

**Division of Behavioral & Cognitive Sciences
Committee of Visitors (COV)
30 October 2012**

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1. Overview

1.1. Introduction

The present configuration of the Division of Behavioral & Cognitive Sciences (BCS) consists of 10 programs: Archaeology/Archaeometry; Biological Anthropology; Cultural Anthropology; Geography and Spatial Sciences; Linguistics; Documenting Endangered Languages; Perception, Action and Cognition; Cognitive Neuroscience; Developmental and Learning Sciences; and Social Psychology. The Committee of Visitors (COV) for the BCS met from 10-12 October 2012 at the Headquarters of the National Science Foundation. The committee comprised the chair, two co-chairs, and two members from each of the ten programs. The charge to the COV was to “provide NSF with external expert judgments in two areas: (a) assessments of the quality and integrity of program operations and program-level technical and managerial matters pertaining to proposal decisions and (b) forward-looking comments pertaining to areas of support and new opportunities for advancing science and infrastructure at both the program and division levels, and in interdisciplinary settings.”

In addition, the BCS Division sought advice on (a) vision for the intellectual future of BCS for the next decade, including the infrastructure necessary to attain that vision; (b) advice for encouraging mid-scale research (“bigger science”) for the BCS sciences and metrics for determining success in such endeavors; and (c) comments on BCS’ innovative approaches to merit review, and suggestions for effective ways to evaluation and monitor such approaches.

The COV was provided with access to the following: NSF strategic plan for 2011-2016, the BCS strategic plan of November 2011, program-level strategic plans where available, the report of the 2009 COV and division and programmatic responses, program reports from each of the 10 programs, and approximately 1,000 proposals sampled randomly from FY 09-11, including both awards and declines. The eJacket sample files included the full proposal, the PI history, the review record (reviewers solicited), *ad hoc* reviews, a summary of the panel discussion, a review analysis and other reports as appropriate. Following a request, the COV was also provided with unofficial data on the participation of BCS programs and scientists in cross-cutting and cross-directorate programs.

Disciplinary and cross-disciplinary sessions were held to discuss and evaluate the questions posed to the COV. There were also several general discussion sessions focused on the questions posed in the COV charge, and on the issue of mid-scale research or “bigger science”, particularly given the constraints under which the division and the agency operates in the federal context.

This report is organized as follows: summary (including progress made since the last COV and a synthesis of the recurring themes that surfaced in the disciplinary sessions), followed by the disciplinary reports organized by a Report Template provided for this purpose to the COV members by NSF.

Throughout the process, the involved NSF staff was consistently welcoming, helpful, and efficient, and staff members at every level went out of their way to accommodate the frequent demands made on their valuable time. The Director of the Division, Dr. Mark Weiss, and the Deputy Director of the Division, Dr. Amber Story, made themselves available throughout the COV, and provided data and information quickly and freely. They also stressed the importance of the COV process to the Division in their opening remarks to the Committee. Although this report contains some suggestions for improvements in the COV process, the COV members congratulate NSF on maintaining a consistent atmosphere of intellectual and scientific integrity and transparency that contributed to a fruitful and, we hope, insightful COV exercise.

1.2. Progress since 2009

In this section, we address the specific recommendations that were brought forward in the 2009 COV. We elaborate further on some of these issues again later in the document. We recognize that several chronic problems have lingered not because of indifference on the part of BCS staff, but because of more durable obstacles, most importantly, lack of funding. This situation has prevented improvement of chronic under-staffing at the Foundation level, impeded the collection of relevant data especially on diversity, and led to ongoing shortcomings in mechanisms of data retrieval on proposals. As is the case with many other federal and state agencies, program budgets have remained flat since FY 2009, a peak year in overall funding. As a result, the BCS Division has had to come up with innovative ways to improve program operations. The dedication and resourcefulness of the BCS staff cannot compensate indefinitely for a lack of funding, especially concerning Foundation-level matters brought up in successive COV’s, but out of the direct control of the Division.

1.2.1. [Context]: “SBE should routinely monitor the impacts of special initiatives”

We would like to compliment the division on the variety of innovations that have taken place with respect to process and proposal review. Among the interesting innovations that we note since the last COV review in 2009 was the involvement of BCS in six new integrative and transdisciplinary cross-directorate initiatives: Dynamics of Coupled

Natural and Human Systems (CNH), Water Sustainability and Climate (WSC), Ecology and Evolution of Infectious Diseases (EEID), the SEES Fellows Program, Earth System Modeling (EaSM), and Sustainability Research Networks (SRN). Examination of preliminary figures on the cost impacts of these programs were encouraging, in that they indicated that proposals made by BCS scientists to these initiatives often resulted in considerable financial contributions from other directorates flowing to successful projects.

1.2.2. [Progress since 2006]: “BCS should continue to strive for a minimum of one permanent program officer in each program”

At present, 8 of the 20 BCS program officers are permanent and 12 are rotators of various sorts. This is compared to the situation in 2009 with 8 permanent and 7 rotating program officers. Although there has been no net increase in permanent program officers since 2009, the addition of 5 rotators has eased the severe burden on program officers generated by an increased number of proposals. The establishment of a floating program officer position has also increased BCS’s ability to undertake joint program reviews and reviews of cross-directorate programs. Attracting permanent program officers remains a challenge, but the COV was encouraged to learn that some rotating program officers plan to stay as long as the maximum allowable three years, thereby reducing the problems of information loss and training lag that accompany more frequent rotation. We note, however, that important innovations in program content and proposal review have often come from creative rotators.

1.2.3. [Progress since 2006]: “BCS should identify programs that are exemplary in their treatment of the broader-impacts criterion”

First, we are heartened by the considerable thought that has been given to this recommendation across BCS and NSF. Great strides have been made, and the Foundation is to be commended for these. Nonetheless, it remains the case that greater clarity is needed to discern the notions of "broader impact" and "intellectual merit". It is still not clear whether NSF should consider these as two criteria of equal weight in funding decisions, although it is obvious they can be interrelated. We provide a new recommendation about broader impacts in section 1.3. below.

Second, it appears that proposers are not always clear about the meaning of "broader impact". It is recommended that NSF consider adding explicit instructions to proposers and reviewers to go to the descriptive page for this concept to ensure a clear and shared understanding of this important term (<http://www.nsf.gov/pubs/gpg/broaderimpacts.pdf>).

