

**National Science Foundation
Directorate for Social, Behavioral and Economic Sciences (SBE)
Office of SBE Multidisciplinary Activities
Committee of Visitors
August 27-28, 2015**



**SBE Office of Multi-Disciplinary Activities (SMA)
SBE Office of the Assistant Director
Directorate for Social, Behavioral, and Economic Sciences (SBE)
National Science Foundation**

**Committee of Visitors
August 27-28, 2015**

Introduction:

The Committee of Visitors (COV) for the SMA met from August 27-28, 2015 at the Headquarters of the National Science Foundation. The charge to the COV was to: “(a) assess the quality and integrity of operations, including technical and managerial matters pertaining to proposal recommendations, and (b) provide forward-looking comments pertaining to areas of support and new opportunities for seeding multidisciplinary activities for the future and in the development of infrastructure to support interdisciplinary activities.”

Five programs were reviewed for the fiscal years (FYs) indicated below:

- Science of Science and Innovation Policy (SciSIP) -- FYs 2011-2014
- Interdisciplinary Behavioral and Social Science Research (IBSS) -- FYs 2013-2014
- Research Experiences for Undergraduate Sites (REU Sites) -- FYs 2011-2014
- SBE Postdoctoral Research Fellowships (SPRF) and its predecessor Minority Postdoctoral Research Fellowships (MPRF) -- FYs 2011-2014
- Building Community and Capacity for Data-Intensive Research in the Social, Behavioral, and Economic Sciences and in Education and Human Resources (BCC; SBE directorate only) -- FYs 2012-2014.

The committee comprised the chair and ten members, two of whom were assigned to each program under review. Each pair reviewed program-specific materials (including background and statistics on the program and a sample of awarded and declined proposals), interviewed the program’s officers, and prepared a report (according to the report template).

We also were asked to comment on both the scientific and management aspects of four additional topics:

Capacity Building: How well do the two programs that target expanding research capacity in the SBE sciences (REU Sites, which is directed toward undergraduate students, and MPRF/SPRF, which supports post-doctoral fellows) meet their stated missions, and how could they be improved?

Community Building: Two of the programs, SciSIP and BCC, are designed to build research communities. How well do these programs succeed at this goal, and what could NSF do better in these areas?

Disciplinary Diversity: How well do the SMA programs cover the breadth of the SBE disciplines? Are the programs designed to support interdisciplinary research supporting

cutting-edge interdisciplinary research in the SBE sciences? How could they be improved?

SMA: Are the structure and resources (human and financial) of the SBE Office of Multidisciplinary Activities (SMA) adequate to support the programs under review?

In addition the COV had a more general discussion about the programs and the SMA. The recommendations below are based on these discussions. We begin with a summary and general recommendations, followed by the program-specific reports following the template provided to us.

We would like to commend the NSF staff, who were extremely helpful and consistently positive throughout the COV process. NSF personnel responded quickly to all requests and questions that arose. We very much appreciate the open discussions and atmosphere of scientific integrity and transparency that contributed to the quality of the COV review.

Progress since 2011

The previous COV met in 2011 to review the SMA programs (referred to as COV2011 below). At that time, the programs were reviewed as a whole rather than having separate reports for each program. The review encompassed three programs: SciSIP, MPRF, and REU. Comments were generally very positive about the management of the programs. In addition to program-specific comments, which are addressed in the detailed reports below, COV2011 made recommendations about the structure of SMA and about the COV review process itself.

Since 2011 two new programs have been added to the SMA portfolio: IBSS and BCC. The primary management change moved the program officers out of the SBE Assistant Director's office and into the Divisions for reporting and oversight. Additional changes have been made in response to the report, including efforts to provide more and better review information to Principal Investigators (PIs), restructuring of the SPRF, increased outreach activities, and the updated COV procedures.

Summary of COV2015 assessment:

The COV is charged with assessing the performance of the five SMA programs in two primary areas: the current quality of operations, and current and future opportunities to seed or provide infrastructure for interdisciplinary activities. In addition, the Charge to the COV articulates several specific questions related to capacity building, community building, disciplinary diversity and the structure of the SMA. The two primary areas and the specific questions sometimes led to overlapping discussions and recommendations, resulting unavoidably in some duplication across sections of the report below.

A. Quality and integrity of operations

Members of the COV were very impressed by the quality of operations of the programs. While a number of suggestions for technical and managerial matters are included in the individual program reports, overall the assessment was quite positive. Given the substantial differences across programs, core questions are addressed separately for each program below. In addition,

there were several themes that emerged in reviewing the programs. These are summarized here, with associated recommendations.

1. Data issues.

Three main issues emerged with respect to data availability. The first is most easily addressed. Because two of the programs directly seek to broaden participation, accurate assessment of their success requires complete data on the demographic characteristics of PIs, Co-PIs, and to a lesser extent panelists and reviewers. However, the data captured from NSF's system are missing or incomplete. This is in part because individuals may choose not to reveal their demographic characteristics in the submission process, and in part because of oversight or error on the part of proposers and reviewers. But some of the information is simply not collected or compiled in a way that makes the demographics of participants easy to evaluate.

For all programs, and especially those that target diversity, it is of high importance that the COV obtain this information in order to be able to assess the effectiveness of the programs in reaching their goals. Most of these programs are relatively small, and so it is not impossible simply to look up the individuals in question online to gather the relevant information. Indeed, some of the review teams undertook that task, as detailed in their reports.

Recommendation: We recommend that every effort be made to complete the demographic information for PIs and Co-PIs, especially for programs that target diversity, and particularly in advance of COVs.

A second main issue arises because of the interdisciplinary nature of the programs under review. Designing and evaluating interdisciplinary programs requires a slightly different approach from the one applied to disciplinary programs. One important factor is that these proposals are more likely to be collaborative, and also often have several CoPIs listed on the cover sheet. In order to assess the disciplinary and demographic diversity of the team, complete information on all participants in a team is needed. This means reporting data by project instead of by proposal, and including Co-PIs in the data that are captured.

Recommendation: We recommend that disciplinary and demographic data be collected and reported by project in addition to proposal-level data, merging information for collaborative proposals and including Co-PIs. This will allow assessment of disciplinary diversity as well as standard demographic composition of the teams.

A third data-related issue also was discussed. Because the impact of interdisciplinary collaboration, and of pipeline programs like SPRF and REU Sites, can evolve slowly over time, the information contained in final reports for the projects are of limited usefulness in assessing the overall outcome. It would be great if NSF could devise a system for longer-term tracking of the impact of these programs. In addition, different outcome measures may need to be developed.

Recommendation: We recommend that SMA explore the feasibility of longer term outcome measures for interdisciplinary and pipeline programs.

2. Reviewer training/consistency

Anyone who has served as a program officer, panelist or review committee member for the National Science Foundation has experienced, first-hand, inconsistency in the quality of reviews. Such inconsistency is perhaps even more likely to be observed in interdisciplinary and pipeline programs, because of the varied backgrounds of reviewers across fields and institutions. This makes it all the more important that program officers for interdisciplinary programs take care to provide information and training to reviewers. In addition, several members of the COV suggested that some mechanism for providing feedback to reviewers about the quality of their reviews, including possible incentives or rewards, might help to improve calibration. Finally, COV members thought it might be useful to elicit feedback from the next COV on the reviewer recruitment process.

Recommendation: We recommend that SMA move to develop systematic guidelines, training and information resources for reviewers of interdisciplinary and pipeline programs, and consider feedback systems that might incentivize or reward higher-quality reviewers.

B. Forward looking comments:

The COV identified the greatest challenge facing interdisciplinary research involving the social sciences in the near future as the ability to handle and exploit the vast amounts of data that are being generated and collected. The enormous increase in data availability is a great opportunity for SBE. At present, social science funding is not adequate to support the kind of interdisciplinary effort that is required for the social sciences to participate fully in the data revolution. Concern was raised that, because of their much larger levels of funding, computer science and physics are, in essence, reinventing the social sciences, and in ways that could benefit greatly from more extensive participation by social science scholars. Ultimately, the physical sciences are not fully engaged in social science research questions, and so their version of social science is likely to fall short of established standards. We face a significant opportunity to push data science forward by fostering more extensive collaboration with computational science and other fields. However, the asymmetry in funding levels across disciplines may prevent the social sciences from playing the role they should for the best science to be conducted. The *Rebuilding the Mosaic* report identified a number of data-related growth areas, and subsequent efforts such as the push for “social observatories” also show great promise. But in the current funding environment we are not optimistic that the much-needed infrastructure will be developed. *(These issues are also discussed below under Capacity and in the BCC report.)*

Recommendation: We recommend that SMA, together with the rest of SBE and other directorates, continue to explore ways to fund much needed capacity and infrastructure, both intellectual and physical, for large scale data science for social science research.

A second forward-looking issue discussed by the COV was the need to expand applications for the multidisciplinary pipeline programs. In particular, we believe that the quantity and quality of proposals from minority-serving institutions (MSIs) could be improved substantially by significant, appropriately-targeted outreach efforts. This could include proposal writing workshops as well as efforts to encourage partnerships with more research-oriented universities. This could be effective, for example, for the REU programs, where students from MSIs could participate in research projects with students from more research oriented

universities. (This is also discussed below under Capacity and in the REU and MPRF program reports.)

Recommendation: We recommend that outreach efforts be expanded to improve the quantity and quality of proposals from minority-serving institutions, including training and encouraging partnerships.

Additional Questions:

In addition to the two primary areas, the COV was asked to address specific questions on the following topics. The discussion is summarized below and specific recommendations made.

1. Capacity building

The COV's discussion of capacity building focused on two very different topics. First, we considered capacity building in terms of expanding the involvement of young scientists in research. This is addressed in two programs: the post-doctoral fellows programs (MPRF/SPRF) and the REU Sites program. The review teams highlight the strengths of the two programs in accomplishing their objectives, but had several suggestions that could improve performance, especially with respect to MSIs. Both teams noted the very low success rates from MSIs in their programs. Indeed, across the programs that the COV reviewed, all show very low success rates for these institutions. As discussed above, we believe that significant outreach efforts should be undertaken to strengthen proposals for these two programs, especially those from MSIs. The associated recommendation is stated above.

A second kind of capacity building, which was not mentioned in the question given to us but which seems a very important element of capacity, considers capacity as large-scale infrastructure. This discussion centered primarily on the BCC and SciSIP programs. We ask, does SBE have the capacity to deal with the massive availability of data now becoming available? Can we participate fully in the data revolution?

Three manifestations of the problem were mentioned by COV members. First, fields such as computer science and physics are in essence doing low-quality social science via data mining. This work tends not to be guided by social science theories or frameworks because social scientists are not fully involved in the efforts. A second manifestation is that European social science research teams are dominant in the big data area because of their different funding model. Third, computational scientists are not participating in BCC to the extent needed for real interdisciplinary progress to be made.

