

Staff Response
To the Committee of Visitors (COV) Report
Robert Noyce Teacher Scholarship Program

COV Meeting of March 25-26, 2009

On March 25-26, 2009, a Committee of Visitors was convened to review the Robert Noyce Teacher Scholarship Program from FY 2005 –2007. The program staff thanks the COV members for their thorough review of the program and helpful suggestions. This response addresses the comments and issues that were included in the COV report. Responses are organized in accordance with the order provided by the FY 2008 Report Template for NSF Committees of Visitors.

Part A. Integrity and Efficiency of the Program’s Processes and Management

A. 1 Quality and Effectiveness of Merit Review Process

The COV commented that, "in general, the implementation of the review process for 2005-07 occurred in an effective and timely manner"; however, they suggested more clarification of the two merit review criteria would allow more substantive statements in the reviews (A.1.2.).

Response:

Regarding the clarification of the two merit review criteria in panel reviews and summaries, instructions sent to reviewers as well as webinars and panel orientations are designed to remind reviewers to address these criteria. In addition to generic descriptions of the review criteria, additional review criteria relevant to the Noyce program are provided and discussed in the context of intellectual merit and broader impact. Program officers' review analyses provide a summary statement of the elements that were considered under the two review criteria with more specific information about the merits of the individual proposal. DUE has developed a template for the Review Analysis to facilitate more uniform processing of proposals across programs. In addition, the Proposal Recommendation process provides an overview of the entire competition. In 2008, this template was revised to allow for more specific discussion of the two Merit Review Criteria.

Regarding the COV's comments that some reviews were not substantive, this is also a concern to the Program. We make an effort to provide substantial time prior to the panel meeting for reviewers to write their reviews and emphasize the importance of substantive reviews that will be helpful to the proposers; however, some reviewers may still wait until the last minute and then not have sufficient time to write a full review. It should be noted that each year, in seeking to broaden the pool of reviewers, about one third of the reviewers are new reviewers. Reviewers who do not provide substantive reviews are not likely to be reinvited. In future panel orientations, we will provide examples of helpful reviews in order to strengthen the constructive feedback to PIs.

A.2 Selection of Reviewers

The COV commented that panels were balanced in terms of gender, representation of minorities, discipline, and representation from community colleges, but suggested the inclusion of more reviewers from school districts.

Response:

Regarding the COV's suggestion that each panel have a school district representative, we will continue to make sure each panel has K12 representation as well as representation across the STEM disciplines and education and from a variety of institutions, including community colleges. The intent is to ensure each proposal is read by a comparable and inclusive set of reviewers. Actual panel composition may change if a panelist must cancel at the last minute. In those cases, it is not possible to find a replacement. The NSF portfolio of awardees under PAEMST would be a possible source of K12 reviewers.

A.3. Portfolio of awards under review

The COV commented that "more could be done to integrate research into this educational program." Acknowledging that most of the budget is allocated to support participants, the COV recommended the Program consider specifying research and evaluation requirements in project budgets or "partnering with other NSF directorates to achieve better integration of research and evaluation into Noyce projects."

Response:

The Program appreciates that the COV understands the Congressional guidance that limits the expenditure of Noyce funds. We are exploring how we might partner with existing educational research programs in EHR, to support a research agenda that is relevant to Noyce. In addition, we include a research and evaluation track in the annual Noyce Conference to provide an opportunity for the Noyce projects to share their evaluation strategies and research results.

Regarding the suggestion of "providing renewals to successful programs and enhancing the effectiveness of internal and external research and evaluation" (A.3.3), this opportunity is provided through Phase II projects. Phase II proposals are submitted as new proposals, not renewals, to emphasize that these awards are expected to extend the evaluation efforts of the previous award, not just continue the previous project.

Regarding the COV's recommendation (A.3.3) to extend Noyce awards to a broader array of institutions and geographical areas, the Program has offered several outreach workshops and webinars in 2009 directed toward institutions and areas not well-represented in the portfolio. The current competition has generated a record number of proposals, many from new areas of the country and a broad array of institutions.

The COV encouraged "consideration of a project that would provide a summary analysis of the results from a range of innovative strategies" (A.3.4.). The Program is considering how this might be included in the next phase of the evaluation.