1.2.4. [Quality and integrity of BCS operations]: “The COV strongly encourages BCS to increase administrative support substantially”

Increases in the numbers of administrative support staff for BCS have not been possible since 2009 because of stagnant funding levels to the Foundation as a whole. The Division's Director and Deputy Director emphasized that increases in staffing numbers were desirable, but simply not possible. On a related note, they also indicated that obstacles remain in improving the career ladder for BCS staff, and they are working to improve this situation.

1.2.5. [Quality and integrity of BCS operations]: “The COV suggests that BCS make more use of collaborative technologies for virtual meetings for panel reviews and site visits”

Exploration with virtual conferencing technologies has continued at NSF since 2009 with mixed results. BCS program officers and COV members who were former NSF panelists recognized that there were many theoretical advantages to the implementation of virtual conferencing for review panels, including cost and energy savings as well as enhanced participation by young scholars who are parents. Widely available virtual conferencing technologies do not allow for the free-flowing, fast-paced, and simultaneous conversations that characterize many panel review discussions. Further, they do not allow for the informal but useful inter- or post- meeting discussion that take place over meals and coffee breaks. And because virtual panelists are often participating from home or the office, they can be interrupted without notice. Many former panelists also noted that the panel review experience was one of the most important professional experiences of their career, and that the physical meeting of review panels should be continued because of the quality of the output and the many benefits of the panel review experience. We provide a new recommendation about implantation of virtual conferencing technologies in panel review in section 1.3 below.

1.2.6. [Quality and integrity of BCS operations]: “NSF should consider implementing the ideas for increasing return rates of *ad hoc* reviews that are contained in the program reports”

Return rates for *ad hoc* reviews varied widely from program to program, but return rates of greater than 50% were rare. Most programs mentioned the chronic problem of getting sufficient numbers of *ad hoc* reviewers. The COV posed the question of the effect of *ad hoc* reviews on the fate of proposals, and learned that the total number of reviews for awarded and declined proposals was nearly the same. Given that every program review panel consists of two reviewers, there was an average of 4.35 reviews for every awarded proposal versus an average of 4.4 for every declined proposal. We provide a new recommendation for improving the return rates on *ad hoc* review requests in section 1.4 below.

1.2.7. [Quality and integrity of BCS operations]: “BCS should work to ensure consistency across programs with respect to resubmissions, guided by the desire to do what is best for science, and should enhance the guidance given, particularly to young scholars”

The 2012 COV was satisfied that the concerns that were raised about resubmissions in the 2009 COV had been addressed and that the policy toward resubmission of proposals was clear. COV members also learned that individual program officers often expended considerable mentoring effort in providing feedback to younger scholars who were resubmitting full proposals or proposals for Dissertation Research Improvement Grants (DRIG).

1.2.8. [Improvements in the COV process, six recommendations]: “For future COVs, summary information on the entire set of proposals is required.” “Improved guidance to COV members on what to look for in their preparatory review (such as annual reports for measuring outcomes, panel reviews for monitoring merit process) would be helpful.” “COV members should be able to access the full set of proposals, and not be limited to a sample, subject of course to COI restrictions.” “The COV would be better able to answer the questions in Section B if it had access to the annual and final reports of projects that had been started in earlier years.” “BCS should provide a realistic assessment of expectations for COV members and the amount of time commitment for the review process. The initial invitation should be clear about the time demands and about the rewards for undertaking such service.” “BCS should consider compensating COV members (and merit review panels) for preparation time in advance of Ballston meetings.”

Members of the 2012 COV expressed the same frustrations concerning access to summary information on a sample of proposals only, and inability to potentially access the full set of proposals rather than only a sample. The current COV members were more frustrated, however, by the lack of automated search tools and indexing within FastLane that slowed the work of reviewing the proposal materials in hand. There was significant improvement in the guidance provided to the COV about the nature and goals of the COV process: ample background information on the COV was provided in advance by BCS staff, and an interactive webinar on the COV process was broadcast more than one month in advance of the COV itself. COV members could access to this webinar online after it was aired, and were provided with access to a complete set of background materials via FastLane so that they could make efficient preparations in advance of arrival at NSF.

1.2.9. [Program Support]: “Steps should be taken to address the perception that BCS programs are starved for funding.”

Members of the 2012 COV understood that all of NSF faced “lean times” in FY 2009-11 and that, in the face of this, BCS programs had held their own. Preliminary data made

available to the 2012 COV by BCS staff also illustrated the financial benefit to BCS of the involvement of cognate scientists in cross-directorate programs. Particularly encouraging was the extent to which BCS scientists appear to be benefiting from the new CREATIV mechanism (introduced in 2011) for funding innovative and transdisciplinary projects involving at least two NSF directorates. The 2012 COV provides recommendations for future BCS involvement in such programs in section 1.6 below.

1.2.10. [Program Support]: “The COV suggests that a strategic planning document for BCS and SBE be completed in time for the COV.”

In response to this request by the 2009 COV, a strategic plan for BCS was released in November 2011, and members of the 2012 COV were able to familiarize themselves with this plan in advance of the current COV exercise.

1.2.11. [Diversity]: “NSF should revise the forms that collect data on diversity to provide clear explanations of the reasons for requesting such data, and the benefits to science from doing so.”

The members of the 2012 COV reiterated this desire, and were apprised of the reasons why such data are still not collected or circulated.

1.2.12. [Diversity]: “BCS/SBE should undertake a systematic investigation of the degree to which social science disciplines benefit from Foundation-wide programs to broaden participation.”

This is a laudable suggestion, but would require additional resources that would then not be available to support the science itself. It has therefore not been pursued.

1.2.13. [Diversity]: “NSF staff should make every effort to extract and organize the available information on these important matters of participant diversity for future COVs.”

The current COV were apprised of the difficulties of extracting data on diversity among proposers, and shared the frustration of BCS staff in not having ready access to these data for purposes of tracking participant diversity. Such data would benefit the COV process and science in general.

1.2.14. [Diversity]: “SBE should proceed with plans to develop a program of support for research on ways of increasing diversity in the scientific community, and should draw on published research in disciplines such as Social Psychology in its own efforts at increasing diversity.”

There is considerable interest within BCS for involvement in new programs and for support of new research projects that will increase diversity in the scientific community.

As in any area of inquiry relevant to the BCS disciplines, there is a possibility that investigators could propose to undertake such a study. This is not, however, in the realm of activity that the BCS is currently staffed up to do, particularly given stagnant funding levels during FY 2009-11.

