

## **EHR Response to the Committee of Visitors Report for the Robert Noyce Teacher Scholarship Program**

**April 2016**

### COV Consideration:

“The COV suggests NSF clarify for reviewers what Intellectual Merit and Broader Impacts mean in the context of a scholarship program, such as Noyce. The criteria provided to panelists reviewing service-focused programs should more specifically state which elements are more important and which are less central to award decisions - this will help ensure reviewers are uniformly placing the appropriate weight on the different criteria.”

“The program announcement does not specifically highlight innovation as a requirement for the Noyce Program, so this emphasis in reviewer comments may be inappropriate. See also: COV comments on pages 14-15. [Those comments note:] The required structure of the Noyce Program, especially the requirement that 75% of budgets go to participant support, makes it difficult to fund research and development sufficiently in addition to participant and program support. This may affect definitions of Intellectual Merit and Broader Impacts for this program.

- *Intellectual Merit:* Focus more on best practice and less on innovation (see *Scholarship Reconsidered* by Ernest Boyer)
- *Broader Impacts:* Focus more on impact of participants being supported and less on dissemination and publication.”

### *EHR Response:*

The Noyce Program agrees that the meaning of Intellectual Merit and Broader Impacts needs to be assessed in terms of the nature of the particular program. The NSF-wide review criteria provide for a number of dimensions to be considered in the context of Intellectual Merit and Broader Impacts, and NSF wishes to allow reviewers latitude to interpret the review criteria in the context of individual proposals and programs. During both reviewer webinars and the orientation session at panel meetings, we will highlight, with specific slides, the elements that tend to be most important in the Noyce Program, but we will also point out that reviewers may exercise their expert judgment in assigning weight to the elements for individual proposals.

As the COV notes, innovation is not an explicit requirement of this scholarship program, although the program welcomes creative and innovative proposals. However, one element that NSF asks reviewers of all proposals in all programs to consider when they evaluate *both* Intellectual Merit *and* Broader Impacts is: “To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts.” In this light, it is appropriate for reviewers to note when innovative or creative approaches are specified in a proposal and to take this into account in their reviews and when assigning their ratings.

COV Recommendation: “Reviewers with expertise in evaluation and program effectiveness should be consistently or evenly distributed among review panels.”

*EHR Response:* The Noyce Program agrees with the comments of the COV. In the future, the program will strive to have at least one reviewer with this expertise on every panel.

COV Suggestion: “The COV suggests the following factors may help to strengthen the quality of all reviews:

- Providing a more specific listing of potential review criteria to help reviewers distinguish between proposal requirements vs. ideal qualities or characteristics of previous awards (e.g., best practices).
  - The COV notes this listing must also be available to applicants.
- Provide a condensed list of indicators to consider when evaluating proposals.
  - The COV feels that, for the FY 2011-2013 panel reviews, the list of indicators may have been overwhelming for reviewers.
- As Noyce is a program focused on providing a specific service, certain standards and best practices related to teacher preparation for high-need school districts should be included in proposals and noted in reviewer comments.”

*EHR Response:*

The Noyce Program agrees with the comments of the COV. The COV examined the review process and solicitations for Fiscal Years 2011, 2012, and 2013. Beginning with the 2015 solicitation (NSF 15-530), we eliminated the long lists of “solicitation-specific review criteria” that appeared in previous solicitations, and we pointed instead to the sections of the solicitation that describe the Noyce Program and the requirements for the Project Description in proposals. Thus, beyond the standard (NSF-wide) description of NSF’s review criteria, the “solicitation-specific review criteria” in the Noyce solicitation now consist of only four bullets. In addition, we consolidated several long lists of “elements” that previous solicitations asked applicants to address in the Project Description of their proposal. These changes have reduced the length and complexity of the information that the applicants and the reviewers need to digest, and we hope the consolidated format promotes a focus (by both applicants and reviewers) on the most important characteristics of successful projects. We believe it is important that the applicants and the reviewers follow the same guidance about the expectations for proposals, and the solicitation provides that common ground.

With regard to best practices for preparing teachers to serve in high-need school districts, the program has done the following: (1) During the negotiation of prospective awards for the proposals submitted to solicitation NSF 15-530, if a proposal did not speak clearly to preparing teachers for serving in high-need schools, program officers requested further elaboration. (2) In the new solicitation, NSF 16-559 (which was recently published), the following specific language was included: “As Noyce recipients will be teaching in high-need local educational agencies, proposals must include a description of how the proposed project will provide these Noyce recipients with the cultural competence, pedagogical knowledge, and dispositions to be a successful teacher in a high-need school district.”