The needs are for both expertise and funding. There is room both to develop the data-related skills of SBE scientists, and to build bridges to do a better job of bringing in scholars from other fields. The COV also believes that the best science in this area requires both longer and larger projects. Developing and integrating interdisciplinary teams takes time, and seed-money funding could cover not only conferences, but also multi-year meetings of teams of scholars. Longer-term support for PIs would also pay off in this area, as would funding for major hardware, which is hard to obtain in the social sciences.

The recommendation associated with this discussion is above (p. 5)

2. Community building

The COV believes that there is considerable scope for both deeper and broader community building. In the deeper category we considered what might be needed for a new interdisciplinary program to be successful. For these programs, community building is extremely important. There is a need to develop scholars who have a long-term commitment to doing research in the area of the program. Too often it seems that projects that might be termed “drop-in” proposals are funded, proposals by scholars in another area who see a potential fit for their work in the program. But this will not develop the kind of research community needed. This kind of community may more likely to be fostered by permanent than rotator program officers, engaging in multi-year outreach to the relevant communities.

Broader community building occurs across disciplines. We see great potential here in continuing to build partnerships across directorates at NSF. It could be argued that BCC and SciSIP are, perhaps not surprisingly, focused on SBE and on funding SBE scholars in their own academic disciplines, but would benefit from teaming up with scholars in other directorates. We understand the political problems in developing successful collaborations, and have seen such efforts fail in the past. But it is still a good idea. Perhaps it would be useful to look to other models, such as those centered around particular data availability. The Census Data Centers, NORC or ICPSR spring to mind. Thinking about this kind of model might also revive the idea of a social observatory-type infrastructure.

3. Diversity of disciplinary coverage.

The review teams for each program examined the disciplinary coverage of the programs. Some programs appear to have skewed distributions of proposals with respect to SBE fields. For example, SciSIP funds economists disproportionately, and SPRF and REU Sites fund more proposals from Psychology than other SBE areas. However, in most cases these distributions are sensible given the characteristics of the fields and the programs themselves. The COV was concerned that this question is “downward looking,” that is, concerned with fairness of the distribution of resources relative to existing disciplinary programs in SBE, whereas the best interdisciplinary research may require a more outward/upward looking approach. We suggest that efforts be made to go beyond SBE in the formulation and execution of further cross-disciplinary efforts. Particularly with regard to data science, we believe that early involvement of computational people is vital, including within the formulation of programs’ definitions and goals. Conversely, we believe that members of the SBE community should be included in discussions (panels, etc.) in other directorates where social science issues are showing up even if not identified explicitly as such.

4. Adequacy of SMA structure and resources

In response to the previous COV report, the directorate moved the SMA program officers out of the “front office” and into the divisions. This appears to have had both benefits and costs. On the one hand, it has been useful to give program officers for the SMA programs easier access to the management practices and subject matter of the disciplinary programs. But on the other hand it appears to have created some coordination problems related to staffing and funding these programs. The staff seemed unhappy with aspects of the management of SMA. It might

be worthwhile to revisit the structure of SMA with an eye to making further changes that will smooth operations.

The need for greater resources to address major changes in data availability and data science have been discussed elsewhere in this report.

**FY 2015 REPORT TEMPLATE FOR
NSF COMMITTEES OF VISITORS (COVs)**

The table below should be completed by program staff.

Date of COV: August 27-28 2015
Program/Cluster/Section: Science of Science and Innovation Policy (SciSIP)
Division: SBE Office of Multidisciplinary Activities (SMA)
Directorate: Social, Behavioral, and Economic Sciences
Number of actions reviewed: 50 Awards: 20 Declinations: 30 Other: 0
Total number of actions within Program/Cluster/Division during period under review: Awards: 95 Declinations: 169 Other: 0
Manner in which reviewed actions were selected: <p>A randomized sample of 50 proposals were selected from each program to be reviewed by the COV. First, proposals were sorted by fiscal year and then award status. Second, randomized number generator software¹ was utilized to select the proposals, distributed equally amongst fiscal years. Proposals without external merit review (e.g., EAGERs, RAPIDs) were excluded for review and all projects within a collaborative proposal were included in the final sample.</p> <p>1. Urbaniak, G. C., & Plous, S. (2013). Research Randomizer (Version 4.0) [Computer software]. Retrieved on August 2, 2015, from http://www.randomizer.org/</p>

COV Membership

	Name	Affiliation
COV Chair	Catherine Eckel, PhD	Texas A&M University
COV Members:	Tracy Jennifer Costello, PhD	University of Texas MD Anderson Cancer Center
	Peter H. Ditto, PhD	University of California, Irvine
	Barbara Entwisle, PhD	University of North Carolina at Chapel Hill
	Diana Hicks, DPhil	Georgia Institute of Technology
	John Ishiyama, PhD	University of North Texas
	Richard Lempert, PhD	University of Michigan and the Brookings Institution
	James Peoples, PhD	University of Wisconsin, Milwaukee
	Philip Resnik, PhD	University of Maryland
	Philip Rubin, PhD	Haskins Laboratories
	Gail Smith, PhD	City University of New York Graduate Center

**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: A well-managed peer review process was in evidence in all cases.</p>	Yes
<p>2. Are both merit review criteria addressed</p> <p>a) In individual reviews? In 19 cases all reviewers addressed broader impact, in 13 cases one or two reviewers did not explicitly address broader impacts, in 1 case nobody addressed it.</p> <p>b) In panel summaries? Panels in general addressed broader impacts. It was noticeable that reviewers find it more difficult to address broader impacts for weak proposals, in that weak intellectual merit is used as the reason for little expectation of broader impacts so the broader impact statement references intellectual merit. All strongly reviewed proposals had strong broader impact statements.</p> <p>c) In Program Officer review analyses? Yes, except in the boilerplate rejections.</p>	Yes
<p>3. Do the individual reviewers giving written reviews provide substantive comments to explain their assessment of the proposals?</p> <p>Comments: Often reviewers provide helpful, deep analyses. In most other cases reviews are adequate. In a small minority of cases reviews don't go beyond summarizing the proposal. Every proposal has some substantive reviews.</p>	In general yes

<p>Positive reviews were usually less substantive. Reviewers may need guidance in providing substantive, positive reviews.</p>	
<p>4. Do the panel summaries provide the rationale for the panel consensus (or reasons consensus was not reached)?</p> <p>Comments: All panels provided rationales, but often they reiterated, or even just cut and pasted one or two lines from one review which gives an impression of little discussion. This was not a problem if the rationale said the proposal was not discussed because of agreement among reviewers that the quality was poor.</p>	Sometimes
<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: Decisions are well supported except where boilerplate rejections are used. We noticed very few decisions in which we had questions about the rationales justifying the decisions but we did see two awards and one decline where it is possible we would have decided differently than the program officer. Significantly, we independently reacted in the same way to the same proposals. We should however emphasize that very few proposals gave us pause in this way, and we cannot assess considerations beyond individual proposal assessment that the program officer might have taken into account, such as attempts to balance the SciSIP portfolio or a proposer's past performance record. Nothing we saw, however, leads us to question NSF policy that leaves decisions to program officers. We believe that avoiding mechanical evaluation processes and preserving program officer discretion works well in this program as it does throughout the Foundation.</p>	Yes
<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: The combination of outside reviews and program review analysis provides good feedback, but the panel summaries seldom add much to that.</p>	Yes

<p>7. Additional comments on the quality and effectiveness of the program’s use of merit review process:</p> <p>In some cases there appears to be a high decline rate from those invited to review. In several cases there was a minimal number of reviews received, including one case based on 2 reviews only.</p> <p>Reviewers from government agencies were not as incisive as most academic reviews, in particular often lacking a sophisticated analysis of methodological strengths and weaknesses. Academic reviewers did seem able to spot the policy and practical import of proposals.</p> <p>Foreign reviewers varied in their understanding what is desired.</p> <p>We recommend guidance to reviewers in the form of a sample of ideal reviews (2 or 3 paragraphs long), perhaps with separate examples pegged to each level from Excellent to Poor. This online resource would aid in calibration and alignment of reviewer standards, bringing more coherence to ad hoc reviewer assessments.</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: Because so many reviewers are coded as “other” it is difficult to assess this, but it appeared from the reviews that most had relevant expertise. In particular we took note of some broadly knowledgeable, committed reviewers who wrote excellent reviews. Also to the extent we could judge, reviewers usually seemed to have appropriate expertise, but in one case only quantitatively oriented reviewers were assigned to a qualitative proposal, and these methodological differences seemed to influence the judgments of some reviewers.</p>	<p>Difficult to say given available information</p>
<p>2. Did the program recognize and resolve conflicts of interest when appropriate?</p> <p>Comments: To the extent one can determine this was handled well. No reviews indicated</p>	<p>Yes</p>

<p>personal antagonism or favor based on identity.</p> <p>There was one case of a person reviewing in the same round in which she had a submission. There is no evidence that this affected the review, which was quite favorable.</p>	
<p>Additional comments on reviewer selection: reviewer choice for this program is obviously especially difficult because a reviewer must have a broader than disciplinary perspective.</p>	

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

<p>MANAGEMENT OF THE PROGRAM UNDER REVIEW</p>
<p>1. Management of the program.</p> <p>Comments: Dwell time was 6 months, less for declines, and a bit longer for awards. The program seems well run.</p>
<p>2. Responsiveness of the program to emerging research and education opportunities.</p> <p>Comments: Based on what we reviewed, program has been entirely proposer driven. However we have only seen a sample of proposals, none of which involved conference or outreach activities.</p>
<p>3. Program planning and prioritization process (internal and external) that guided the development of the portfolio.</p> <p>Comments: There is a roadmap produced in 2008 and some proposals referenced that, but it is not clear that this is substantially influencing the substance of proposals or award decisions.</p>
<p>4. Responsiveness of program to previous COV comments and recommendations.</p> <p>Comments: It is difficult to say because although the previous COV reviewed SciSIP, its report for the most part discussed the SMA programs as a group. This being said, SBE did respond in several relevant ways, including moving the SciSIP program officer into SES and having the current COV focus separately on the different SMA programs.</p>

SciSIP still has a heavy tilt toward economics. All program officers have been economists or management scholars. Approximately half of the grantees are economists, but only 20% of declined PIs are. This may reflect the panel composition. Panels in 2011 and 2013 had a majority of economist/management members. This issue was also involved in the few rationales that gave us pause. The last COV recommended SciSIP add strength in fields such as political science, sociology, anthropology and history. We **recommend** that these efforts continue, and note that it would be helpful if the program officer had sufficient travel funds to, on a rotating basis, attend professional meetings in these various fields.

Almost all proposals from non-social scientists (e.g. biologists and chemists) were declined for what we saw as sound reasons. **We recommend** that non social scientists be encouraged to submit with collaborators who better understand social science methodology.