1.2.15. [Diversity]: “BCS could take the lead in rethinking the categorization of diversity groups based on self-reported identity following the changes in race, ethnicity, gender, and disability classifications by the US Census Bureau.”

The BCS follows the rest of the Foundation in collecting standard diversity data that help to track the Foundation’s performance.

1.2.16. [Diversity]: “NSF should increase efforts to diversify its population of program officers.”

Members of the 2012 COV were informed of the continuing efforts to improve diversity in the ranks of program officers. BCS administrators also noted that program officers from under-represented populations are often “promoted out” of BCS because of efforts to improve diversity at higher levels of the Foundation. We provide a new recommendation for increasing diversity in the NSF workforce (and throughout the STEM disciplines) in section 1.6.4. below.

1.2.17. [Stewardship of Science]: “BCS/SBE should distribute this report (digital and hard copy) [The National Science and Technology Council Report (January 2009), *Social, Behavioral and Economic Research in the Federal Context*] widely among Congress and congressional staff, university presidents, and the federal agencies.”

Members of the 2012 COV learned that the report had been widely circulated and, thus, that the recommendation had been followed..

1.2.18. [Stewardship of Science]: The NSTC report provides excellent information for understanding the broader impacts criterion. We recommend its use as a resource for PIs as they develop their proposals.”

The current COV noted significant improvement in the Foundation’s guidelines for understanding the broader impacts criterion.

1.3-1.6 COV Core Questions

In the following four sections, the 2012 COV examines and addresses the core questions concerning review of proposals, program management, and the portfolio of activities across the BCS Division. We address some of the specific concerns raised by the 2009 COV and offer a recommendation of our own in section 1.8.

1.3. Quality and Effectiveness of the Merit Review Process

1.3.1. Proposal review methods

We note that some BCS programs have begun innovative ways of increasing the effectiveness of merit reviews by experimenting with new review cycles. The Geography and Spatial Science (GSS) program has introduced a “one-plus” program that permits proposers whose work is almost fundable to resubmit only six months after the first round of reviews for consideration by a special program panel. This increases opportunities for those proposals that are highly meritorious but were not quite ready for funding when the annual panel meets. Programs in Perception, Action and Cognition (PAC) and also in Biological Anthropology have also introduced methods to streamline the process of review by the panels. The “one-plus” process will be assessed by GSS within the next two years. During the current COV, there was considerable discussion about potential improvements to the mechanisms of the review process in light of current and anticipated future staffing at NSF, and many suggestions were brought forward. Further suggestions for changes in review cycles are mooted in specific program documents below, most specifically in that for Archaeology and Archeometry.

Recommendation: BCS programs should experiment with new review cycles according to the documented needs of each program. Institution of experimental review cycles should include a mechanism for evaluating the effectiveness of the new cycle compared with the old, and the impact of the new cycle on the community served.

Second, we applaud the efforts of the Division to expand the pool of program review panelists by encouraging program officers to identify younger scholars and scholars from traditionally underrepresented groups to participate in panel meetings and to fund these additional panel members.

Third, the Division has advanced intellectual innovations across and between programs to promote transformative research. For example, longer-term grants are being made under the Integrative Paleoanthropology Grants (IPG) program under the co-sponsorship of the Biological Anthropology and Archaeology and Archeometry Programs.

Recommendation: New integrative grants across programs within BCS should continue to be developed as way to stimulate transdisciplinary research in BCS disciplines.

Fourth, the division has reengineered the expectation of the use of analytical tools in the program on Documenting Endangered Languages (DEL).

Fifth, the Division has worked with the Office of Legislative and Public Affairs (OLPA) to gain more recognition for the programs and discoveries resulting from funding in the division. This effort has resulted in increased visibility and appreciation of BCS-funded research.

Recommendation: Efforts to increase publicity for BCS-funded research should continue because they benefit the public and scientific community, and spread awareness within the Foundation of the reach and impact of BCS research.

Sixth, we applaud efforts by program officers in the Division to explore virtual conferencing as a method to broaden participation and reduce cost.

Recommendation: BCS should continue to explore the use and efficacy of virtual conferencing software. Some panels might benefit from the limited participation of *ad hoc* reviewers via virtual conferencing, especially if the area of expertise of the *ad hoc* reviewer could fill a gap in the scholarly expertise of panel members.

Seventh, we note that clarification of the “broader impacts” criterion in the NSF Grant Proposal Guide (<http://www.nsf.gov/pubs/gpg/broaderimpacts.pdf>) has led to improvements in the understanding of the criterion among proposers, and concomitant improvements in the quality of this section across many proposals and programs. Many proposers appear to be unaware of the new guidelines, and/or are continuing to treat the writing of broader impacts as a perfunctory afterthought because they are under the impression that the quality of the proposal is judged only on the “intellectual merits” criterion.

Recommendation: Potential applicants for NSF grants and all proposal reviewers need to have a clearer idea of the role and relative importance of the “broader impacts” and “intellectual merit” criteria in the funding decision.

Recommendation: All “program guidelines” should contain a link to the description of the “broader impacts” criterion.

Recommendation: Proposers in BCS (and throughout the Foundation) should be encouraged to use “broader impacts” to frame the description of their research question, in order that the “broader impacts” criterion can become integrated into the design and conceptualization of the scientific argument of the proposal.

Eighth, the COV members commended the Foundation on the introduction of mandatory data management plans into all NSF proposals. Many program reviewers noted, however, that many proposers do not know how to address this new criterion and do not know how this section impacts the funding decision.

Recommendation: We recommend that clarification of the nature of the data management plan be included in an upcoming revision of the Grant Proposal Guide, with brief examples provided under FAQ. Following the pattern enunciated in connection with “broader impacts”, we also suggest that the role and relative importance of the data management plan be made clearer to proposers and reviewers.

1.4. Selection of Reviewers

Lengthy discussions in program-level meetings and at the level of the entire COV were devoted to the issue of achieving adequate numbers of *ad hoc* reviews for proposals. Many COV members noted the heavy lien that proposal review places on them, and the lack of recognition of this effort by their home institutions.

Recommendation: Program officers should be encouraged to send personalized email messages or make phone calls to potential reviewers, and ask them specifically to agree or decline to review a specific proposal. An agreement to review could then be followed up by an automatically generated reminder message.

Recommendation: BCS should inform *ad hoc* reviewers when there are positive funding decisions as a means of providing feedback to the reviewers about their work.