COV Recommendation: “The program announcement, guidance to reviewers, and reviews provided to PIs should be aligned with a shorter list of core criteria that represent best practices in programs that support teachers for high-need school districts. For example, four aspects of best practice that seem less evident in the reviews than their importance warrants are as follows:

- *Recruitment.* Does the proposal identify a pool of promising candidates who could be especially well qualified for teaching in high-needs schools and provide them with a pathway to teaching?
- *Quality and content of institution's methods courses.* Does the proposal provide evidence of the quality and content of institution's methods or related courses required for students in teacher preparation programs?
- *Support in schools.* Does the proposal provide adequate field experience in high-needs schools with strong professional support from program staff and mentor teachers?
- *Induction/retention.* Does the proposal provide adequate support for new teachers during their first years of teaching in high-needs schools?”

*EHR Response:* The Noyce Program agrees with the comments of the COV and is most appreciative of the specificity that is suggested in the recommendation. The new solicitation, NSF 16-559 (which was recently published), specifies all four of the aspects mentioned above; and when we prepare another edition of the solicitation, we will consider incorporating the specific language cited by the COV. During both reviewer webinars and the orientation session at panel meetings, we will draw attention to these four aspects with specific slides.

COV Recommendation: “Find ways to leverage additional funds to support innovation and dissemination by the most promising Noyce projects. For example:

- Innovation and dissemination supplements to Noyce grants that support research time for faculty or research assistantships for graduate students to engage in and design research on innovative practices and disseminate findings.
- Encouraging connections between Noyce grants and grants supported by research and development programs. This could go in either direction:
  - Encourage Noyce PIs to apply for (for example) Discovery Research K-12 (DRK-12) exploratory grants, perhaps especially first-time PIs or minority PIs.
  - Encourage PIs of DRK-12 or STEM-CP: MSP (Science, Technology, Engineering and Mathematics, including Computing, Partnerships: Math and Science Partnership) grants focusing on pre-service or in-service teacher education to submit Noyce proposals that would enable them to focus on working with high-needs schools and supporting teachers in those schools.”

*EHR Response:*

The Noyce Program agrees that it is important to support research on innovative practices associated with Noyce projects, as well as dissemination of what is learned. As the COV suggests, our program officers will encourage PIs to look at connections between Noyce grants and projects supported by education R&D programs. The Noyce Program has also supported several conferences that have brought together Noyce PIs and researchers from other EHR programs. In Noyce solicitations, we will continue to include a list of related NSF programs that support aspects of R&D associated with pre-service teacher education.

In both the 2015 and 2016 solicitations (NSF 15-530 and NSF 16-559), we have included a specific track seeking to support research proposals related to teacher preparation, recruitment, and retention. In addition, both solicitations have required previous Noyce grantees to “provide strong evidence of the success of, and *what was learned from*, the previous Noyce award(s).” Solicitation NSF 16-559 (which was recently published) further requires previous Noyce grantees to “detail what new may be learned from the proposed project, including how this information may inform further improvement in STEM teacher preparation.” The 2015 and 2016 solicitations have also required that proposals describe “plans for disseminating the results of the project and for contributing to the knowledge base about teacher preparation, recruitment, and retention.” Thus, we are trying to lead PIs, more and more, to consider these issues early, when they are designing their Noyce projects, and they can begin to think then about what issues can be effectively addressed inside, and outside, the Noyce grants.

COV Recommendation: “The COV recommends that POs consider ongoing funding – in Phase II – of stable, high-quality Noyce projects. This continuous funding would ensure consistency in recruitment and retention of well-developed STEM teachers in hard-to-staff core subjects.”

*EHR Response:* The Noyce Program agrees that continued funding for highly successful Noyce projects is desirable. The program has offered an opportunity for “Phase II” awards to previous grantees for

several years. As in other NSF programs, because the program's budget is always limited, balancing new projects with renewals of prior successful ones is a constant challenge, and projects seeking renewal are expected to demonstrate their merit. The most recent Noyce solicitation, NSF 16-559, continues to welcome proposals from previous grantees, although the "Phase" labels, including "Phase II," have been eliminated. The solicitation encourages proposals from previous Noyce grantees that provide evidence of success, describe what has been learned, include the longitudinal following of Noyce Scholarship recipients, and demonstrate continuing local workforce need coupled with the capacity to recruit STEM majors. The amount of funds allowable for previously funded projects has also been increased.

COV Suggestion: "The COV suggests the following:

- Provide COV members with access to the jackets approximately one week prior to COVs in order to give enough time to review before the onsite portion of the review.
  - Additionally, request that the COV chair provide proposal review assignments to the COV members approximately one week prior to the COV to ensure enough time for review.
- Provide additional time (closer to 30 minutes) at the end of the NSF's COV preparation webinar to address additional questions and conduct pre-planning among the COV members.
- Provide a sample jacket (with context for the review process) to review during the COV webinar – this will help maximize the COV's onsite efficiency.
- Provide a clickable table of contents within the binder of general program information provided to the COV."