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

RESULTING PORTFOLIO OF AWARDS	APPROPRIATE, NOT APPROPRIATE, OR DATA NOT AVAILABLE
<p>1. Please comment on the demographic and disciplinary diversity of the program’s portfolio.</p> <p>Comments: Economics proposals are disproportionately likely to be funded and disproportionately unlikely to be declined. Psychologists also did relatively well on funding. Political scientists, anthropologists, historians represent only a small portion of applicants and awards. Biologists, chemists and others apply for grants but almost never get them.</p> <p>Program management has been strong on gender and race diversity, yet it appears that very few proposers are known to be members of disadvantaged minorities and that few awards went to minorities. This impression may, however, be distorted both by sample size limitations and the failure of many proposers to indicate their racial or ethnic status. Still we recommend special outreach efforts to HBCUs and minority serving institutions. Also more members of these institutions might be invited to be panelists.</p>	
<p>2. Are there any major gaps in the program’s award portfolio?</p> <p>Comments: Given the limited sample available to us, one of us saw only 10 awards (after excluding COIs and duplicate collaborative proposals) and the other perhaps 15, we are unable to assess the portfolio.</p>	

<p>We did note a tilt toward innovation in recent years, including the study of business decisions. Some of these may have policy relevance, but few studies focus directly on independent, theoretically grounded, empirical policy assessment.</p> <p>Particularly striking was the absence of proposals from and awards to political scientists or those who specialize in studying government policy.</p> <p>Although some proposals followed on prior work by the investigators, very few PIs built on or sought to test theory that was not their own.</p>	
<p>3. Are there particular strengths or weaknesses in the program’s award portfolio?</p> <p>Comments: Although there were a number of worthy proposals, there were no blockbusters, no proposal that got all E's (Excellents), no proposal for which reviewers did not identify ways in which it could be improved.</p> <p>In part the absence of blockbuster proposals may be related to limited funding. We noted a number of proposals in which budgets were slashed, sometimes by \$200,000 or more, precluding the PI’s original ambitious plan. We are not questioning the wisdom of many of the requested cuts, but there was no opportunity for the PIs to improve on those dimensions that were weak and thus realize their initial vision. Ambitious work, including building and using big data infrastructures, is going to require substantial support for the field to realize the full value of its most important potential contributions.</p>	

OTHER TOPICS

1. Are the structure and resources (human and financial) of the SBE Office of Multidisciplinary Activities (SMA) adequate to support the program under review?

We were concerned at the number of budgets that were cut, perhaps one reason why we do not see high profile work. High profile work would require substantial resources. Even the incentive to put together proposals promising high impact requires the possibility of substantial resources.

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.
 - a. How well do the REU Sites and SPRF/MPRF programs do in expanding research capacity in the SBE sciences?
 - b. How well do the SciSIP and BCC programs do in building research communities, i.e., engaging and integrating individuals or groups of individuals into teams, to focus on their domains of the science of science and innovation policy and data-intensive research in the SBE sciences, respectively?

Our ability to answer this question is limited by the small number of awards in the sample, see comment below. Given what we observed, SciSIP has to date had only limited success in building communities and supporting interdisciplinary research. See comment below on current initiatives which we endorse.

- c. Are the programs designed to support interdisciplinary research (IBSS, SciSIP, SPRF-IBSS) supporting cutting-edge, interdisciplinary research in the SBE sciences? How could they be improved?

See comment below on current initiatives which we endorse.

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

More adequate funding is essential.

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

We were particularly encouraged by our conversation with Maryann Feldman, the current Program Officer. Based on her experience as a SciSIP panelist and her early observations as Program Officer, she has begun a series of initiatives to strengthen the program in areas where we saw weaknesses, including the establishment of an ethnically diverse panel with members rotating after 3 years of service, greater attention to outreach including more conference and workshop activities designed both to advance the field and build community, establishment of a second competition date to allow strong but flawed proposals declined at the fall panel to be revised in time for funding during the same academic year, and an intention to give special attention to interdisciplinarity, including seeking INSPIRE funding, and data needs. These efforts will work to enhance coherence and continuity of the program, foster a common conversation in the community, and increase the quality of proposals. We believe that the program will be stronger as a result.

Because SciSIP has no natural home in a disciplinary conference (indeed the program ideally fosters cross disciplinary interaction), the program needs to reach beyond its grantees to foster community by, for example, supporting for several years at least a recurring conference through which it can seek to build the common conversation necessary to bring greater coherence to its program.

We also recommend that the appointment of a permanent PO for SciSIP be seriously considered. As a young program with a need to build community, the SciSIP program can be set back with each transition to a new program officer. But this recommendation can be implemented only if the right person can be found. This person will have a track record of scholarly contributions in the area of science policy, an allegiance to science policy rather than any particular discipline, an appreciation of both quantitative and qualitative methods, motivation to develop a community rather than pursue a personal agenda and the kind of personality and community connections that will make him or her a central supportive figure in growing the science needed to answer the decade old Marburger challenge.

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

We are asked to judge the portfolio as a whole but we cannot do that having read a small sample including for one of us perhaps 10 awards and a somewhat larger number of declines after removal of COI and duplicate proposals that are collaborative. The COI's should be excluded from the population before the sample is drawn. The population should include only 1 member of a collaborative proposal and an item should be added to the jacket describing all the PIs on a collaboration.

If the Foundation is interested in the evaluation of sub programs such as the doctoral dissertation grants, the sample should be stratified. We did not have enough of those proposals to make a judgement.

The Committee of Visitors is part of a Federal advisory committee. The function of Federal advisory committees is advisory only. Any opinions, findings, conclusions, or recommendations expressed in this material are those of the Advisory Committee, and do not necessarily reflect the views of the National Science Foundation.

SIGNATURE BLOCK:



For the Directorate for Social, Behavioral, and Economic Sciences Office of Multidisciplinary
Activities 2015 Committee of Visitors

Catherine Eckel, PhD
Chair

**FY 2015 REPORT TEMPLATE FOR
NSF COMMITTEES OF VISITORS (COVs)**

The table below should be completed by program staff.

Date of COV: August 27, 2015 – August 28, 2015
Program/Cluster/Section: Interdisciplinary Behavioral and Social Science Research (IBSS)
Division: SBE Office of Multidisciplinary Activities (SMA)
Directorate: Directorate for Social, Behavioral and Economic Sciences (SBE)
<p>Number of actions reviewed:</p> <p>Awards: 11</p> <p>Declinations: 30</p> <p>Other: 0</p>
<p>Total number of actions within Program/Cluster/Division during period under review:</p> <p>Awards: 25</p> <p>Declinations: 153</p> <p>Other: 0</p>
<p>Manner in which reviewed actions were selected:</p> <p>A randomized sample of 41 proposals were selected from each program to be reviewed by the COV. First, proposals were sorted by fiscal year and then award status. Second, randomized number generator software¹ was utilized to select the proposals, distributed equally amongst fiscal years. All projects within a collaborative proposal were included in the final sample.</p> <p>2. Urbaniak, G. C., & Plous, S. (2013). Research Randomizer (Version 4.0) [Computer software]. Retrieved on August 2, 2015, from http://www.randomizer.org/</p>

COV Membership

	Name	Affiliation
COV Chair	Catherine Eckel, PhD	Texas A&M University
COV Members:	Tracy Jennifer Costello, PhD	University of Texas MD Anderson Cancer Center
	Peter H. Ditto, PhD	University of California, Irvine
	Barbara Entwisle, PhD	University of North Carolina at Chapel Hill
	Diana Hicks, DPhil	Georgia Institute of Technology
	John Ishiyama, PhD	University of North Texas
	Richard Lempert, PhD	University of Michigan and the Brookings Institution
	James Peoples, PhD	University of Wisconsin, Milwaukee
	Philip Resnik, PhD	University of Maryland
	Philip Rubin, PhD	Haskins Laboratories
	Gail Smith, PhD	City University of New York Graduate Center

**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: In general we believe the review methods are appropriate and effective. The challenge of evaluating multidisciplinary research is obtaining the expertise to cover the huge range of projects that are submitted. That expertise must address two not necessarily compatible goals -- deep disciplinary expertise in key areas of research (methods & concepts) and broader perspective to evaluate the impact of the research across disciplinary boundaries. We believe the panel process is important to help provide the broader perspective. It is sometimes difficult, however, to represent the wide range of deep expertise required to evaluate proposals from many different fields within a single panel. A number of measures have been adopted to address this issue including deciding on the final composition of the panel after proposals have been received and the occasional use of ad hoc reviewers (which might be increased). Also, adopting a procedure in which all proposals are evaluated the first day, and asking other interested panel members to volunteer to evaluate promising proposals overnight, seems an excellent strategy.</p> <p>Overall, we were impressed with the quality of the review methods.</p> <p>The COV recommends that novel methods be implemented to balance the needs for deep disciplinary expertise and the considerable breadth needed to evaluate interdisciplinary proposals.</p>	<p>Yes</p>
<p>2. Are both merit review criteria addressed</p>	<p>Yes</p>

<p>a) In individual reviews?</p> <p>b) In panel summaries?</p> <p>c) In Program Officer review analyses?</p> <p>Comments: In general, we note significant improvement over time in the attention paid to the two merit review criteria at all levels of documentation. With only a few exceptions, all levels were diligent in remarking on both criteria.</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 2013, a significant number of the reviews did not provide summary statements or solicitation-specific details (some did not even address the questions). A few reviewers were particularly prone to this problem.</p> <p>There was considerable improvement in the 2014 competition, but certain reviewers again omitted either solicitation specific comments or summary details or both. It is important for investigators, particularly those whose proposals have been declined, to receive specific, structured and useful feedback to improve the quality of future research.</p> <p>The COV recommends that program directors encourage extra attention by reviewers to solicitation-specific criteria and summary statements.</p>	<p>Yes with exceptions</p>
<p>4. Do the panel summaries provide the rationale for the panel consensus (or reasons consensus was not reached)?</p> <p>Comments: The program officers were generally diligent in providing information in the panel summaries about the range of opinions in reviewers and how various considerations were weighed in the final decision.</p> <p>We noticed in particular that when there was an outlier in the reviews, it was mentioned and addressed. It is helpful to investigators to see information provided in panel summaries and review analysis on differences of opinion among reviewers.</p>	<p>Yes</p>

<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: As a rule, the program officers did an excellent job of providing substantive detail about the strengths and weaknesses of proposals and the rationale for the award/decline decision.</p>	Yes
<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: Substantive rationales, especially for declinations, are extremely valuable for and appreciated by investigators. We recognize that there is a balance that must be struck between providing detailed feedback and logistic constraints. In general, program officers did an excellent job of explaining the rationale for the award/decline decision, but we felt some of the review summaries could have provided more substantive feedback that would be helpful for PIs.</p>	Yes
<p>7. Additional comments on the quality and effectiveness of the program's use of merit review process:</p> <p>Overall, we were impressed with the quality of the review process and the level of useful feedback provided to PI's. In particular, comments on the 2 NSF criteria (including Broader Impacts) were well and consistently addressed. This is a major improvement over time.</p> <p>The three solicitation-specific criteria (interdisciplinarity at the level of investigators, methods, and impact) were less consistency addressed, particularly by certain reviewers.</p>	