Recommendation: Program officers should consider the institution a board that would function much like an editorial board of a scholarly journal. This board could be composed of former panel members, active retirees, or other engaged scientists who could support the program by screening uncompetitive proposals before or after *ad hoc* review, providing *ad hoc* reviews, and guiding and mentoring junior proposers with suggestions for improvement of proposals.

1.5. Management of Programs

The 2009 COV noted that the issue of the ratio of permanent staff to rotators had also been raised as an issue by the 2006 COV. Both that although rotators bring fresh perspectives and new energy to their positions as well as continued contact with the scientific community, permanent staff provide institutional memory and are able to work more effectively with resubmissions. We echo these sentiments. The present tally, as noted above, is 8 permanent program officers and 12 rotators, including IPA and visiting scholars.

Recommendation: We concur with the two previous COV panels that each program needs a permanent program officer.

We commend the division for its participation with many other programs throughout NSF to fund multi-disciplinary and interdisciplinary science. The INSPIRE program (Integrated NSF Support Promoting Interdisciplinary Research and Education) introduced in 2012 permits the sharing of funding with other divisions and directorates for those proposals aimed at going beyond their disciplines to address complicated and significant scientific problems. This and the aforementioned CREATIV initiative have made it possible for BCS to leverage its own investment in funded projects to provide major grants to investigators working at these scientific frontiers. In some cases, BCS scientists have been supported entirely by contributions to these programs from other directorates.

1.6. Portfolio Review

Program-level and general COV discussions focused especially on the roles of CAREER awards and doctoral dissertation research improvement grants (DDRIG) within the BCS portfolio, on the disciplinary composition of the BCS program and grant portfolio, and on issues of diversity at all levels of the BCS staff within NSF and among BCS grantees.

1.6.1. CAREER awards: Members of the COV recognized the importance and prestige to young scientists and their institutions of CAREER awards. They also noted that, because the size and duration of CAREER awards are fixed by the Foundation and funded from core program budgets, such awards can disproportionately impact small programs. Some program representatives also noted that description of a proposer's career plan in the body of the CAREER application was at the expense of a full scientific explication of the project to be undertaken, leading to most such applications being of lower quality than standard proposals.

Recommendation: The Foundation should make a dedicated pool of funding for CAREER awards available to Directorates in order to help defray the costs of such awards, especially for programs with small core budgets.

Recommendation: The impact of CAREER awards on individual research programs and career trajectories should be evaluated, both during and after the completion of the award across the Foundation so that their merit can be empirically assessed.

1.6.2. DDRIG: Discussions of program-level and Divisional portfolios emphasized the strongly positive role of DDRIG. Such grants provide important and prestigious support of scientists early in their careers and almost always yield publications. The COV

considered DDRIG to be important and desirable parts of program portfolios because they are relatively small and yet yield significant scholarly output. The COV was keenly aware, however, that the review and administration of DDRIG placed a significant administrative burden on programs that awarded them, including in mentoring effort on the part of program officers.

Recommendation: Programs within BCS should consider appointment of an “advisory board” that could assist program officers in the review of DDRIG and the mentoring of proposers. Members of the “advisory board” could be contacted by DDRIG proposers before their submission or after an unsuccessful submission in order to provide advice and mentoring.

1.6.3. Portfolio composition, including interdisciplinary and cross-directorate programs:

Large numbers of BCS scientists are now involved cross-directorate initiatives (such as the CNH, WSC, and others listed in section 1.2.1). These collaborations demonstrate leadership and initiative on the part of the BCS program managers in linking faculty within the BCS scientific community with intellectual ideas and opportunities in other parts of NSF.

All of these innovative efforts have strengthened the position of the Division and, in turn, increased the recognition of the scientific contributions of the disciplines and interdisciplinary research that it supports.

Recommendation: Programs within BCS, and BCS as a Division, should continue to investigate and promote the creation of new inter- and transdisciplinary programs and initiatives in order to promote integrative science, enhance funding opportunities for BCS scientists, and reduce competition between BCS programs for funding.

Recommendation: Evaluation of “transformational” research initiatives is important. Toward this end, exploration of methods of evaluation should be pursued, including, possibly, comparison of citation rates associated with publications from a limited number of core and transformational programs.

The COV noted the difference in numbers of programs across disciplines. For instance, that three programs exist in anthropology, whereas only one exists in for geography and spatial sciences (GSS). Following discussion, the COV was satisfied that the programs as currently constituted served their disciplines well. Although GSS, for instance, is a big science and a big program, the geographers on the COV did not advocate subdivision of GSS into smaller programs.

Recommendation: Variation in program size should be acknowledged and respected as a product of deliberate decisions. Programs should be staffed

according to size and complexity and larger programs should be supported with program officers and support staff commensurate with their needs.

1.6.4. Diversity: Discussions of diversity and broadening participation featured in most program-level and COV-wide deliberations. The COV commends BCS highly for its continued commitment to increase the participation of diverse populations not only as grant reviewers and grant recipients, but also as members of review teams and as NSF staff. The proportion of young investigators and first-time NSF investigators in BCS is large and has continued to grow.

Of the 20 program officers within BCS, 12 are female. Ethnic diversity is more limited, as 16 of the 20 are white, non-Hispanic. However, this imbalance in ethnic representation is not for lack of trying. The division has made major efforts to reach out to HBCUs and other minority-serving institutions. Further, the creation by the Division of the position of visiting minority scholar is noteworthy as a strategy to try to interest more diverse populations in careers at NSF. Like the 2009 panel, the 2012 panel commends the efforts of the BCS administration, and supports the efforts of NSF to create and fund scientists from all segments of the population.

Recommendation: In light of the many challenges involved in increasing diversity in the NSF workforce, and among NSF grantees and panelists, BCS should continue to contribute to and benefit from the Science of Broadening Participation. These efforts should include BCS involvement in cross-directorate programs aimed at increasing diversity in the STEM pipeline through formal and informal education programs at all educational levels.

1.7. Questions for Division-Level Discussion

In previous sections of this document, we addressed and endorsed innovative methods of program review and the development of interdisciplinary programs. In this section, we concentrate on the intellectual future of BCS and the nature and role of “bigger science” in BCS.

COV members agreed that the rapid pace of technological change make it hard to anticipate the future of science over a ten year time-span. However, the COV came up with a series of interdisciplinary ideas designed to promote new integrative approaches and sciences¹. From an NSF operational perspective, we view these ideas as new nuclei around which programs of research could develop.