*EHR Response:* These are reasonable suggestions, and we will follow them when preparing for the next COV.

**The Noyce COV report is appended  
for reference.**

**CORE QUESTIONS and REPORT TEMPLATE  
for  
FY 2014 NSF COMMITTEE OF VISITOR (COV) REVIEWS**

**Guidance to NSF Staff:** This document includes the FY 2014 set of Core Questions and the COV Report Template for use by NSF staff when preparing and conducting COVs during FY 2014. Specific guidance for NSF staff describing the COV review process is described in the “COV Reviews” section of NSF’s Administrative Policies and Procedures which can be obtained at <https://inside.nsf.gov/aboutnsf/hownsfworks/rolesresponsibilities/Pages/Committee-of-Visitors.aspx><sup>1</sup>.

NSF relies on the judgment of external experts to maintain high standards of program management, to provide advice for continuous improvement of NSF performance, and to ensure openness to the research and education community served by the Foundation. Committee of Visitor (COV) reviews provide NSF with external expert judgments in two areas: (1) assessments of the quality and integrity of program operations and program-level technical and (2) managerial matters pertaining to proposal decisions.

The program(s) under review may include several sub-activities as well as NSF-wide activities. The directorate or division may instruct the COV to provide answers addressing a cluster or group of programs – a portfolio of activities integrated as a whole – or to provide answers specific to the sub-activities of the program, with the latter requiring more time but providing more detailed information.

The Division or Directorate may choose to add questions relevant to the activities under review. NSF staff should work with the COV members in advance of the meeting to provide them with the report template, organized background materials, and to identify questions/goals that apply to the program(s) under review.

Suggested sources of information for COVs to consider are provided for each item. As indicated, a resource for NSF staff preparing data for COVs is the Enterprise Information System (EIS) –Web COV module, which can be accessed by NSF staff only at <http://budg-eis-01/eisportal/default.aspx>. In addition, NSF staff preparing for the COV should consider other sources of information, as appropriate for the programs under review.

For programs using section IV (addressing portfolio balance), the program should provide the COV with a statement of the program’s portfolio goals and ask specific questions about the program under review. Some suggestions regarding portfolio dimensions are given on the template. These suggestions will not be appropriate for all programs.

**Guidance to the COV:** The COV report should provide a balanced assessment of NSF’s performance in the integrity and efficiency of the **processes** related to proposal review. Discussions leading to answers of the Core Questions will require study of confidential material such as declined proposals and reviewer comments. **COV reports should not contain confidential material or specific information about declined proposals.** The reports generated by COVs are made available to the public.

*We encourage COV members to provide comments to NSF on how to improve in all areas, as well as suggestions for the COV process, format, and questions. For past COV reports, please see <http://www.nsf.gov/od/oia/activities/cov/>.*

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<sup>1</sup> The COV Reviews section has three parts: (1) Policy, (2) Procedures, and (3) Roles & Responsibilities.

## FY 2014 REPORT TEMPLATE FOR NSF COMMITTEES OF VISITORS (COVs)

The table below should be completed by program staff.

<b>Date of COV:</b> March 12-13, 2015
<b>Program/Cluster/Section:</b> Robert Noyce Teacher Scholarship Program
<b>Division:</b> Division of Undergraduate Education
<b>Directorate:</b> Directorate for Education and Human Resources
<b>Number of actions reviewed:</b>  <b>Awards:</b> 39  <b>Declinations:</b> 35  <b>Other:</b> 9 Supplements, 2 Returns Without Review
<b>Total number of actions within Program/Cluster/Division during period under review:</b>  <b>Awards:</b> 162  <b>Declinations:</b> 299  <b>Other:</b> 21
<b>Manner in which reviewed actions were selected:</b>  <p>The COV chair was asked to select several digits between “0” and “9,” that would be used in selecting proposals based on their occurrence as the last digit in the proposal number. The chair selected 1, 2, and 7, in that order, as her preferred numbers for sampling jackets. Proposals with “1” as the last digit were selected first, then “2,” then “7” until a diverse selection of jackets were selected. Using this process, a total of 39 awards, 35 declines, and 9 supplements were selected for the COV to review. The two proposals returned without review from the FY 2011-2013 time period were also selected.</p>

### COV Membership

	<b>Name</b>	<b>Affiliation</b>
<b>COV Chair:</b>	Dr. Lillian M. Lowery (Chair)	Maryland State Superintendent of Schools
<b>COV Members:</b>	Dr. Charles W. (Andy) Anderson	Michigan State University
	Dr. Glen L. Bull	University of Virginia
	Dr. Carolyn R. Mahoney	Lincoln University (retired)
	Dr. Thomas M. Smith	University of California, Riverside
	Dr. Susan S. Wood	Reynolds Community College



## INTEGRITY AND EFFICIENCY OF THE PROGRAM'S PROCESSES AND MANAGEMENT

Briefly discuss and provide comments for *each* relevant aspect of the program's review process and management. Comments should be based on a review of proposal actions (awards, declinations, and withdrawals) that were *completed within the past three fiscal years*. Provide comments for *each* program being reviewed and for those questions that are relevant to the program(s) under review. Quantitative information may be required for some questions. Constructive comments noting areas in need of improvement are encouraged.

