Fostering the Independence of New Investigators in Biomedical Research.

In addition to promoting the goal of professional development for postdocs as a responsibility of the P.I., both of these recommendations have the added benefit of capturing data on postdoctoral career outcomes which heretofore have been elusive.

Conclusion

The support and diligence of NSF Program Officers and review panels will be essential to the effective implementation of the mentoring provisions in the America COMPETES Act. To enlist their support, the NSF Director should consistently communicate the importance of mentoring for postdoctoral scholars to help meet the nation’s future STEM workforce needs. In so doing, it should be noted that this is a goal shared by the NSF postdoc workgroup convened a few years ago, and many other prominent scientific organizations, such as the National Academies and the Office of Science and Technology Policy.