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: In general there seemed a good match between reviewers and proposals. In some cases, however, we had concerns about the match between the expertise of panel members and the topics of proposals -- whether individual reviewers had the deep disciplinary expertise to evaluate the specific scientific details of the proposed research. As noted above, this matching process is challenging as in addition to deep disciplinary expertise reviewers need also the broader perspective to evaluate the research in an interdisciplinary context. The program officers are well aware of this concern and have adopted a number of procedures to address it (described above).</p> <p>We noted in some panels an over-representation of certain disciplines (e.g., psychology) in the review panels. This representation is likely an attempt to match panel composition with the proportion of proposals coming from various disciplines, but this general matching might produce expertise gaps for some specific proposals. Similarly, the panels included no computer scientists although computational modeling was a key component of many of the proposals. This may reflect a constrained vision of multidisciplinary within SBE rather than a more expansive version that extends to fields covered by other directorates.</p>	<p>Yes with exceptions</p>
<p>2. Did the program recognize and resolve conflicts of interest when appropriate?</p> <p>Comments: We checked each case of conflict of interest and it appears that the program did an excellent job of resolving them.</p>	<p>Yes</p>
<p>Additional comments on reviewer selection: Better training or information for reviewers would be helpful to improve the reviewer adherence to procedures and the quality of feedback provided to investigators.</p>	

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

MANAGEMENT OF THE PROGRAM UNDER REVIEW

<p>1. Management of the program.</p> <p>Comments: At the level of program directors and panel review, management seems to be excellent. At the level of the broader strategic objectives of the program, the quality of management is less clear. The lack of clarity about broad strategic objectives makes the evaluation of programmatic success difficult and impairs the ability to excite and engage the research community.</p>
<p>2. Responsiveness of the program to emerging research and education opportunities.</p> <p>Comments: The "Rebuilding the Mosaic" document produced by SBE identified four promising areas of research at the inception of the program. Overall, proposals seem to be well and evenly distributed across the four topical areas identified (Population Change; Sources of Disparity; Communication, Language, and Linguistics; and Technology, New Media, and Social Networks). These topical foci have been adjusted slightly over time, suggesting responsiveness to input and new conditions. However, some formal systems need to be put in place to track and evaluate the value of these foci -- e.g., changes to the structure of final reports and particularly the use of content analysis methods to identify trends, gaps, and opportunities.</p> <p>The COV recommends that formal systems be put in place to evaluate the outcomes of the topical areas.</p>
<p>3. Program planning and prioritization process (internal and external) that guided the development of the portfolio.</p> <p>Comments: IBSS is an outgrowth of the "Rebuilding the Mosaic" project, so from its inception has been guided by feedback from the research community. The core challenge of promoting and nurturing interdisciplinary research is the need to consider how to evaluate the impact and special requirements of interdisciplinary programs. Greater clarity is needed on how broad strategic directions are selected, nurtured, and evaluated.</p>
<p>4. Responsiveness of program to previous COV comments and recommendations.</p> <p>Comments: IBSS was not reviewed in the last COV, but generally speaking excellent progress have been made on improving feedback to investigators (especially in terms of addressing two main review criteria) but some lapses continue. More improvement is needed in these two areas: greater uniformity in reviewer compliance and need to fully meet dwell time goals.</p>

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

<p align="center">RESULTING PORTFOLIO OF AWARDS</p>	<p align="center">APPROPRIATE, NOT APPROPRIATE, OR DATA NOT AVAILABLE</p>
<p>1. Please comment on the demographic and disciplinary diversity of the program’s portfolio.</p> <p>Comments: Low numbers of proposals have been funded by underrepresented minority researchers and minority serving institutions. This in part appears to be a pipeline issue as few proposals of this kind are received as well (3 in the 2013 competition and 2 in the 2014 competition). Participation in competition by Hispanic/Latino researchers is very low. Some consideration of how to increase proposals from these investigators and institutions should be considered.</p> <p>The gender diversity of the proposals (both submitted and awarded) is good but could be better.</p>	<p>Appropriate</p>
<p>2. Are there any major gaps in the program’s award portfolio?</p> <p>Comments: In general, the portfolio seems to be well distributed across the four topical areas. However, better tools characterizing the award portfolio are need to adequately address this question (content analysis, text analysis, tagging breaking down proposals into categories and match with competition priorities).</p>	<p>Data not available</p>
<p>3. Are there particular strengths or weaknesses in the program’s award portfolio?</p> <p>Comments: Better tools characterizing the award portfolio are need to adequately address this question (content analysis, text analysis, tagging breaking down proposals into categories and match with competition priorities).</p>	<p>Data not available</p>

OTHER TOPICS

1. Are the structure and resources (human and financial) of the SBE Office of Multidisciplinary Activities (SMA) adequate to support the program under review?

No. Better tools are needed to evaluate the impact and quality of interdisciplinary research. Interdisciplinary research is expensive and more resources are needed. To attract the most innovative ideas, you need money.

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.

- a. How well do the REU Sites and SPRF/MPRF programs do in expanding research capacity in the SBE sciences?

Not applicable

- b. How well do the SciSIP and BCC programs do in building research communities, i.e., engaging and integrating individuals or groups of individuals into teams, to focus on their domains of the science of science and innovation policy and data-intensive research in the SBE sciences, respectively?

Not applicable

- c. Are the programs designed to support interdisciplinary research (IBSS, SciSIP, SPRF-IBSS) supporting cutting-edge, interdisciplinary research in the SBE sciences? How could they be improved?

Much of the work funded was solid, incremental research. Relatively few proposals seemed to support work that was truly innovative. It was not clear whether the program is stimulating the creation of new interdisciplinary teams versus funding projects that were essentially “business as usual” (work that researchers were conducting in any case in natural and narrow multidisciplinary teams).

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

Steps need to be taken to improve the diversity of panelists, proposals, awards, and attention to geographic, disciplinary balance.

4. Please provide comments on any other issues the COV feels are relevant.
5. NSF would appreciate your comments on how to improve the COV review process, format and report template.

Additional information about outcomes could be useful. For example, for IBSS, an analysis of proposal actions related to the different topical areas would have been useful.

The Committee of Visitors is part of a Federal advisory committee. The function of Federal advisory committees is advisory only. Any opinions, findings, conclusions, or recommendations expressed in this material are those of the Advisory Committee, and do not necessarily reflect the views of the National Science Foundation.

SIGNATURE BLOCK:

For the Directorate for Social, Behavioral, and Economic Sciences Office of Multidisciplinary
Activities 2015 Committee of Visitors

Catherine Eckel, PhD
Chair

**FY 2015 REPORT TEMPLATE FOR
NSF COMMITTEES OF VISITORS (COVs)**

The table below should be completed by program staff.

Date of COV: August 27, 2015 – August 28, 2015
Program/Cluster/Section: Research Experiences for Undergraduates Sites (REU Sites)
Division: SBE Office of Multidisciplinary Activities (SMA)
Directorate: Directorate for Social, Behavioral and Economic Sciences (SBE)
Number of actions reviewed: Awards: 12 Declinations: 28 Other: 0
Total number of actions within Program/Cluster/Division during period under review: Awards: 32 Declinations: 114 Other: 0
Manner in which reviewed actions were selected: <p>A randomized sample of 40 proposals were selected from each program to be reviewed by the COV. First, proposals were sorted by fiscal year and then award status. Second, randomized number generator software¹ was utilized to select the proposals, distributed equally amongst fiscal years. All projects within a collaborative proposal were included in the final sample.</p> <p>3. Urbaniak, G. C., & Plous, S. (2013). Research Randomizer (Version 4.0) [Computer software]. Retrieved on August 2, 2015, from http://www.randomizer.org/</p>

COV Membership

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	James Peoples, PhD	University of Wisconsin, Milwaukee
	Philip Resnik, PhD	University of Maryland
	Philip Rubin, PhD	Haskins Laboratories
	Gail Smith, PhD	City University of New York Graduate Center

**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: Panel and ad hoc review methods were appropriate; site visits were not used. The process was effective and efficient based on rating scale and the fact that panelists reviewed applications prior to the meeting. Such an approach made the process efficient.</p> <p>Based on the proposal review report we wonder if the panel scores are normalized. If scores are not normalized there is the possibility of panelists who consistently award high (low) scores skewing the outcome. It should be noted that quantitative values would be assigned to string values.</p>	<p>Yes</p>
<p>d) Are both merit review criteria addressed</p> <p>a) In individual reviews?</p> <p>The merit criteria are generally addressed in all the reviews that we surveyed. The individual reviews have lengthened over time. For example the length of reviews has increased from a word count of 278.1 to 672.8 for the 2011-2012 to the 2013-2014 period. While this does not reveal enhanced quality of the reviews, it does indicate that more details are provided. Thus, there seems to be improvement since the 2011 COV review.</p> <p>b) In panel summaries?</p>	<p>Yes</p>

<p>The summaries address all the relevant criteria.</p> <p>c) In Program Officer review analyses?</p> <p>There is much more attention to detail in the program officer reviews following the 2011 COV review.</p> <p>Comments: See above</p>	
<p>3. Do the individual reviewers giving written reviews provide substantive comments to explain their assessment of the proposals?</p> <p>Comments: In general, individual reviewers provide substantive comments. The content of the comments have improved markedly over time. This improvement may be in response to the 2011 COV report indicating only a quarter of the reviews provided substantive comments.</p>	Yes
<p>4. Do the panel summaries provide the rationale for the panel consensus (or reasons consensus was not reached)?</p> <p>Comments: Panel summaries improve over time. The more recent summaries provide a rationale for the panel consensus and why the consensus was reached.</p> <p>We notice that there is a certain amount of unevenness in the panel summaries, especially among the set of proposals that were declined. Perhaps the differences are due to 'competitive' and 'noncompetitive' decisions. For example, declined 'competitive' proposals tend to receive more detailed summaries than 'uncompetitive' proposals, but the reasons for this are not clear.</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: The program director clearly describes the shortcomings and positive qualities of the proposals.</p>	Yes
<p>6. Does the documentation to the PI provide the rationale for the award/decline decision?</p>	Yes

<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: Over time there has been an increasing amount of information provided to applicants, especially those who receive declines. Except as noted above where there are differences in declined 'competitive' and 'noncompetitive' proposals.</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: Given the information provided there is considerable balance in terms of discipline and demographics, such as disability, gender, ethnicity and race and geographic location. However, it is difficult to assess whether panelists have the appropriate expertise to review the proposals, A summary report on field expertise beyond discipline would be useful for the COV analysis.</p> <p>Note the above is based on a limited amount information provided, because many reviewers did not identify their ethnicity or race.</p>	<p>Don't know, don't have information.</p>
<p>2. Did the program recognize and resolve conflicts of interest when appropriate?</p> <p>Comments: Generally, conflict of interest seems to have been resolved. Reviewers were informed of potential sources of interest and appropriate remedies were adopted.</p>	<p>Yes</p>
<p>Additional comments on reviewer selection: Even though an effort has been made to identify reviewers' disability, ethnicity and race, little information is known about the ability, ethnic and racial diversity of the pool of reviewers.</p>	