¹ Because many of the ideas brought forward involve human subjects research and exploration of the human condition in health and disease, we recognize that there is a difference between the kinds of research supported by NSF and NIH. NSF addresses basic research questions about the human condition, and ideas hatched as the result of NSF-funded research often are played out in much larger (or more and continuously divergent) directions at NIH. We envision that NIH research would follow up or interdigitate with NSF in the detailed and mechanistic exploration of many of the ideas mooted below. We anticipate the continuation and elaboration of a synergy between these two agencies. As an example, NIH supports questions that concern cognitive explanations of the occurrence of behavior

Recommendation: We ask that these ideas and proposals be discussed among BCS and SBE staff, and that they be used to catalyze discussion about new inter- and transdisciplinary programs involving the Division.

1.7.1. Idea 1: Human-environment interactions through time: Synthesis of the many databases pertaining to human-environment interactions would provide important insights. It is also important that BCS investigators frame and direct research in this area rather than serve as *post hoc* additions to projects organized by other directorates. New projects sponsored under this heading will require cyber-infrastructure enhancements, including improvements in cloud computing. There is also a fundamental interest in explicitly introducing time-depth into such studies. Many will naturally involve integration with other SBE sciences such as Political Sciences and Economics.

- Including effects of human populations on food and water resources and security of these resources
- Climate change, including human responses to natural climate change, attitudes toward the environment, and human-induced climate change
- The concept of the Anthropocene, and illumination of the role of humans in manipulating the environment through time
- The nature small communities, and the generation and fate of traditional ecological knowledge (TEK)
- Attitudes toward the environment, climate change, and over-population, including the cognitive bases for willingness or unwillingness to change human behaviors, including decision-making about individual reproduction
- Human resilience in the face of adversity and emergency, studied from the neurobiological through the community levels, and across cultures.

1.7.2. Idea 2: Human movements, mobility, and interactions through time: Population “migration” has occurred throughout human history due to a variety of factors. The study of human movements and interactions would benefit from a deep-time perspective, as would the study of those individuals and populations that stay put. Technology such as aggregated cell-phone and GPS tracking data is making it easier to study modern human mobility and relate it to other phenomena. With a changing planet, it would be interesting to study those movements and interactions from the point of view of:

- Patterns of health and disease

such as confidence (self-efficacy), expectation of reward, internal appraisal of health threats, while NSF supports social psychologists and others who are more interested in whether these constructs exist in the first place, and, if so, how they are developed. Because NIH is focused on biomedical research, many of its divisions will not fund typical populations unless an atypical population is included in the work, as well. NSF’s focus on “normal” populations and establishment of normal ranges of variation complements the focus of NIH.

- Social interactions including conflict/war and conflict resolution
- The establishment of traditions of race and caste, and of discrimination and racism due to shifting populations
- Shifting hierarchies of control and power
- Food and water availability
- The case of endangered languages to illustrate how language diversity can be lost and how language policies affect cultures, societies, our views of how languages work, and intellectual history generally over time
- The relative movements of languages, genes, and domesticated plants and animals

1.7.3. Idea 3: Long-term study of human development through the lifespan: We propose a large, long-term, study of human development, covering the entire lifespan from birth to death. This would enable us to study interactions among factors such as nutrition, psychosocial stress, family composition, and mobility. This would be achieved by organization of the study to include significant longitudinal and cross-sectional components. Major data collections could involve evaluations of somatic measurements, psychosocial data, epigenomic status, and overall health. Sampling of the “human tapestry” through the entire lifespan would provide unprecedented insights into the roots of obesity and addiction, the effects of behavior and culture on gene expression, and thorough assessment of the relationships between neonatal and adult health, disease, and decline. This initiative differs from the proposed National Childhood Study because it will be address the human condition across the life span and samples of people from different countries and cultures. Such an initiative would also provide essential grounding for studies of human health in the past. With sufficient support from other Directorates within NSF and from other national foundations such as the NIH, this initiative could become a fourth Division-level component of SBE. We envision that this initiative could include:

- Study of a large cohort of “normal” Americans supplemented by samples of populations from other countries.
- Qualitative follow-up, organized as complementary cross-sectional studies, on small focal populations of aspects focused on smaller populations.
- Study of the normal range of individual variation. Scientists are often predisposed to look for commonalities within groups, and therefore often examine groups while ignoring differences among the individuals within them. Yet we know that there are individual differences in aptitude (e.g., for language or math), learning style, perception, and response to drugs or other stimuli. Nested within the long-term longitudinal “birth to death study,” this initiative would concentrate on the study of normal individual variation in the human physical and cognitive phenotype. It could involve exploration of the connection

between genotype and phenotype with respect to cognition, and the exploration of nonhuman animal models (such as knock-out mice) for the study of cognition.

- Studies of the effects of technology (or its absence) on personality and health
- Integration with the NSF BIO Directorate, and with NIH subunits on major transdisciplinary topics, on health or disease-related initiatives, and public health programs.

1.7.4. Idea 4: Human Interaction with Technology: Interactions between humans and technology, especially computer technologies, have fundamentally altered the human experience. Despite wide adoption of technology, relatively little is known of its effects on individual cognition and processes of ideation, and on the nature of family and social interactions. Furthermore, the widespread adoption of social media has created new communities, with new and mostly unstudied dynamics. Looking further ahead, the development of implantable electronic devices will make it possible to transform humans into ever more sophisticated cyborgs with augmented senses, perceptions, and means of forming memories. Worthy of special attention would be studies of:

- Concepts of the human being, the transhuman, and individual identities
- Emerging concepts of “leadership” in virtual organizations
- Adaptations of computers to humans with different abilities and disabilities
- Concepts of privacy under conditions of increasing, continuous, and near-ubiquitous surveillance
- Effects of inequalities in access to technology across communities and nations.
- The nature and expressions of memory, studies at the cellular, organismal, and cultural levels (including activities and performances).

1.7.5. The Role of Institutes and Conferences: Physical gatherings of scholars for the purpose of discussing research matters are important and irreplaceable because face-to-face interactions, over the course of days or weeks, often result in discussions and insights that could not otherwise be achieved. They often also lead directly to new publications and research and educational initiatives. The COV endorsed the support of selective institutes and conferences by BCS, especially in the catalysis and consolidation of the “ideas” initiatives. Based on the experiences of many COV members, successful conferences or workshops involve generally small numbers of people (<20), who are closely managed, and who work within a carefully scripted structure. Physical centers for integrative BCS research could follow the pattern of other large, NSF-funded centers such as NESCent.