**I. Questions about the quality and effectiveness of the program's use of merit review process.** Please answer the following questions about the effectiveness of the merit review process and provide comments or concerns in the space below the question.

QUALITY AND EFFECTIVENESS OF MERIT REVIEW PROCESS	YES, NO, DATA NOT AVAILABLE, or NOT APPLICABLE
<p>1. Are the review methods (for example, panel, ad hoc, site visits) appropriate?</p> <p>Comments:</p> <p>Overall, NSF's review methods and review process are appropriate.</p> <p><b>Data Source: Jackets and COV Documents (Section 3)</b></p>	Yes
<p>2. Are both merit review criteria addressed</p> <p style="padding-left: 20px;">a) In individual reviews?</p> <p style="padding-left: 20px;">b) In panel summaries?</p> <p style="padding-left: 20px;">c) In Program Officer review analyses?</p> <p>Comments:</p> <p>The individual summaries usually address both merit criteria. Panel summaries and review analyses almost always address both merit criteria – at least nominally.</p> <p>The COV suggests staff clarify for reviewers what Intellectual Merit and Broader Impacts mean in the context of a scholarship program. See also: COV comments on pages 14-15.</p> <p>There was one instance in which the Broader Impacts and Intellectual Merit criteria were not discussed in an awarded proposal (in the project summary or</p>	Usually

<p>description). However, there was also an instance when the comments from the Program Officer (PO) for a declined proposal noted the absence of language on the Broader Impacts and Intellectual Merit criteria. The COV feels that these criteria should be uniformly applied to all proposals.</p> <p><b>Data Source: Jackets and COV Documents (Section 3.2 Reviewer Webinars, Section 3.3 Instructions for Reviewers)</b></p>	
<p>3. Do the individual reviewers giving written reviews provide substantive comments to explain their assessment of the proposals?</p> <p>Comments:</p> <p>In some cases the written reviewer comments were helpful in understanding the proposal rating, while in other instances the comments appeared formulaic and did not provide significant insight into the proposal rating.</p> <p>Individual reviewer comments varied in substance and quality – there is unevenness across reviewer comments that reflects the diversity of reviewers.</p> <p><b>Data Source: Jackets (Reviews)</b></p>	Usually
<p>4. Do the panel summaries provide the rationale for the panel consensus (or reasons consensus was not reached)?</p> <p>Comments:</p> <p>Consistent with the instructions NSF provided to panelists, some panel summaries did not reflect individual reviewers' comments.</p> <p><b>Data Source: Jackets (Panel Summary)</b></p>	Yes
<p>5. Does the documentation in the jacket provide the rationale for the award/decline decision?</p> <p>[Note: Documentation in the jacket usually includes a context statement, individual reviews, panel summary (if applicable), site visit reports (if applicable), program officer review analysis, and staff diary notes.]</p> <p>Comments:</p> <p>Generally, jacket documentation provides the rationale for the award/decline decision.</p> <p>The quality of review analyses varied – some comments appeared to follow a template to provide basic answers while others provided more thorough, detailed comments.</p> <p>The review analyses from the PO provided a more comprehensive review of both</p>	Yes