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

MANAGEMENT OF THE PROGRAM UNDER REVIEW
<p>1. Management of the program.</p> <p>Comments: Program seems well managed, however based on the information the funding decisions made within six months declined substantially. After discussions with the program director it was discovered that the declines in the percentage of awards made within six months was due to the government shutdown in 2014.</p>
<p>2. Responsiveness of the program to emerging research and education opportunities.</p> <p>Comments: There have been attempts to engage in collaborative relationships with other programs, such as the Department of Defense. The program director has also worked with other organizations like the Council of Undergraduate Research. Such collaboration creates new opportunities for identifying programs outside the traditional scope of REU.</p>
<p>3. Program planning and prioritization process (internal and external) that guided the development of the portfolio.</p> <p>Comments: PI meetings in 2012 show an attempt to promote more interdisciplinary proposals. However, more of these should be done.</p>
<p>4. Responsiveness of program to previous COV comments and recommendations.</p> <p>Comments: The previous COV recommended that reviewers be given training such as a calibration exercise or at the very least information on the grading of proposals. It suggested that reviewers could benefit from a simple table of grades and outcomes based on past experience.</p> <p>Other recommendations in the 2011 COV report pertaining to the REU were implemented.</p>

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

RESULTING PORTFOLIO OF AWARDS

	<p>APPROPRIATE, NOT APPROPRIATE, OR DATA NOT AVAILABLE</p>
<p>1. Please comment on the demographic and disciplinary diversity of the program’s portfolio.</p> <p>Comments: Given the number of proposals that are submitted, there are some disciplines that are clearly underrepresented with regards to awards based on the number of proposals submitted. For example, political science submitted approximately 18 proposals and received one. In comparison economics submitted 19 proposals and received 6 awards.</p> <p>The previous COV reported that demographic and disciplinary diversity should be improved. However we understand that PIs of proposals are not required to provide demographic information. [Note co-PI could be an African American, and not reported]. Nonetheless, it does appear based on the report we received that the success rate is lower for African Americans and Latinos relative to Whites and Asian-Americans. However, since there is no requirement for PIs to identify themselves in demographic terms, it is difficult to determine if this is a problem or not.</p> <p>In addition, the previous COV reported an overrepresentation of social sciences in terms of research topics. However, given that the overwhelming proportion of proposals is from the social sciences it is not surprising that REUs would largely be in the social sciences. Nonetheless, greater effort should be made to increase the number of proposals that are non-social science or interdisciplinary.</p>	
<p>2. Are there any major gaps in the program’s award portfolio?</p> <p>Comments: The major gap for African-Americans and Latinos remains high.</p>	
<p>3. Are there particular strengths or weaknesses in the program’s award portfolio?</p> <p>Comments: Institutional and geographic diversity remains a strength. However, racial disparities remain a concern.</p>	

OTHER TOPICS

1. Are the structure and resources (human and financial) of the SBE Office of Multidisciplinary Activities (SMA) adequate to support the program under review?

Based on our discussion with the program director, given increasing needs for better outreach there is a need for additional human resources for the program. In particular, someone who could conduct outreach activities would increase the effectiveness of the program.

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.

- a. How well do the REU Sites and SPRF/MPRF programs do in expanding research capacity in the SBE sciences?

Generally it seems yes, based upon limited information we received. However, to answer this question we need much more detailed information. Such as, the number of REU participants who have published their work, or presented at international, national, or regional conference; how many are placed in graduate or professional programs.

- b. How well do the SciSIP and BCC programs do in building research communities, i.e., engaging and integrating individuals or groups of individuals into teams, to focus on their domains of the science of science and innovation policy and data-intensive research in the SBE sciences, respectively?

Not Applicable

- c. Are the programs designed to support interdisciplinary research (IBSS, SciSIP, SPRF-IBSS) supporting cutting-edge, interdisciplinary research in the SBE sciences? How could they be improved?

Not Applicable

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

The previous COV supported the NSF policy of providing autonomy to program directors. Further, the previous COV recommendation suggests that the directorate review the place of multidisciplinary programs and provide them with a core mission, institutional visibility and support. It is unclear whether that recommendation was addressed.

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

- (1) As noted above there should be improvement in the review process, particularly via the introduction of a calibration exercise or more systematic reviewer training.
- (2) Reviewer and PI data should be better collected or reported. For example, currently the information provided only presents primary PI and **not** coPI characteristics.
- (3) More systematic data should be collected and provided on program outcomes and participants productivity.
- (4) As we noted above, there appears to be racial disparities in award sites, and some unevenness in quality of reviewer reports

Recommendations

- (1) Improvements in the review process through a calibration exercise and reviewer training. In terms of reviewer training NSF might consider putting together webinars which exemplify good reviewer practices. Such training might include how proposals have been graded in the past identifying a mix of good and poor proposals.
 - (2) Greater effort should be made to collect data on program outcomes and participant productivity. These measures should be made available in a summary format.
 - (3) For outreach purposes, to increase the participation of minority serving institutions in the REU program we recommend NSF (3a) considers funding a workshop on proposal preparation for REUs, (3b) considers including in the solicitation prioritizing funding consortium of colleges and universities for REUs. For example, a primary purpose of the REU program is to provide research intensive experiences for undergraduates who do not normally have access to the facilities to support such an experience. What better way to meet this purpose than to have a research intensive university as a 'hub' working in cooperation with other non-research intensive colleges and universities. In addition, co-PI's from less research rich institutions benefit from the opportunity to access and use facilities and resources not available at their employing institution.
5. NSF would appreciate your comments on how to improve the COV review process, format and report template.

As noted above, one way to improve the review process is to better match the template with available data. In many cases answers could not be accurately assessed due to limited data provided.

The Committee of Visitors is part of a Federal advisory committee. The function of Federal advisory committees is advisory only. Any opinions, findings, conclusions, or recommendations expressed in this material are those of the Advisory Committee, and do not necessarily reflect the views of the National Science Foundation.

SIGNATURE BLOCK:



For the Directorate for Social, Behavioral, and Economic Sciences Office of Multidisciplinary
Activities 2015 Committee of Visitors

Catherine Eckel, PhD
Chair

**FY 2015 REPORT TEMPLATE FOR
NSF COMMITTEES OF VISITORS (COVs)**

The table below should be completed by program staff.

Date of COV: August 27, 2015 – August 28, 2015
Program/Cluster/Section: SBE Postdoctoral Research Fellowship (SPRF) Program
Division: SBE Office of Multidisciplinary Activities (SMA)
Directorate: Directorate for Social, Behavioral and Economic Sciences (SBE)
<p>Number of actions reviewed:</p> <p>Awards: 13 (Minority Postdoctoral Research Fellowships, MPRF = 6; SBE Postdoctoral Research Fellowships – Interdisciplinary Research in Behavioral and Social Sciences, SPRF-IBSS = 4; SPRF-Broadening Participation, SPRF-BP = 3)</p> <p>Declinations: 27 (MPRF = 14; SPRF-IBSS = 6; SPRF-BP = 7)</p> <p>Other: 0</p>
<p>Total number of actions within Program/Cluster/Division during period under review:</p> <p>Awards: 42 (MPRF = 16; SPRF-IBSS = 17; SPRF-BP = 9)</p> <p>Declinations: 147 (MPRF = 57; SPRF-IBSS = 66; SPRF-BP = 24)</p> <p>Other: 0</p>
<p>Manner in which reviewed actions were selected:</p> <p>A randomized sample of 40 proposals were selected from each program to be reviewed by the COV. First, proposals were sorted by fiscal year and then award status. Second, randomized number generator software¹ was utilized to select the proposals, distributed equally amongst fiscal years.</p> <p>4. Urbaniak, G. C., & Plous, S. (2013). Research Randomizer (Version 4.0) [Computer software]. Retrieved on August 2, 2015, from http://www.randomizer.org/</p>

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**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.

<p align="center">QUALITY AND EFFECTIVENESS OF MERIT REVIEW PROCESS</p>	<p align="center">YES, NO, DATA NOT AVAILABLE, or NOT APPLICABLE</p>
<p>1. Are the review methods (for example, panel, ad hoc, site visits) appropriate?</p> <p>Comments: Based on the stated program goals and the high levels of attention paid to the merit review criteria by each of the reviewers and the Program Officer, we find the review methods for SBE Postdoctoral Research Fellowship program to be highly efficient.</p>	<p>Yes</p>
<p>2. Are both merit review criteria addressed</p> <p>a) In individual reviews? Each reviewer is asked to evaluate the strengths and weaknesses of the proposal with respect to intellectual merit and broader impacts.</p> <p>b) In panel summaries? One of the reviewers on the panel is assigned to write a summary of the discussion, which is disseminated to and edited by the other two reviewers. This summary reflects the perspective of all reviewers with respect to the strengths and weakness of intellectual merit and broader impacts of the proposal.</p> <p>c) In Program Officer review analysis? The Program Officer (PO) analysis takes into account all of the reviews, explicitly considering both intellectual merit and broader impacts as</p>	<p>Yes</p> <p>Yes</p> <p>Yes</p>

<p>appropriate for the SPRF program and for the appropriate track: IBSS (Interdisciplinary) or BP (Broadening Participation).</p> <p>Comments: The feedback from the reviewers regarding the strengths and weaknesses of the merit criteria is especially useful to the PI whose project is declined. In particular, s/he receives a substantive rationale for why the proposal is not funded and is offered suggestions for improvement.</p>	
<p>3. Do the individual reviewers giving written reviews provide substantive comments to explain their assessment of the proposals?</p> <p>Comments: In the proposals reviewed by this COV, the reviewer provides an overview of the proposal. Individual aspects receive substantial commentary, assessing what was good and what was lacking about the proposal. This is followed by a summary statement pointing to specifics that justify the reviewer ranking.</p>	<p>Yes</p>
<p>4. Do the panel summaries provide the rationale for the panel consensus (or reasons consensus was not reached)?</p> <p>Comments: The panel summary results from a discussion by the three assigned reviewers and in cases where a consensus among the three panelists is difficult to reach, a fourth reading is sought from another panelist before arriving at a final decision.</p> <p>In our opinion, this guarantees the integrity of the process.</p>	<p>Yes</p>
<p>5. Does the documentation in the jacket provide the rationale for the award/decline decision?</p> <p>COMMENT: We note that the jacket documentation of each of the SPRF proposals, including individual reviews, panel summaries and the program officer analysis, each provide a review of strengths and weaknesses of the proposals and the rationale for the final recommendation.</p>	<p>Yes</p>
<p>6. Does the documentation to the PI provide the rationale for the award/decline decision?</p> <p>Comments: Documentation to the PI includes the panelist reviews, the panel summary and the PO review analysis, each of which provides the rationale for the final decision.</p> <p>The final recommendation for the award/decline decision is based on the substantive comments of the reviewers and the judgment of the PO, who takes into account the specifics of the program scope, the need to maintain appropriate balance among</p>	<p>Yes</p>

<p>broadening participation the subfields, of the proposals reviewed by the panel and the total amount of funds available to the program for new proposals, as well as general NSF policies and guidelines.</p> <p>The SPRF COV judges this procedure to be transparent and has no further recommendations to make.</p>	
<p>7. Additional comments on the quality and effectiveness of the program’s use of merit review process:</p> <p>In addition to the standard NSF merit review criteria (Intellectual Merit and Broader Impacts), SPRF reviewers/panelists also address solicitation-specific review criteria. The criteria regarding mentor fit, the postdoctoral mentoring plan and the data management plan enhance the reviewer's ability to assess the training environment and potential for the postdoc's growth to independence.</p> <p>The criteria regarding IBSS and BP track information offer the PI the opportunity to detail (a) aspects (direct and/or indirect) of the project that increase participation of under-represented groups, as well as social context and outcomes, and (b) the nature of the interdisciplinary research that is proposed in emerging fields.</p> <p>We regard the inclusion of these additional review criteria as a strength of the SPRF that enables the reviewer to appropriately evaluate the proposed project/candidate/PI and intended outcomes against the solicitation criteria.</p>	

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.