1.7.6. New Transformative Methods for the BCS Sciences: The need for new methods of analysis in the BCS sciences is acute, despite major advances in information technology, imaging, and genomics in the last decade. The most challenging of such needs discussed were: a) software for advanced language translation, facilitating

comparative studies; b) novel methods of brain imaging; c) modeling of brain systems; d) methods and techniques for gathering and analyzing large datasets; e) development of a mobile fMRI center for the continental U.S.A.; and f) new methods for the study of functional genomics and epigenomics, and integration with studies of behavior and culture.

1.7.7. New Transformative Databases for the BCS Sciences: Most major databases would be tied to “ideas”, but others can be envisaged, including: a) an archaeological database or database “clearing house” documenting material cultural diversity through time; b) a comprehensive “human species database,” comprising data on skeletal and genetic variation drawn from multiple investigators and studies; and c) in conjunction with programs within the BIO directorate, a database of human utilization of plants through time, including plant history, and plant and seed collections.

1.8. Other Issues: Improvements to the COV Process

The COV recognized that some of the difficulties that program reviewers faced in reviewing the treatment of proposals were due to issues that were beyond the authority of the BCS or SBE. Nonetheless, some recurrent complaints from the 2009 COV could have been addressed but were not.

Recommendation: Future COVs should be able to access easily the titles and abstracts of all submitted proposals, and have the ability to retrieve the full text of all submitted proposals. In order for this recommendation to be effective within the time frame of a COV, improvements in proposal indexing and retrieval at the Foundation (FastLane) level are needed.

1.9. Conclusion

The COV was deeply impressed by the high quality of the stewardship of social and behavioral science research conducted by BCS staff at all levels. The COV also wants to commend the BCS for continuing efforts to insure the intellectual and scientific integrity of the merit review process. The COV also wants to praise the BCS for its emphasis on innovation and the accompanying assessment of innovation, in program concept and delivery. This is evidenced by BCS program-level initiatives to improve the merit review process and by integrative intellectual programs and initiatives within BCS and between BCS and other Directorates. We are particularly impressed because the Division has made improvements in merit review and program content in the face of stagnant budgets. We hope that the recommendations for improvement of Division function we offer in this document will be viewed in a constructive light, and that BCS and SBE administrators continue to actively seek opportunities to improve the financial and intellectual future of BCS science.

2. Archaeology and Archaeometry

CORE QUESTIONS and REPORT TEMPLATE for FY 2012 NSF COMMITTEE OF VISITOR (COV) REVIEWS

Background Information: This document includes the FY 2012 set of Core Questions and the COV Report Template for use by NSF staff when preparing and conducting COVs during FY 2012.

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

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

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

**FY 2012 REPORT TEMPLATE FOR
NSF COMMITTEES OF VISITORS (COVs)**

The table below should be completed by program staff.

<i>Date of COV: October 10-12, 2012</i>
Program/Cluster/Section:
Division: Behavioral and Cognitive Sciences (BCS)
Directorate: Social, Behavioral, and Economic Sciences (SBE)
Number of actions reviewed: Awards: Declinations: Other:
Total number of actions within Program/Cluster/Division during period under review: Awards: Declinations: Other:
Manner in which reviewed actions were selected:

**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 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, <i>ad hoc</i>, site visits) appropriate?</p> <p>Comments:</p> <p><u>Dissertation Improvement Grants</u> are evaluated by <i>ad hoc</i> reviewers with the Program Officer (PO) making the funding decision. They do not go through panel review. <i>Ad hoc</i> reviewers chosen are appropriate and show a remarkable knowledge of the field and its practitioners. Based on the sample of proposals provided to us , response rate from <i>ad hoc</i> reviewers of DIGs appears to be generally higher than in other archaeology competitions. The Program Officer's summaries of reviews and justifications for funding decisions are routinely excellent and include a concise synthesis and analysis of reviews, with the PO adding his own opinions on strengths and weaknesses of proposal and reasons for ultimate decision. These reviews clearly reflect the POs deep experience and professional standing within the field. As noted by the 2009 COV the review process for DIGs is excellent, due primarily to the skill of the PO in choosing <i>ad hoc</i> reviewers and arriving at funding decisions. This may not be the case with a PO without as deep institutional memory or much skill as the current PO.</p> <p>We do question whether the considerable time investment of six reviewers relative to the level of award can be justified and wonder whether there isn't a more efficient way to soliciting reviews to ensure that the minimum requirement of three reviews is achieved. A more effective solicitation procedure in which reviewers are given opportunity to decline or accept review responsibility prior to being given access to the proposal may enhance response rate and therefore lower the number of review solicitations and we recommend that such a system be adopted for DIGs (and other competitions using <i>ad hoc</i> reviewers).</p> <p>Another inducement to help bolster response rate would be to share results of reviews with <i>ad hoc</i> reviewers. We recommend that reviewers be informed of outcomes of reviews that include redacted copies of all reviews for the applications they reviewed. This would have the broader impact of helping reviewers broaden their skills while providing important feedback that demonstrate the value of the reviewers' efforts. We understand that the feedback from only the successful proposals can be shared in this fashion, but believe that it would still be beneficial to the reviewers.</p>	<p><u>YES</u></p>

We also **recommend** that the format of the proposal be streamlined in DIGs and other competitions to facilitate ease of review (e.g. specified sub-headings that are addressed in order by all applicants).

Furthermore we **recommend** that NSF review the length of the DIG and other proposals. We note that other funders have shorter proposals and that the length of the proposal, together with its structure may be a deterrent to timely and considered review.

High Risk Grants similarly do not go through panel review, with funding decisions based on the POs evaluation of *ad hoc* reviewers. Once again *ad hoc* reviewers are well chosen and the response rate, though apparently not as high as that for DIGs, is still (based on our sample) over 50% and higher than the Senior Grant competition. The POs evaluation of these reviews, as in DIGs, reflect his ability to sort through sometimes bi-polar evaluations and use his own judgment in evaluating projects' potential and appropriateness for this program.