<p>the significant items noted in the individual reviews as well as the panel summaries.</p> <p>PO comments were often more informative – particularly for declined proposals – than the individual reviewers' comments and the panel summaries.</p> <p><b>Data Source: Jackets</b></p>	
<p>6. Does the documentation to the PI provide the rationale for the award/decline decision?</p> <p>[Note: Documentation to PI usually includes context statement, individual reviews, panel summary (if applicable), site visit reports (if applicable), and, if not otherwise provided in the panel summary, an explanation from the program officer (written in the PO Comments field or emailed with a copy in the jacket, or telephoned with a diary note in the jacket) of the basis for a declination.]</p> <p>Comments:</p> <p>Occasionally the rationale provided to the Principal Investigator (PI) was a bit thin, but generally the rationale for the award/decline decision was appropriate and thorough.</p> <p>Some comments to the PI provided a simple listing of the rationale as opposed to an actual, more comprehensive summary.</p> <p>The documentation to the PI provided constructive suggestions for many of the declined proposals. However, the COV noted a few instances where declined proposals had high ratings and substantive individual reviewer comments but the rationale for declination was thin – particularly in the review analysis.</p> <p><b>Data Source: Jackets</b></p>	<p>Yes</p>
<p>7. Additional comments on the quality and effectiveness of the program's use of merit review process:</p> <p>The COV understands that reviewer panels are diverse and reviewers are required to consider many important factors regarding the merit of a proposal. However, this seems to lead to reviews that do not uniformly weigh or discuss these various factors across proposals. (See examples below.)</p> <ul style="list-style-type: none"> <li>• Ex: The COV noted that reviewers' comments focused heavily on a proposal's ability to bring in underrepresented groups via their recruitment plan for scholarship recipients and PIs; however, it is unclear how uniformly this criterion was applied across proposals and by various reviewers.</li> <li>• Ex: Some reviews discussed the need for adequate training for scholarship recipients to be well-equipped to teach in high-need schools. Additionally, some reviews focused on the development of partnerships with high-need schools. The COV noted that adequate training for scholarship recipients and well-developed partnerships with</li> </ul>	

<p>high-needs schools are not uniformly discussed in all reviews and across all proposals.</p> <p><u>Consideration:</u> The COV suggests NSF clarify for reviewers what Intellectual Merit and Broader Impacts mean in the context of a scholarship program, such as Noyce. The criteria provided to panelists reviewing service-focused programs should more specifically state which elements are more important and which are less central to award decisions - this will help ensure reviewers are uniformly placing the appropriate weight on the different criteria.</p> <p>The program announcement does not specifically highlight innovation as a requirement for the Noyce Program, so this emphasis in reviewer comments may be inappropriate. See also: COV comments on pages 14-15.</p>	
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**II. Questions concerning the selection of reviewers.** Please answer the following questions about the selection of reviewers and provide comments or concerns in the space below the question.

SELECTION OF REVIEWERS	YES , NO, DATA NOT AVAILABLE, or NOT APPLICABLE
<p>1. Did the program make use of reviewers having appropriate expertise and/or qualifications?</p> <p>Comments:</p> <p>Paneled reviewers were representative with respect to institutional types and STEM field/discipline. However, the data available to the COV was limited to institutional affiliation and discipline, making it difficult to evaluate reviewer qualifications and expertise effectively.</p> <p>The COV noted there are more K-12 representatives from the field on the Noyce panels than on most review panels, and the COV feels that is appropriate for this program's needs.</p> <p>There seemed to be unevenness in the review of a proposal's evaluation plan – reviewers with evaluation expertise provide an important insight to the review process.</p> <p><u>Recommendation:</u> Reviewers with expertise in evaluation and program effectiveness should be consistently or evenly distributed among review panels.</p> <p><b>Data Source: Jackets and COV Documents (Section 3.1 List of Reviewers)</b></p>	Yes
<p>2. Did the program recognize and resolve conflicts of interest when appropriate?</p> <p>Comments:</p> <p>The COV did not see any instances where there were reviewer COIs in the sample of jackets provided.</p> <p><b>Data Source: Jackets and COV Documents (Section 3.2 Reviewer Webinars, Section 3.3 Instructions for Reviewers)</b></p>	Yes
<p>Additional comments on reviewer selection:</p> <p>Reviewers were appropriately diverse with respect to geographic distribution and institutional type, but it was less clear to the COV if reviewers were appropriately</p>	

diverse with respect to gender.

It is desirable and beneficial to have a diversity of backgrounds and opinions among reviewers.

The COV believes that reviews and reviewer training should focus on identifying proposals that exemplify best practices to produce high-quality teachers in high-needs schools. By enhancing that focus, the COV believes reviewers will be able to identify programs that will provide the most return on investment with more ease.

While the COV noted disparities between reviewer comments, these differences may be related to the types of reviewers selected to panels rather than the guidance given to the reviewers. The COV suggests the following factors may help to strengthen the quality of all reviews:

- Providing a more specific listing of potential review criteria to help reviewers distinguish between proposal requirements vs. ideal qualities or characteristics of previous awards (e.g., best practices).
  - The COV notes this listing must also be available to applicants.
- Provide a condensed list of indicators to consider when evaluating proposals.
  - The COV feels that, for the FY 2011-2013 panel reviews, the list of indicators may have been overwhelming for reviewers.
- As Noyce is a program focused on providing a specific service, certain standards and best practices related to teacher preparation for high-need school districts should be included in proposals and noted in reviewer comments.

**III. Questions concerning the management of the program under review.** Please comment on the following:

MANAGEMENT OF THE PROGRAM UNDER REVIEW

1. Management of the program.

Comments:

The program generally seems to be well-managed.