<p>SELECTION OF REVIEWERS</p>	<p>YES , NO, DATA NOT AVAILABLE, or NOT APPLICABLE</p>
<p>1. Did the program make use of reviewers having appropriate expertise and/or qualifications?</p> <p>Comments: The SPRF program officer strives to identify experts spanning all of the SBE disciplines for each panel in order to provide the appropriate match to the proposals received each year.</p> <p>For the period under review, the discipline of some reviewers is listed as “other” which</p>	<p>Yes</p>

<p>does not make it possible to comment comprehensively to this question. Therefore, we recommend that data be collected to clarify what the designation “other” constitutes in order for the COV to provide appropriate comments concerning reviewer’s expertise and qualifications.</p>	
<p>2. Did the program recognize and resolve conflicts of interest when appropriate?</p> <p>Comments: Guidance on conflicts of interest (COIs) is provided to panelists by NSF staff, and panelists sign COI statements, prior to any review assignments. When a panelist has a conflict of interest with a given proposal, whether the COI was specific to that proposal or more generally to the institution that submitted the proposal, this conflict is entered into NSF’s electronic system and the panelist cannot access that proposal. When the panel discusses proposals during the panel meeting, a panelist with a COI leaves the room and does not participate in those discussions. When the Program Director has a COI, the proposal is assigned to a different Program Director to manage the process, including seeking reviews, running the panel discussion during the meeting, writing the review analysis and making the final recommendation.</p> <p>The evidence provided to the COV suggests that COIs were recognized and handled appropriately.</p>	<p>Yes</p>
<p>Additional comments on reviewer selection:</p> <p>The program compiles reviewer self-reported data on disability, gender, ethnicity and race. As many reviewers choose not to report this information, these data do not present the full diversity of the reviewer pool.</p> <p>The COV therefore recommends that SBE seek to obtain this data from reviewers who do not self-report in these categories from other NSF data sources. This is important to the SPRF program where capacity building is central to its mission. We recommend that a statement regarding the importance of providing demographic information in light of the Broadening Participation programmatic goal be included in the instructions to reviewers.</p> <p>A review of information provided to the COV, although incomplete, reveals appropriate diversity.</p>	

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: NSF strives to determine 70% of the funding decisions within 6 months of proposed receipt. In nearly every case, dwell times were under 6 months. Because SPRF proposals have been co-funded, the occasional proposal(s) requiring longer dwell time is expected.

Overall application rates have been increasing over the years 2011-2014 and award rates have kept pace given an increased budget. Additionally, some funding has come from the International Science and Engineering (ISE) program. If the Fellow will spend nine months or more of his/her tenure in a foreign country engaging in a true international collaboration (as opposed to simply going to a foreign location for data collection, for example) then the ISE program may be interested in supporting the Fellow. The program occasionally receives some co-funding from EPSCoR and other SBE programs.

Judged by the above, the COV feels very positively about the current management of the program.

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

Comments: The goals of SPRF combine support of emerging research and education opportunities in both the IBSS and BP tracks.

The IBSS Track focuses on emerging fields of research through its interdisciplinarity, which is relatively unique among postdoctoral fellowship programs.

The BP Track provides education opportunities through its focus on increasing the diversity of researchers in the SBE disciplines, in order to include greater numbers of women, persons with disabilities, African Americans, Hispanics, or Native Americans including Alaska Natives and Native Pacific Islanders.

SPRF proposals have the potential to combine elements of both tracks. For example, interdisciplinary research in behavioral and social services may contain aspects of Broadening Participation.

We conclude, therefore, that the responsiveness of SPRF to emerging research and education opportunities is comprehensive and appropriate.

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

Comments: To achieve the program priorities of fostering interdisciplinary research and broadening participation in SBE science, the current SBE Postdoctoral Research Fellowship (SPRF) program, which makes awards to institutions, has evolved from the original Minority Postdoctoral Research Fellowship (MPRF) program, which made awards to individual Fellows. As indicated above, the SPRF offers two tracks which match program priorities. SPRF funding provides two years of financial support and benefits directly to the fellow through the institution's infrastructure. The funding underpins the stated priority of the program to prepare newly minted PhDs for scientific careers. As further development, the FY 2015 solicitation has been revised to improve the proposal submission process and the structure of the

<p>proposal. The COV commends SPRF for such constant vigilance in the development of its portfolio.</p>
<p>4. Responsiveness of program to previous COV comments and recommendations.</p> <p>Comments: A Committee of Visitors (COV) convened on December 15-16, 2011 at the National Science Foundation to review the three programs in the SBE Office of Multidisciplinary Activities (SMA): Science of Science and Innovation Policy (SciSIP), the Research Experiences for Undergraduates (REU) Sites, and the SBE Minority Postdoctoral Research Fellowship (MPRF) program. This was the first SMA COV as previous COVs took place before SMA was created.</p> <p>SMA responded to each of the COV's comments and recommendations in 2011 and provided an update in September 2013 on actions taken. SBE accepted many of the recommendations. When the recommendations of the COV were not taken, SBE provided a clear rationale, which we find to be appropriate.</p>

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

RESULTING PORTFOLIO OF AWARDS	APPROPRIATE, NOT APPROPRIATE, OR DATA NOT AVAILABLE
<p>1. Please comment on the demographic and disciplinary diversity of the program’s portfolio.</p> <p>Comments: A review of the 2011-2014 awards and declines in the SPRF portfolio shows a wide diversity in demographics, geographic location and in disciplines. The COV regards this as a particular strength of the SPRF program.</p> <p>Although the previous COV commented that psychology was overrepresented, this may persist due to the BRAIN Initiative, a factor outside the control of SBE. Additionally, the SBE response to this criticism provides the rationale for the prevalence of psychology, particularly in the MPRF portfolio. This COV judges that providing outreach and opportunity to all is best practice and very commendable. The current trend in postdoctoral training seems to include more disciplines adopting the training model from the biological sciences and more postdocs may apply in the future and create a larger distribution of SBE disciplines.</p> <p>Data Source: Jackets, SPRF Program Summary, Table of Awarded Proposals</p>	<p>Appropriate</p>
<p>2. Are there any major gaps in the program’s award portfolio?</p>	<p>Appropriate</p>

<p>Comments: No major gaps have been detected, however the COV recommends that a table describing the distribution of awards/declines by year per discipline would be useful in identifying funding trends (if any).</p> <p>While there is some evidence of the influence of overarching NSF programs (e.g. the BRAIN Initiative) on the proposals received, the portfolio has reasonable breadth given the wide range under SBE.</p>	
<p>3. Are there particular strengths or weaknesses in the program’s award portfolio?</p> <p>Comments: In general we find that the SPRF program has been successful in increasing the diversity of researchers who participate in NSF programs in SBE.</p> <p>Weaknesses: SPRF-BP attracts fewer proposals than SPRF-IBSS, and experienced a reduction in number of applications between 2011-2012 (MPRF) and 2013-2014 (BP). Diversity of the applicant pool is dependent on the numbers of particular minority groups going through graduate school within the SBE fields. We recommend that the program obtain these data from the Survey of Earned Doctorates to identify regions for targeted outreach.</p> <p>In particular, the disproportionately low number of awards granted to minority serving institutions is a cause for concern. Targeted outreach may resolve this issue.</p> <p>We therefore recommend that the SPRF program officer or her designee extend the program's outreach activities to minority serving institutions to include grant writing workshops. One possible opportunity is to host regional grant writing training events targeted to institutions with graduate and postdoctoral training programs in SBE disciplines that are developed in collaboration with former awardees, postdoctoral program offices, and/or professional societies, such as AAAS or the National Postdoctoral Association. This would provide the training in the preparation of competitive proposals under the guidelines of this program and decrease a perceived barrier to submission.</p>	

OTHER TOPICS

1. Are the structure and resources (human and financial) of the SBE Office of Multidisciplinary Activities (SMA) adequate to support the program under review?

This is questionable. In some cases SPRF proposals have been co-funded with other programs, which may impact the number of worthy proposals that can be funded and, at the very least, may depend in a disadvantageous way upon other program budgets. However, collaborative funding appropriate for interdisciplinary proposals given the current, challenging funding climate is understandable. We recommend that SBE consider making adjustments in the SPRF budget to ensure that all competitive proposals that increase diversity are funded.

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.

a. How well do the REU Sites and SPRF/MPRF programs do in expanding research capacity in the SBE sciences?

This is a major SPRF program goal and NSF is to be commended for its commitment to this area. We do, however, see a place for improvement. We have already noted the need for more extensive outreach in the form of grant writing workshops conducted at minority-serving institutions in order to improve the number and quality of SPRF-BP proposals.

Outreach to late stage graduate students or first year postdocs in all SBE fields with grant writing workshops would improve fellowship preparation for all trainees who participate, whether they apply for NSF or other funding. In person training/visits are effective, but travel can be time consuming and costly. Therefore, this may be achieved through webinars.

Additional outreach opportunities may include collaborating with the NPA (National Postdoctoral Association), SACNAS, professional societies, and former awardees to develop a mentoring program to be put into place to help facilitate improved proposals from grant writing workshop participants. Mentor training should be provided to the volunteer mentors (e.g. National Research Mentoring Network <https://nrmnet.net/>).

Finally, expanded implementation of use of social media could be developed through LinkedIn and/or Twitter, to promote learning, discussion and dissemination of information related to grant writing and other career development topics.

We therefore recommend implementation of outreach in the form of grant writing workshops supported by a mentor and through social media networking to the SPRF program in order to increase diversity and research capacity in SBE disciplines.

b. Are the programs designed to support interdisciplinary research (IBSS, SciSIP, SPRF-IBSS) supporting cutting-edge, interdisciplinary research in the SBE sciences? How could they be improved?

Yes. The SPRF-IBSS track attracts strong proposals in interdisciplinary SBE research due to the clear instruction in the program solicitation. Many of these proposals reflect cutting edge research integrating SBE Sciences with other disciplines.

How could they be improved?

Conducting outreach through grant writing programs, as identified above, will have the additional benefit of increasing the number of competitive proposals in this category as well.

Additionally, we recommend tracking outcomes of funded SPRF-IBSS proposals to evaluate how well the program meets its goals.

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

An analysis of the ratio between the number of proposals that are funded and those that are declined would be useful in an effort to determine the exact impact of budget as opposed to proposal quality in award/decline decisions.