The COV noted an appropriately high percentage of awards to new investigators and suggested "reviewing results of these awards to determine if innovative, transformative, projects result from their efforts" (A.3.7). The Program reviews results of all awards to identify innovative or transformative projects. Awards to new investigators are of particular interest, as the portfolio expands.

In response to the COV's recommendation that the staff find ways to increase the number of proposals and awards to masters and baccalaureate institutions (A.3.9), the Program conducted extensive outreach in 2009 in an attempt to reach a broader array of institutions. Fifty-four percent of the proposals submitted in 2009 were from Baccalaureate and Masters degree institutions. We will continue to conduct outreach workshops in 2010.

A.4. Management of the program

The COV provide comments and suggestions regarding the program evaluation.

Response:

The Program appreciates these suggestions as we move forward with determining the parameters of the next phase of the program evaluation. The issues identified by the COV (identifying program outcomes of most interest, investigating the impact of NOYCE activities for Noyce recipients on K-12 student learning/achievement, examining persistence in the teaching profession, relating programs goals to site-based goals, and comparing the impact of various approaches) are all under consideration. The interest of the COV in identifying strategies that work best and highlighting innovative programs that might serve as a model for others is also of interest to the Program.

PART C. OTHER TOPICS

C.1 The COV commented that project evaluation is limited by the proportion of the budget that can be used for administrative and programmatic expenditures and they recommended a more extensive program evaluation, to include student achievement data. In addition, they noted the opportunity provided by Phase II projects to evaluate projects.

Response:

The Program agrees that a more extensive program evaluation is in order. The initial program evaluation was conducted under a fairly limited budget and at a relatively early stage of the program, before many Noyce Scholars had begun to teach. The evaluation findings suggest further evaluation questions that will provide a foundation for the next phase of the program evaluation. We are exploring evaluation designs that will support a

rigorous evaluation of program effectiveness. In addition, we are exploring the feasibility of measuring the effectiveness of the Noyce teachers in terms of student learning/achievement and other performance measures for triangulation. We will continue to offer Phase II awards, and note increased submissions in this category each year.

The COV encouraged greater involvement of community colleges, stronger partnerships with school districts and partnerships with professional organizations to connect new teachers to the scientific societies. The COV suggested that the solicitation might explicitly mention these types of collaborations and recommended increasing the funding for activities beyond the scholarships and stipends.

Response:

We will continue to conduct outreach to community colleges. Several projects include community college partners whose students become eligible for Noyce Scholarships when they transfer to a four-year institution in junior year. It should be noted that the authorizing legislation specifically states that only juniors and seniors are eligible for the undergraduate scholarships. With the changes in the solicitation under the reauthorization, the 2008 solicitation introduced summer internships for freshmen and sophomores and this provides an opportunity for community college students to be involved in a Noyce project while still at the community college. We also note that many community colleges offer alternative certification programs and we encourage them to pursue Noyce funding to support students in these programs.

The 2008 and 2009 solicitations increased the emphasis on strong K12 partnerships and we will consider how this can be further emphasized in the 2010 solicitation. The additional review criteria call for evidence of functioning partnerships between institutions of higher education and school districts. Regarding the funding of activities beyond the scholarships and stipends, the 2009 solicitation expanded the kinds of expenditures that could be included in the budget through a broader definition of direct support to participants, beyond the actual scholarships and stipends to include such activities as professional development for new teachers and travel to professional conferences.

C.2 Comments on meeting program-specific goals

The COV comments focused on ways to disseminate successful practices through social networking and web-based resources and the opportunity for the Program to add to the knowledge base about successful practices in teacher education.

Response:

The Program agrees with these suggestions and the importance of disseminating best practices from the Noyce program. As the COV noted, a website that will serve as a platform for exchange of information across projects is being developed by AAAS and

will be available to the general public. Social networking platforms developed by individual projects are being expanded to other projects. A Noyce digital library portal developed through the NSDL program offers a variety of resources in math and science education for Noyce Scholars. In addition to the national Noyce Conference, Regional Conferences are supported and these activities have fostered greater interaction and communication among PIs as well as among the Noyce Scholars.

C.3 Agency-wide issues

The COV inquired about the linkages among programs focusing on teacher education across the EHR and NSF portfolio, commenting on potential linkages between MSP and Noyce and how these projects may provide a means for research grants to achieve broader impact.