The COV was very impressed by the prompt and responsive communication between NSF POs and PIs. This level of communication speaks to the program's commitment to its programmatic goals as well as to working with the field to produce/fund high-quality teacher scholarship programs.

For FY 2011-2013, a comparable number of proposals were funded (approximately 1/3 of submitted proposals) across all three years.

An Abt evaluation report on the Noyce Program is of great interest to the COV, though it has not yet been released; the COV is interested to see how this report addresses program outcomes/impacts.

The COV believes that any required distinctions between Phase 1 and Phase 2 proposals should be well-outlined in the program announcement.

2. Responsiveness of the program to emerging research and education opportunities.

Comments:

The COV understands that proposals should be responsive to emerging research opportunities. The COV believes Noyce proposals should place primary focus on applying current best practices – which we note are continuously improving as a result of research.

The COV advocates distinguishing between using research to define best practice and engaging in research activities.

3. Program planning and prioritization process (internal and external) that guided the development of the portfolio.

Comments:

The program should continue to balance the goals of *diversity* (among PIs, reviewers, and POs) as well as *focused* review criteria (distinct elements that should be included in proposals). Both are essential to a balanced portfolio, and distinguishing between them is important. See also: COV comments on pages 14-15.

4. Responsiveness of program to previous COV comments and recommendations.

Comments:

The COV endorses the previous COV's comments and suggestions. The COV also recognizes that NSF staff were responsive to previous COV comments.

The COV noted that the NSF provided comments stating that all panels for the FY 2008-2010 COV timeframe included at least one K-12 representative, as originally constituted; for the current COV timeframe (FY 2011-2013), K-12 representatives were not included on all panels. The COV understands that it is difficult to recruit and secure K-12 teachers to serve on review panels, and we encourage NSF's efforts to enhance K-12 representation on the review panels.



**IV. Questions about Portfolio.** Please answer the following about the portfolio of awards made by the program under review.

<p style="text-align: center;"><b>RESULTING PORTFOLIO OF AWARDS</b></p>	<p style="text-align: center;"><b>APPROPRIATE, NOT APPROPRIATE, OR DATA NOT AVAILABLE</b></p>
<p>1. Does the program portfolio have an appropriate balance of awards across disciplines and sub-disciplines of the activity?</p> <p>Comments:</p> <p>Generally the portfolio of awards is appropriate and balanced. Many awards are listed as interdisciplinary (among math and science fields) – approximately 70% of awards are listed as interdisciplinary in FY 2011-2013.</p> <p>However, the COV would be interested in a more specific breakdown of data regarding the representation of teachers across the various scientific fields.</p> <p><b>Data Source: Jackets and COV Documents (Section 4.7 Award Discipline Distribution)</b></p>	<p style="text-align: center;">Appropriate</p>
<p>2. Are awards appropriate in size and duration for the scope of the projects?</p> <p>Comments:</p> <p>Yes, the awards’ size and duration are appropriate; these factors seemed to be determined largely by the Noyce program legislation.</p> <p><b>Data Source: Jackets and COV Documents (Section 4.1 Awards)</b></p>	<p style="text-align: center;">Appropriate</p>
<p>3. Does the program portfolio include awards for projects that are innovative or potentially transformative?</p> <p>Comments:</p> <p>The Noyce portfolio includes awards that are innovative or potentially transformative. However, the COV notes that it can be difficult to gauge transformative and/or innovative projects given the framework provided to the program.</p> <p><b>Data Source: Jackets</b></p>	<p style="text-align: center;">Appropriate</p>
<p>4. Does the program portfolio include inter- and multi-disciplinary projects?</p>	<p style="text-align: center;">Appropriate</p>

<p>Comments:</p> <p>Yes, many awards are listed as interdisciplinary in FY 2011-2013.</p> <p>There are collaborations between school districts, institutions of higher education, community colleges, and among various disciplines within an institution.</p> <p><b>Data Source: Jackets and COV Documents (Section 4.7 Award Discipline Distribution)</b></p>	
<p>5. Does the program portfolio have an appropriate geographical distribution of Principal Investigators?</p> <p>Comments:</p> <p>NSF makes a concentrated effort to ensure appropriate geographic distribution of PIs.</p> <p><b>Data Source: Jackets and COV Documents (Section 4.4 Awards Distribution Information – Geographic Map)</b></p>	Appropriate
<p>6. Does the program portfolio have an appropriate balance of awards to different types of institutions?</p> <p>Comments:</p> <p>In some years, it seemed as though the majority of Noyce award recipients were larger research institutions; however, there seems to be a programmatic effort to increase awards to smaller institutions.</p> <p>NSF noted that the funding rate for two-year institutions remains low; however, it may not be appropriate for community colleges to serve as lead institutions. Community colleges may be better suited as partners with baccalaureate institutions.</p> <p>The COV agrees with NSF’s efforts to encourage strategic partnerships with community colleges (to enhance the pipeline) and with high-needs schools (to strengthen the program).</p> <p><b>Data Source: Jackets and COV Documents (Section 4.6 Institutional Demographics)</b></p>	Appropriate
<p>7. Does the program portfolio have an appropriate balance of awards to new investigators?</p> <p>NOTE: A new investigator is an investigator who has not been a PI on a previously funded NSF grant.</p>	Appropriate