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

Questions were raised about whether there is a sufficient pool from which to draw proposals in the SPRF-BP Track. To address this issue we recommend that the SBE Postdoctoral Program consider collaboration with Foundation programs such as AGEP (Alliances for Graduate Education and the Professoriate) in the Education and Human Resources (EHR) Directorate and institutional SBE Sciences programs located in the SBE Directorate. These programs support under-represented graduates seeking PhD's in STEM and in SBE sciences who may be interested in pursuing postdoctoral training after graduation and this would appear to be a natural collaborative opportunity to increase diversity in SBE disciplines.

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

The COV review process as it stands seems very comprehensive.

The COV would like to thank the SBE program staff who put together the information and analyses made available to the COV. The COV commends the NSF staff for providing access to review materials well in advance of the meeting to provide sufficient time to develop timely response, be informed to ask relevant, thoughtful questions in person and prepare the report in a timely fashion.

Of particular value in the COV review process was the webinar, links to former COV reports, and contact information for other members of the committee. Program staff were professional and responsive to the committee's questions during the onsite visit.

The Committee of Visitors is part of a Federal advisory committee. The function of Federal advisory committees is advisory only. Any opinions, findings, conclusions, or recommendations expressed in this material are those of the Advisory Committee, and do not necessarily reflect the views of the National Science Foundation.

SIGNATURE BLOCK:



For the Directorate for Social, Behavioral, and Economic Sciences Office of Multidisciplinary
Activities 2015 Committee of Visitors

Catherine Eckel, PhD
Chair

**FY 2015 REPORT TEMPLATE FOR
NSF COMMITTEES OF VISITORS (COVs)**

The table below should be completed by program staff.

Date of COV: August 27, 2015 – August 28, 2015
Program/Cluster/Section: Building Community and Capacity for Data-Intensive Research in the Social, Behavioral and Economic Sciences and in Education and Human Resources (BCC)
Division: SBE Office of Multidisciplinary Activities (SMA)
Directorate: Directorate for Social, Behavioral and Economic Sciences (SBE)
<p>Number of actions reviewed:</p> <p>Awards: 20</p> <p>Declinations: 34</p> <p>Other: 0</p>
<p>Total number of actions within Program/Cluster/Division during period under review:</p> <p>Awards: 38</p> <p>Declinations: 145</p> <p>Other: 0</p>
<p>Manner in which reviewed actions were selected:</p> <p>A randomized sample of 54 proposals were selected from each program to be reviewed by the COV. First, proposals were sorted by fiscal year and then award status. Second, randomized number generator software¹ was utilized to select the proposals, distributed equally amongst fiscal years. Proposals without external merit review (e.g., EAGERs, RAPIDs) were excluded for review and all projects within a collaborative proposal were included in the final sample.</p> <p style="text-align: center;">d) Urbaniak, G. C., & Plous, S. (2013). Research Randomizer (Version 4.0) [Computer software]. Retrieved on August 2, 2015, from http://www.randomizer.org/</p>

COV Membership

	Name	Affiliation
COV Chair	Catherine Eckel, PhD	Texas A&M University
COV Members:	Tracy Jennifer Costello, PhD	University of Texas MD Anderson Cancer Center
	Peter H. Ditto, PhD	University of California, Irvine
	Barbara Entwisle, PhD	University of North Carolina at Chapel Hill
	Diana Hicks, DPhil	Georgia Institute of Technology
	John Ishiyama, PhD	University of North Texas
	Richard Lempert, PhD	University of Michigan and the Brookings Institution
	James Peoples, PhD	University of Wisconsin, Milwaukee
	Philip Resnik, PhD	University of Maryland
	Philip Rubin, PhD	Haskins Laboratories
	Gail Smith, PhD	City University of New York Graduate Center

**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.

<p align="center">QUALITY AND EFFECTIVENESS OF MERIT REVIEW PROCESS</p>	<p align="center">YES, NO, DATA NOT AVAILABLE, or NOT APPLICABLE</p>
<p>1. Are the review methods (for example, panel, ad hoc, site visits) appropriate?</p> <p>Comments: Our assessment is that the review methods employed here worked as they were intended. We would emphasize that, for a program like BCC in particular, which is intended to be broad, cross cutting, and to bridge across disciplines, the panel conversation is quite important, and is more difficult to do well without the panelists being physically co-present in a group. This might suggest a greater than usual level of effort to get panelists to NSF to participate on the panel in person as compared with other programs. Similarly, it is important to have the program officer providing guidance to the panelists, including on-the-fly direction as the conversation evolves.</p> <p>For the same reason, when possible it’s also best to avoid ad hoc reviewers who won’t be part of the panel conversation, though of course that may be necessary at times. Appropriately, such reviewers were used fairly sparingly for BCC.</p>	<p>Yes</p>

<p>2. Are both merit review criteria addressed</p> <p>a) In individual reviews?</p> <p>Mixed. Individual reviewers always addressed intellectual merit. They did not always address broader impacts.</p> <p>b) In panel summaries?</p> <p>Yes. The BCC reviews were conducted by in-person panels. The in-the-room process reinforces (enforces) the need to address both criteria, intellectual merit and broader impacts.</p> <p>c) In Program Officer review analyses?</p> <p>Yes. Program Officer reviews utilize a boilerplate that forces each merit criterion to be addressed explicitly. The handling of broader impacts in proposals did make a difference to the outcome in some instances.</p> <p>Comments: While the panel summaries and Program Officer review analyses were consistently complete in their coverage of the merit review criteria, this cannot be said of the individual reviews, where Broader Impacts were not always addressed. It is difficult to know why this is the case. One possibility is that reviewers may not understand what is meant by broader impacts. If this is not done already, NSF should provide guidance about the evaluation of broader impacts when instructions are circulated to reviewers. Another possibility is that reviewers may not think that broader impacts are important to the outcome of the review. This is not the case. When funding is scarce, other things equal, proposals that better address broader impacts are more likely to be funded. We saw several instances where this appeared to be the case. Given this, then, to be fair, reviewers need to be attuned to broader impacts as a review criterion.</p>	Yes
<p>3. Do the individual reviewers giving written reviews provide substantive comments to explain their assessment of the proposals?</p> <p>Comments: Note that reviewer comments play a dual role, not only supporting the assessments and eventual funding decisions, but also providing feedback to submitters. That is particularly important in multidisciplinary settings like this one, where, in fact, the quality of reviewer comments may also be a factor in communicating clearly with, and even helping educate, other panelists.</p> <p>Although any review process the quality of reviewers' commentary is going to be mixed, it might be worth considering ways that the panel process could encourage or even incentivize greater attention to the quality of the commentary. One straightforward mechanism, for example, would be to modify the FastLane panel</p>	Yes

<p>system so that panelists can anonymously rate others' reviews using an Amazon-like 5-star system. For example:</p> <p>How would you rate the quality of this review overall? </p> <p>How helpful will this review be to the proposers? </p> <p>Reputation mechanisms like this have a good track record of incentivizing quality, and ratings could also spur in-the-room conversations about not just the content but the quality of the comments and how to make it better.</p> <p>It is possible that it would make sense to use these ratings only during the panel process, rather than creating an archival record of them, e.g. to avoid a potential impact on researchers' willingness to serve as reviewers.</p>	
<p>4. Do the panel summaries provide the rationale for the panel consensus (or reasons consensus was not reached)?</p> <p>Comments: In general, the panel summaries tend to a good job of this. The NSF process for panel review, which requires everyone to read and agree with the written review on the spot, helps ensure this outcome.</p> <p>SBE might want to consider adding an element from the NIH review process. In the NIH study sections, at the end of the discussion of each proposal, the chair is charged with summarizing the strengths and weaknesses identified by the reviewers. This has the advantage of focusing reviewers (again) on proposal strengths. Otherwise, reviewers remember best what transpired at the end of the discussion, which typically focuses on all of the potential weaknesses of the proposed project. We understand that this process may be used in some panels, but based on what we have seen, it does not appear that it is used in all.</p>	Yes
<p>5. Does the documentation in the jacket provide the rationale for the award/decline decision?</p> <p>Comments: The panel summaries are very mixed in quality when it comes to completeness of the rationale. However, the review analysis by the program officer generally does a solid job explaining the decision.</p> <p>It appears that for this program, some ambiguity in the program's stated goals (whether projects should or should not include actual building of computational infrastructure; see above) may have created additional complexity in handling the usual mix of viewpoints one would expect in a multidisciplinary panel – in this case, especially, regarding the importance (or not) of technical innovation. There seems to have been a tension between wanting to value the perspective of computationally oriented panelists (for whom technical innovation is often a core value) and wanting to</p>	Yes

<p>ensure that the program be able to support creation of high impact SBE resources even if they employed only pedestrian methods from a computational perspective. Clear guidance in the statement of the program’s vision, reinforced by the program officer in the lead-in to the panel discussion, would help.</p> <p>There are occasionally cases where the program officer overrides the recommendation of the panel or tips the balance on otherwise comparably rated proposals. For example, in one pair of proposals with similar ratings, the choice was to fund the one that was stronger on broader impacts, and in another case, a judgment call not to fund was based largely on the opinions of ad hoc reviewers in the project’s area of specialty, since the panel lacked significant expertise in that area. Decisions like these appear to be made appropriately and thoughtfully, and the rationales are expressed clearly in the review analysis.</p>	
<p>6. Does the documentation to the PI provide the rationale for the award/decline decision?</p> <p>Comments: In general yes, although these are only as good as the reviews they’re based on.</p> <p>We expressed some mild concern earlier about the coverage, depth, and detail of the individual reviews. Based on our experience as submitters of NSF proposals, we know that reviews that do not meet the highest standards are frustrating, especially if the proposal is declined. They may raise questions in the minds of the submitters about the adequacy and fairness of the review. We recommend that NSF consider reframing the review as also providing education for submitters and input into the development of SBE science generally rather than simply an evaluation, especially since many will not ultimately be funded.</p> <p>It is also worth noting that the written feedback is only part of a larger cycle of feedback, which includes conversation with the Program Officer(s) and (potentially) subsequent revision, resubmission, and review.</p>	Yes
<p>7. Additional comments on the quality and effectiveness of the program’s use of merit review process:</p> <p>A previous report recommended that NSF examine other models of merit review such as those at DARPA and NIH, but neither the original response nor the 2013 update indicate that this was done. As noted above, there may be elements from other processes that are worth integrating, even without making large scale changes to a process that is generally working well. For example, there may be significant value in adding more explicit structure around identification of strengths and weaknesses (similar to NIH reviews), and making sure that strengths receive appropriate prominence (since discussions often focus on weaknesses).</p>	Yes