Response:

These suggestions are of interest to the Program and to EHR in general. Noyce is one of several programs that fall under the EHR theme of Teacher Education and we are exploring ways in which there can be better connections among the programs within EHR and across the Foundation. As an example, we have invited GK12 projects to participate in the Noyce Conference, providing examples of the how GK12 Fellows collaborate with teachers to integrate their research into K12 classrooms. There is overlap among MSP and Noyce institutions, and these projects are encouraged to make connections across projects. For example, the development of teacher leaders through MSP Teacher Institutes has relevance for the new Noyce track supporting the development of NSF Master Teaching Fellows. DRK12 and REESE provide opportunities for more extensive research on issues relevant to Noyce and some Noyce PIs have successfully submitted proposals to these programs

C. 4 Other Issues

The COV suggested ways in which the Noyce program could become more visible, with possible recognition of Noyce Scholars and teachers by professional societies. The COV suggested expanding the solicitation to include a focus on the preparation of math/science elementary specialists.

Response:

The Program shares the interest of the COV in making Noyce more visible. To this end, the Noyce partnership with AAAS is providing a vehicle for national visibility through AAAS sponsorship of the Noyce website and annual conference. The website will highlight individual Noyce Scholars on a rotating basis. In addition, a 2008 award to the American Physical Society provides further national visibility and recognition of Noyce Scholars. Individual projects are publicizing their projects and the accomplishments of Noyce Scholars in local media.

Regarding the COV's interest in elementary specialists and middle school teachers, some (2%) Noyce scholars are teaching in elementary schools and 18% are teaching in middle schools. The legislation requires Noyce Scholars to have STEM majors and since this is not ordinarily a requirement for elementary teacher certification, it is less likely that prospective elementary teachers would be eligible for Noyce Scholarships. However, we recognize this is a challenge area. The solicitation does refer to K12 mathematics and science teachers and is not limited to secondary level teachers.

C.6 How should Scholarship Programs such as Noyce address the issue of sustainability?

The COV commented on the role of professional societies might play in enhancing the stature of Noyce Scholars or finding potential donors, additional partnerships, recognition programs, and the learning that is associated with evaluation as a feedback loop.

Response:

The Program appreciates these comments and we will consider how we might further develop these ideas. As discussed previously, we have found connections with professional societies to be helpful in elevating the visibility of the program and in recognizing the Scholars. Many projects are sending their Scholars to NSTA and NCTM conferences. A special recognition comes with the Scholars' attendance at annual Noyce Conference. We encourage individual projects that are particularly effective in promoting the Noyce Scholarship program on campus to share their strategies at regional and national conferences.

C.7. How can NSF build capacity to enable more institutions to participate in Noyce?

The COV suggested setting aside funding for particular groups of institutions that are underrepresented within the Noyce scholars program and offering a range of award size and scope.

Response:

Apart from EPSCoR funding, we do not have a mechanism for setting aside funds for particular groups of institutions. However, we will continue to provide outreach and proposal writing workshops for targeted groups. The significant funding increase in 2008 and 2009 is enabling a larger number of awards to be made and we expect the portfolio will be significantly broadened as a result. In addition, in 2009 we offered small planning grants to enable institutions not yet ready to prepare a full proposal for the new NSF Teaching Fellowship/Master Teaching Fellowship Track to have time to develop the partnerships, programs, and strategies for a competitive full proposal.

Regarding the COV's suggestion to explore ways for Noyce Scholars to participate in marine biology and other field stations, these opportunities exist under the current structure if they are integrated into the teacher education program. Several Noyce projects have incorporated research experiences into their Noyce program. The new

summer internship component, introduced in 2008, includes the possibility of internships in science research settings, which could include field stations.

Regarding the suggestion that a Noyce program officer participate in EPSCoR visits, an EHR program officer often participates in EPSCoR visits and presents information about all EHR programs. We will explore the possibility of a more focused presentation on Noyce.

C.8. What are the key evaluation questions that should be covered in the next phase of the program evaluation?

The COV noted the limited scope of the initial program evaluation and suggested a more thorough evaluation of the entire portfolio with a focus on the recommendations for future study that were presented in the evaluation report.

Response:

The Program is moving forward with developing the design for a more thorough evaluation which will address many of the issues suggested by the COV: longitudinal studies of Noyce recipients, studies of various program features and activities, and the extent to which student achievement can be used as a measure of the effectiveness of Noyce Scholars as teachers. The framing questions provided by the COV will be helpful as we formulate the RFP for the multi-method program evaluation.