<p>Comments:</p> <p>Approximately 30% of awards were made to new PIs, which the COV noted is an appropriate balance.</p> <p><b>Data Source: COV Documents (Section 4.5.1 PI Demographics)</b></p>	
<p>8. Does the program portfolio include projects that integrate research and education?</p> <p>Comments:</p> <p>By the nature and structure of the program, it is challenging for Noyce grants to incorporate research into their projects, as the majority of the program's budget focuses on scholarships and support for teacher training.</p> <p><b>Data Source: Jackets</b></p>	Appropriate
<p>9. Does the program portfolio have appropriate participation of underrepresented groups<sup>2</sup>?</p> <p>Comments:</p> <p>There appears to be appropriate participation of PIs from underrepresented groups, though the COV noted that the data is somewhat inconclusive given the unreported data.</p> <p>The balance of awards to Minority-Serving Institutions was appropriate.</p> <p>The COV requests that data be provided regarding the demographic information for the scholarship recipients.</p> <p><b>Data Source: Jackets and COV Documents (Section 2.6 Program Monitoring Highlights, Section 4.5 PI &amp; Co-PI Demographics, Section 4.6.2 Institutional Demographics – MSI)</b></p>	Appropriate
<p>10. Is the program relevant to national priorities, agency mission, relevant fields and other constituent needs? Include citations of relevant external reports.</p> <p>Comments:</p> <p>There is evidence that the Noyce Program is addressing issues relevant to the field. See example articles below:</p>	Appropriate

<sup>2</sup> NSF does not have the legal authority to require principal investigators or reviewers to provide demographic data. Since provision of such data is voluntary, the demographic data available are incomplete. This may make it difficult to answer this question for small programs. However, experience suggests that even with the limited data available, COVs are able to provide a meaningful response to this question for most programs.

<p>1) Liou, P.-Y., Kirchhoff, A., and Lawrenz, F. (2010). Perceived Effects of Scholarships on STEM Majors' Commitment to Teaching in High Need Schools. <i>Journal of Science Teacher Education</i>, 21(4), 451-470.</p> <p>2) Bischoff, P., French, P., and Schaumloffel, J. (2014). Reflective Pathways: Analysis of an Urban Science Teaching Field Experience on Noyce Scholar-Science Education Awardees' Decisions to Teach Science in a High-Need New York City School. <i>School Science and Mathematics</i>, 114(1), 40-49.</p> <p>3) Brewer, C. and Smith, D. (2011). Vision and Change: In Undergraduate Biology Education - A Call to Action. AAAS. <a href="http://www.visionandchange.org">www.visionandchange.org</a>.</p> <p><b>Data Source: Jackets and COV Documents (Section 2.0 Overview of the Robert Noyce Teacher Scholarship Program, Section 2.1 Legislation Establishing the Robert Noyce Teacher Scholarship Program, Section 2.3 Management Plans)</b></p>	
<p>11. Additional comments on the quality of the projects or the balance of the portfolio:</p> <p>The review panels and staff have seized the opportunity to enhance the quality of projects through the level and detail of communication between NSF and applicants to guide and shape proposals.</p>	

## **The COV has provided some additional thoughts on the program below:**

The COV notes two underlying issues that affect multiple aspects of the program design and review process:

**1. Diversity vs. focus.** One of the strengths of this program is the diversity of its PIs, institutions, and reviewers. (The COV did not have access to data about scholarship or fellowship recipients.) Although comparison data were not available, it seems likely that the Noyce Program has relatively more grants going to new PIs, minority PIs, and Minority-Serving Institutions than other NSF programs. These trends should be supported and encouraged.

However, the COV notes another kind of diversity that we found problematic: Diversity of criteria for evaluating proposals. For example, the Review Analysis (“Proposal Recommendation Process” document) for FY 2013 had 15 bullets in the list of characteristics of Noyce Scholarship Track Phase I proposals recommended for funding and 16 bullets in the list of characteristics of teaching fellowship proposals recommended for funding. The COV noted a similar diversity in the foci of individual reviews and program summaries.