<p>A more general issue to consider is balance between appropriately favoring PIs who have demonstrable success in previous NSF-sponsored projects, versus bringing new (or new to NSF) researchers into the fold. It might be worthwhile to include prior NSF experience in the program summary statistics, rather than just simple seniority, i.e., years post-highest degree.</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: Yes. An evaluation of the three review panels convened for this program shows a breadth of expertise that is impressive. Each panel had representation of SBE and computational scientists in roughly equal numbers. The balance did not change over time, even after CISE ceased to provide co-funding for the program.</p>	Yes
<p>2. Did the program recognize and resolve conflicts of interest when appropriate?</p> <p>Comments: As far as we can tell, there were no problems here. There were definitely cases where conflicts were noted and seem to have been handled appropriately.</p>	Yes
<p>Additional comments on reviewer selection:</p> <p>As noted, the three panels had appropriate representation of SBE and computational science. Scientists from the best universities were especially well represented, but we hasten to say that we thought that this was entirely reasonable. The panels do not appear to have been very diverse with respect to race or ethnicity, although substantial numbers of panelists declined to report demographic categories.</p>	

<p>We recommend that NSF organize information about reviewers in a way that would facilitate a better assessment of their credentials. Information such as discipline of PhD, department, and university are present in the records and could be assembled to describe the panels with helpful specificity. It may also be helpful to explore ways of distinguishing the department and discipline of PhD from current area of emphasis/expertise (e.g. via self-report).</p> <p>We also recommend that NSF undertake an analysis of the recruitment of reviewers. It would be helpful to know how many reviewers were solicited initially, how many responded, how many said yes, and reason for not participating among those who responded (e.g., schedule conflict, too busy, etc.). It would be helpful to look at characteristics of potential reviewers such as gender, race, and ethnicity; time since PhD; department and institution; NSF experience with respect to previous participation in workshops, review panels, submission of proposals to NSF, and whether awarded. Is the reason for lack of racial and ethnic diversity on the BCC panels a consequence of the pool of reviewers initially recruited, differential participation once recruited, or some other factor?</p>	
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III. Questions concerning the management of the program under review. Please comment on the following:

<p>MANAGEMENT OF THE PROGRAM UNDER REVIEW</p>
<p>1. Management of the program.</p> <p>Comments: In general the program appears to have been well managed, with appropriate choices being made in terms of reviewer selection, dealing with the review process (e.g. conflicts), documenting rationales for decisions, etc.</p> <p>It seems fair to say, however, that the definition of the program created some challenges. In particular, a key element of the program's vision was that it be viewed as a <i>preparatory</i> step in a multi-program process, bringing together people across a number of disciplines together as a community to envision what kinds of resources would advance their science, but leaving the actual construction of those resources for a later program. This led to a bit of ambiguity in the call, which both explicitly said projects should not build data resources, but then also said that the program's goal was to "focus on" building broad and large scale infrastructure and that it was acceptable to focus on data collection. It appears that a number of individual projects found the right balance for themselves by developing prototypes. This is outcome is consistent with computational best practice, which would argue that the best outcomes rely on a fairly tight iterative cycle of discussing needs/requirements, prototyping, evaluating, and then iterating again, all within the scope of a single project. It may be that, even though technical <i>innovation</i> was not a goal of the program, a greater involvement of people from the computational side of NSF in its definition might have led to this kind of thinking being included in proposals more uniformly and more</p>

explicitly.

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

Comments: The BCC program was specifically designed in anticipation of emerging opportunities, stimulating collaborations between SBE and CISE scientists and creating a vision and the community to help make that vision a reality. In contrast to SBE's longstanding investments in the GSS, PSID, and ANES (survey infrastructure), it is clear that the future will also involve new forms of data not specifically designed for research, e.g., administrative data, transactional data, sensor data, etc. The BCC program was intended to get the SBE community to reach for this. Although it is too soon to know for sure (final reports are just beginning to come in), it is our impression that the BCC program did move SBE in this direction. *This is essential because other fields such as computer science and physics are beginning to apply their tools to SBE data. Without capable SBE scientists to collaborate and critique this other work, there is a risk of damage if SBE data are analyzed in an uninformed way.* The BCC program, and others, helps to build this capability, but speed is an issue.

The BCC program was not explicitly focused on education, although clearly, in building new cross-disciplinary collaborations, an education function is fully implied.

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

Comments: This was a process that included a balance of external and internal input – bringing big data in as an area for investment within the general Mosaic framework. The process successfully produced a program that emphasizes interdisciplinarity within SBE. However, it may be worth giving further consideration to a broader notion of interdisciplinarity that crosses directorates. This includes, for example, drawing on the computational side more extensively (which connects with earlier comments regarding the iterative cycle of development). However, it also includes the other direction, recognizing that other areas are *doing* social science in various forms but not necessarily recognizing the contribution that the SBE community can and should be making to it. This could be operationalized within NSF, for example, by finding ways to integrate SBE people into reviews in other directorates.

Another question is how specifically one would like initial planning to identify hoped-for outcomes. There is a balance: on the one hand, one would like the program definition to be sufficiently open-ended that it is possible to encourage serious innovation, even beyond what was anticipated when the program was created. On the other hand, it is difficult to answer the question of how successful a program was without a clear definition of its goals and the metrics for those goals. This is something that would be worth considering in follow-on programs and activities.

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

Comments: The previous COV recommended that “NSF examine other models” of merit review such as those at DARPA and NIH. We would encourage continued thinking about possible lessons learned from other models, and above we have suggested some specific ideas, e.g. the explicit inclusion of strengths

and weaknesses across the board in the review process.

A recommendation was to promote collaboration across different types of colleges and universities. It would be helpful to have metrics associated with these forms of collaboration (useful within and across institutions).

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

<p style="text-align: center;">RESULTING PORTFOLIO OF AWARDS</p>	<p style="text-align: center;">APPROPRIATE, NOT APPROPRIATE, OR DATA NOT AVAILABLE</p>
<p>1. Please comment on the demographic and disciplinary diversity of the program's portfolio.</p> <p>Comments: We recommend that NSF approach this question differently in terms of the statistics it assembles. There are two issues. The first is the focus on the PI rather than the team of scientists assembled. When a single institution is involved in a project, it is important to know about the co-PIs as well as the PI. The second issue is the focus on proposals rather than projects. When multiple institutions are involved in a project, it is important to know about the total group of PIs and co-PIs involved. This is particularly important for a program such as BCC, where the goal is to create teams and build communities.</p> <p>Here is an example. Based on a quick analysis of the sample of jackets provided for our review, it was evident that teams were strongly preferred. For 2014, three projects were awarded: one involving a PI and 3 co-PIs; two others involving 3 PIs and one co-PI. In each instance, four investigators were involved. For 2013, three projects were awarded: two involving a PI and 4 co-PIs; and one involving 3 PIs and 1 co-PI. For 2012, again three projects were awarded: one involving 5 PIs and 2 co-PI; a second involving 2 PIs and 2 co-PIs; and one involving one PI and three co-PIs. For each year, the teams awarded were larger on average than those assembled for proposals that were declined. This is important information both for program staff (a measure of success, given the goals of the program) and for submitters (who could increase their chances if they knew this.)</p> <p>It would also be helpful to have measures of the diversity of these teams. For instance, how many different departments/disciplines are involved? A team of three may be more diverse than a team of five if all of the former come from different departments/disciplines and all of the latter come from a single department/discipline. Given the importance of team science for the future,</p>	<p>Appropriate</p>

<p>statistics that track the size and diversity of teams are critical. Teams may also function as career development opportunities for junior scientists as well as students and postdocs. While PIs might be fairly senior, it is important to know about the involvement of junior faculty as co-PIs.</p> <p>Regarding the subject areas of awards, the table shows something of a skew toward sociology. However, as we have noted, the numbers may not be sufficiently informative. We recommend re-computing and reanalyzing as appropriate.</p>	
<p>2. Are there any major gaps in the program’s award portfolio?</p> <p>Comments:</p> <p>As noted above, a gap actually designed into the program was that it did not involve people actually building resources. It appears that this gap has, in a number of cases, been filled organically by project teams developing prototypes as part of their project activities.</p>	No
<p>3. Are there particular strengths or weaknesses in the program’s award portfolio?</p> <p>Comments: We are unable to answer this question. There are two problems. First, we were only given a sample of the portfolio to review. Second, because proposals rather than projects were sampled, our sample is smaller than it initially appeared and potentially weighted toward cross-institution collaborations (which would show up multiple times). See discussion above.</p>	

OTHER TOPICS

1. Are the structure and resources (human and financial) of the SBE Office of Multidisciplinary Activities (SMA) adequate to support the program under review?

The dropping out of other directorates over time is a disappointment, as was the lack of more substantive involvement from CISE. Notwithstanding that the goal was to build capacity, rather than technical innovation, having computational/technological considerations explicitly represented in the formulation of the program’s goals seems important for a program with the ultimate aim of producing large-scale technological infrastructure, rather than viewing the community-level envisioning and the infrastructure building as separate, pipelined activities.

Something to consider might be DARPA’s process of workshoping potential programs as the program vision is being developed, by bringing experts and/or stakeholders together for a day or two to discuss the issues and inform the NSF personnel developing the program ideas.

Given the essential importance of data – that SBE expertise be integrally part of the increasing shift toward “big data” methodology, rather than leaving it to computer scientists and physicists – it is crucial that resources be directed toward SBE involvement in the advancement of this science.

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.

- a. How well do the REU Sites and SPRF/MPRF programs do in expanding research capacity in the SBE sciences?
- b. How well do the SciSIP and BCC programs do in building research communities, i.e., engaging and integrating individuals or groups of individuals into teams, to focus on their domains of the science of science and innovation policy and data-intensive research in the SBE sciences, respectively?

We were not really given data on how successful the awarded proposals were, and in the absence of final reports to review it is difficult to formulate an impression. It appears [from conversation with the POs] that projects have been successful with respect to typical, program-nonspecific outcomes such as publications, presentations, etc.; that most projects have succeeded in at least one clearly definable community-building activity such as a cross-disciplinary workshop or a public Web site reaching out the broader community; and that most are actively prototyping some form of tool or dataset.

Since the vision of the program was as a preparatory step, it may be that the ultimate measure of its success will be the nature, number, and quality of proposals to the RIDIR program. It is, however, possible that the program should also consider introducing explicit intrinsic metrics, such as the size and disciplinary diversity of the community reached by the project’s activities.

- c. Are the programs designed to support interdisciplinary research (IBSS, SciSIP, SPRF-IBSS) supporting cutting-edge, interdisciplinary research in the SBE sciences? How could they be improved?

See above notes regarding the broader notion of interdisciplinarity and the involvement of other directorates.

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

The most significant theme to have emerged is the importance of accurate data that captures what needs to be measured to assess the program’s success. This includes, for example, capturing the characteristics of the entire team and project, and incorporating the concepts of team science and interdisciplinary collaboration/diversity.

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

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

The overall process worked well. One suggestion would be to enable a bulk download for (relevant subsets of) the eJacket materials – having to go constantly through multiple clicks in the user interface is inefficient (particularly on a slower Internet connection) and makes it very cumbersome to put multiple items up on the screen simultaneously, e.g. for comparison.

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For the Directorate for Social, Behavioral, and Economic Sciences Office of Multidisciplinary
Activities 2015 Committee of Visitors

Catherine Eckel, PhD
Chair