Senior Grants are subjected to both *ad hoc* and panel reviews. While response rate of *ad hoc* reviewers seems somewhat lower than in the other two competitions (around 50% in our sample), the addition of two panel member reviews ensures a robust review process. The 2009 COV expressed an interest in promoting greater panel involvement in the review process, feeling that panel evaluations of proposals was limited primarily to the two panel members assigned as primary and secondary reviewers of proposals. Their suggestion of limiting panel size to enhance engagement was not deemed to be feasible.

Nevertheless, We share the 2009 COVs concerns that the practice of assigning grants to a primary and secondary panelist results in other panelists not reading the proposals and thus limiting overall panel input

At the same time, we recognize that the volume of applications, together with their length and structure preclude greater panel input. We believe that these persistent problems of heavy volume and panelist overload would benefit from a major restructuring of the review process.

To address these problems, we **recommend** that a two stage review process be adopted for senior level grants in which, for the fall review, PIs would submit a short (e.g. 3-5 page) structured proposal that would be reviewed by 3-4 panel members. This review would not require a formal meeting of the panel. Panel rankings would be submitted to the PO who would determine the proposals that would go forward for full review. Full applications would then be invited from those passing this first level of review. These proposals would go out for *ad hoc* review and be subject to full panel review in the spring. We further **recommend** that consideration be given to finding ways to have more panel involvement in reviewing, or at least reading, all proposals in the spring docket to broaden the forum for discussion of proposals under review.

We realize that this restructuring would reduce the number of full proposal submissions from two per year to one. But we believe that the pre-application system advocated here will 1) allow PIs to get valuable feedback on proposal concepts prior to preparing a full proposal, 2) provide better control of the volume of full proposals reviewed by the panel, 3) save travel funds by limiting the full panel meeting to one per year, and 4) increase panelist involvement in the review of proposals and thus enhance panel discussions.

Career Grants are reviewed as part of the general portfolio of senior level grants. We believe, however, that both the different aims of these grants (to help with the development of researchers at the beginning of their careers) and the high award levels of these grants puts this category of proposal at a definite disadvantage. While we note that, in contrast to the last COV cycle, at least one of these applications was successful in the 09-11 cycle, we question the cost-effectiveness of the CAREER program. We **recommend** review of the effectiveness of this offering in the overall Archaeology/Archaeometry program and that consideration be given to eliminating this category of proposal from the Archaeology/Archaeometry portfolio. We believe that other initiatives that combine the educational aspects of this program with new multidisciplinary initiatives would better serve the discipline and career goals of young scholars moving into the future.

Archaeometry Grants undergo review by both panel members and *ad hoc* reviewers. Once again *ad hoc*

2. Archeology and Archeometry-4

<p>reviewers are well chosen and the response rate for <i>ad hoc</i> reviewers seems to have risen substantially over that in the portfolio reviewed by the 2009 COV. In addition, each of the four panel members prepares a review of each proposal. As a result of the greater number of <i>ad hoc</i> reviewer responses, disparities in the opinions of <i>ad hoc</i> and panelist reviewers, noted in the 2009 COV, seem to have been resolved. While the smaller volume of submissions to this program make it more feasible for all panelists to review all grants, the greater degree of involvement by panelists (who seem well chosen to represent both the more technical side of archaeometry proposals and their relevance to archaeology) results in a more robust review process.</p>	
<p>2. Are both merit review criteria addressed</p> <p>a) In individual reviews? While intellectual merit is often the primary focus of individual reviews, there appears to be much greater attention to a discussion of the broader impacts of proposals in these reviews than was apparently the case in the 2009 review.</p> <p>b) In panel summaries? Yes, with, once again, a better balance between intellectual merit and broader impacts.</p> <p>c) In Program Officer review analyses? Yes</p> <p>Comments:</p> <p>While there is still some confusion among applicants and reviewers as to what constitutes broader impacts, there appears to be much greater attention to addressing these impacts in both proposals and the reviews of individuals and panels. Project summaries, project descriptions, and reviews usually have separate subheadings that explicitly address these impacts, with broader impacts more likely to include more explicit outreach (to K-12 students, underrepresented groups, general public) and recognition of broader societal impacts of the research.</p> <p>Since the main responsibility of NSF is to fund excellent research, clearly intellectual merit should be the key factor in making funding decisions. At the same time, broader impact should be an important, though not determinative factor. We recommend that broader impacts be used in the decision making process to discriminate between equally scientifically meritorious proposals.</p> <p>The requirement that all proposals include a Data Management Plan was only instituted in 2011 and, as yet, these plans do not figure prominently in the evaluations of <i>ad hoc</i> or panelists. The importance of responsible archiving and broader dissemination of data cannot be underestimated. The process of archaeological research often results in the destruction of the archaeological record through excavation and destructive analysis of archaeological materials. Moreover, there are a host of impediments (monetary and political) that limit the scale of archaeological research both in the US and, especially, internationally. In this context, plans for the archiving and curation of both archaeological collections and data are of utmost importance. There is, similarly, a need to ensure that archaeological data accumulated in NSF funded projects is made widely available to both researchers and descendent populations.</p> <p>We recommend that more weight be put on this part of proposal preparation and review. More explicit guidelines are needed on preparing the DM plan and recommend that these be developed for archaeology proposals, perhaps in consultation with the Society for American Archaeology or other major professional archaeological organizations. In addition, reviewers need more guidance on criteria for reviewing DM plans. We also recommend that PIs be encouraged to include funding for data management (digital and non-digital) in proposal budgets. Preference should be given to data management involving established repositories.</p> <p>Finally, we recommend that a new category of funding be included in the Archaeometry competition that pertains to data archiving (both basic data storage and improvements in archival practices) along the same line of infrastructural funding NSF currently provides for laboratories conducting archaeometrical research (e.g. MURR and AU dendrocronological laboratory).</p>	<p>YES</p>