Recommendation: The program announcement, guidance to reviewers, and reviews provided to PIs should be aligned with a shorter list of core criteria that represent best practices in programs that support teachers for high-need school districts. For example, four aspects of best practice that seem less evident in the reviews than their importance warrants are as follows:

- *Recruitment.* Does the proposal identify a pool of promising candidates who could be especially well qualified for teaching in high-needs schools and provide them with a pathway to teaching?
- *Quality and content of institution's methods courses.* Does the proposal provide evidence of the quality and content of institution's methods or related courses required for students in teacher preparation programs?
- *Support in schools.* Does the proposal provide adequate field experience in high-needs schools with strong professional support from program staff and mentor teachers?
- *Induction/retention.* Does the proposal provide adequate support for new teachers during their first years of teaching in high-needs schools?

**2. Best practice vs. innovation.** The required structure of the Noyce Program, especially the requirement that 75% of budgets go to participant support, makes it difficult to fund research and development sufficiently in addition to participant and program support. This may affect definitions of Intellectual Merit and Broader Impacts for this program.

- *Intellectual Merit:* Focus more on best practice and less on innovation (see *Scholarship Reconsidered* by Ernest Boyer)
- *Broader Impacts:* Focus more on impact of participants being supported and less on dissemination and publication.

Recommendation: Find ways to leverage additional funds to support innovation and dissemination by the most promising Noyce projects. For example:

- Innovation and dissemination supplements to Noyce grants that support research time for faculty or research assistantships for graduate students to engage in and design research on innovative practices and disseminate findings.
- Encouraging connections between Noyce grants and grants supported by research and development programs. This could go in either direction:
  - Encourage Noyce PIs to apply for (for example) Discovery Research K-12 (DRK-12) exploratory grants, perhaps especially first-time PIs or minority PIs.

- Encourage PIs of DRK-12 or STEM-CP: MSP (Science, Technology, Engineering and Mathematics, including Computing, Partnerships: Math and Science Partnership) grants focusing on pre-service or in-service teacher education to submit Noyce proposals that would enable them to focus on working with high-needs schools and supporting teachers in those schools.

## OTHER TOPICS

1. Please comment on any program areas in need of improvement or gaps (if any) within program areas.

The COV notes a larger issue of how the portfolio of awards is meeting program goals. See also: COV comments on pages 14-15.

- It is important to ensure there is appropriate alignment within the portfolio of awards with the stated vision of the program in the program announcement.
- The program announcement articulates which awards will provide the "most return on investment," but some of the review criteria seemed to be broad and not evenly applied during the review process.

2. Please provide comments as appropriate on the program's performance in meeting program-specific goals and objectives that are not covered by the above questions.

See COV comments on pages 14-15.

3. Please identify agency-wide issues that should be addressed by NSF to help improve the program's performance.

NSF staff should consider identifying program review criteria that distinguish the Noyce Program as a service program from other programs that focus on research and development; however, NSF staff should maintain dynamic and flexible panel processes and protocols.

4. In alignment with efforts to develop more meaningful data on teacher preparation program quality, can the set of Noyce awardees collect some shared data on common metrics that maximizes what the program as a whole learns from the individual awards? What metrics would be most valuable?

The COV recommends that consideration be given to illuminating Noyce projects that have effective recruitment strategies involving transfers from community colleges and/or high scholar-teacher recruitment retention rates in high-need districts (using common metrics). PIs and school district leaders should share their best practices relative to recruitment and retention strategies.

5. Please provide comments on any other issues the COV feels are relevant.

Recommendation: The COV recommends that POs consider ongoing funding – in Phase II – of stable, high-quality Noyce projects. This continuous funding would ensure consistency in recruitment and retention of well-developed STEM teachers in hard-to-staff core subjects.

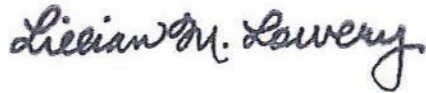
6. NSF would appreciate your comments on how to improve the COV review process, format and report template.

The COV suggests the following:

- Provide COV members with access to the jackets approximately one week prior to COVs in order to give enough time to review before the onsite portion of the review.
  - Additionally, request that the COV chair provide proposal review assignments to the COV members approximately one week prior to the COV to ensure enough time for review.

- Provide additional time (closer to 30 minutes) at the end of the NSF's COV preparation webinar to address additional questions and conduct pre-planning among the COV members.
- Provide a sample jacket (with context for the review process) to review during the COV webinar – this will help maximize the COV's onsite efficiency.
- Provide a clickable table of contents within the binder of general program information provided to the COV.

**SIGNATURE BLOCK:**



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Lillian M. Lowery, Chair  
For the Robert Noyce Teacher Scholarship Program COV