<p>3. Do the individual reviewers provide substantive comments to explain their assessment of the proposals?</p> <p>Comments:</p> <p>Individual reviewers, for the most part, supply remarkably detailed and thoughtful reviews for all competitions within the Archaeology/Archaeometry Program. Very few reviews seem biased or off-the-mark, reflecting both the seriousness with which the archaeological community approaches NSF review and the care of the PO in selecting reviewers.</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:</p> <p>The 2009 COV commented on the uneven caliber of panel summaries, especially when compared to the Review Analysis of the PO. They recommended that the PO take over the task of writing these reviews, a recommendation that could not be acted upon for reasons detailed in the PO response to the 2009 COV report.</p> <p>It is clear, however, that the 2009 COVs concerns in this area were addressed. While there are some exceptions in the proposals I reviewed, these summaries are generally quite good, especially in justifying panel decisions in light of differences in the various <i>ad hoc</i> reviews of proposals.</p> <p>We note, however, that the PO's panel review is still far superior to that of the Panel scribe, especially in terms of its synthesis of <i>ad hoc</i> and panel reviews. We recommend that more attention be given to ensuring that the panel summaries include a more comprehensive consideration of these <i>ad hoc</i> and panelist reviews, especially when there is a difference in rankings. We also believe that including excerpts from the PO panel summary in these summaries would vastly enhance their value to the PI and recommend that this be done if possible.</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 jacket usually includes context statement, individual reviews, panel summary (if applicable), site visit reports (if applicable), program Director review analysis, and staff diary notes.)</p> <p>Comments:</p> <p>The Review Analyses written by the PO are uniformly excellent. This is especially true in when dealing with outlier or split opinions of various panel and individual reviewers. The PO applies his own assessment of the merit of the proposal and of the various reviews when appropriate. As in 2009, the Review Analysis is uniformly better than even the much improved Panel Summaries.</p>	<p>YES</p>

<p>6. Does the documentation to 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 Director (written or telephoned with diary note in jacket) of the basis for a declination.)</p> <p>Comments:</p> <p>For the most part, yes. For the DIG and High Risk proposals, which are not subjected to panel review, the PO provides excellent feedback to applicants, putting reviews in context, explaining his own assessments of the proposals, and justifying his decision. Improved panel summaries for both the Senior and Archaeometry Programs are very helpful in contextualizing the various reviews and explaining how the panel arrived at decisions.</p> <p>Many (perhaps most) of the proposals in the portfolio were resubmissions (sometimes for third or fourth time). Reviewers (<i>ad hoc</i> and panelist) of earlier submissions often make note of revisions, suggesting that feedback was helpful to PIs in making revisions, although it is not clear to us if this enhanced the success rate of resubmitted proposals.</p> <p>While we were not provided any statistics on resubmission (number or success rates), we question whether there is a point of diminishing returns with multiple resubmissions. We recommend that PIs be strongly discouraged from resubmitting after the 3rd unsuccessful submission. We also believe that the evaluation of resubmissions would be enhanced with a separate (one page) resubmission statement where the PI is given the opportunity to explicitly address the comments of reviewers and recommend that this be made a formal part of resubmitted proposals. We also recommend that future COV panels be provided with statistics about resubmission rates and the success of resubmissions.</p>	<p>YES</p>
<p>7. Additional comments on the quality and effectiveness of the program's use of merit review process:</p> <p>Nothing to add.</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:</p> <p>Reviewers of proposals in all competitions are uniformly excellent. The PO shows remarkable skill and knowledge of the relevant players in this broad, interdisciplinary field, with it's world-wide geographic and deep temporal scale and with the increasingly interdisciplinary nature of proposals that draw on a wide range of social, biological, and physical sciences. This is especially clear in the Archaeometry proposals where reviewers represent an appropriate blend of specialists in various archaeological sciences (often individuals outside of archaeology) and those that apply the archaeological sciences to archaeological problems. The relatively high response rate of reviewers and the caliber of these reviews further reflects the skill of the PO in selecting reviewers.</p> <p>As above (Section I:1) we are concerned about the number of <i>ad hoc</i> reviews (especially for competitions with low funding maximum grant amounts (e.g. DIG and High risk) and believe that a reconfigured solicitation procedure following recommendations made above will both ensure high response rates while lowering the number of solicited <i>ad hoc</i> reviews.</p>	YES
<p>2. Did the program recognize and resolve conflicts of interest when appropriate?</p> <p>Comments:</p> <p>This is hard to judge, but it seems that very few reviewers recused themselves due to COI issues.</p>	APPARENTLY
<p>Additional comments on reviewer selection:</p> <p>See recommendations about reviewer solicitation and feedback made in Section I above.</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:

Once again there is little to add here beyond the comments of previous COVs. The management of this program is excellent. Juggling multiple competitions with different review procedures and cycles, the PO succeeds in choosing deeply knowledgeable *ad hoc* reviewers who respond (with a higher than average rate) with thoughtful and thorough reviews. The choice of panelists in competitions that undergo panel review similarly reflect the POs extensive knowledge of the field and its practitioners. The review and decision making process seems well run, with the PO providing appropriate guidance and, where warranted, inserting his own judgments. He certainly underscores the role of permanent, non-rotating POs in program excellence.

We note, in fact, that the high caliber of all aspects of the management of the Archaeology/Archaeometry program is directly attributable to the experience and well-honed skills of the PO. And while we hope that he continues to serve in this capacity for many years to come, serious thought should be given to succession planning to ensure that this program continues to thrive after his retirement.

We do feel, however, that it would be appropriate for the Division to review general procedures of review solicitation, application format and length, the submission procedures (i.e. adopting a preliminary application review procedure), and panelist involvement in the review of proposals. We make specific recommendations to this effect in Section I and in our NSF-wide suggestions in Section V.

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

Comments:

The Program Officer has consistently taken initiative in this area. As stated in the BCS report to the COV, this cycle saw the replacement of the HOMINID program with the Integrative Paleoanthropology Grants program aimed at supporting mid-scale, integrative approaches to human biological and behavioral evolution over time. This move represents a logical next step for this initiative that is entirely in keeping with broader science trends toward mid-scale cross-cutting research.

On a smaller scale, the inclusion of a more “classically” trained archaeologist on the Senior grant program panel, and the POs attendance of Archaeological Institute of America meetings, reflects the POs knowledge of emerging trends in archaeology, in which archaeologists working within this tradition are now addressing key questions relating to such issues as emergent complexity and identify formation, and his efforts to capture this work in the NSF Archaeology portfolio.

Finally, the PO has taken unusual initiative in supporting through a discretionary grant in 2012 an enterprise directed at defining the major “grand challenge” areas for 21st century archaeology, with an emphasis on the development of computational infrastructure needed to address these areas. Mirroring NSF sponsored initiatives in other areas (i.e. Ecology, as well as the 2011 SBE vision document *Rebuilding the Mosaic*, and building from the BCS strategic plan), this initiative combines a broadly based crowd-sourcing effort with a more focused workshop involving leading archaeologists from around the country with the goal of defining cutting edge areas of archaeological inquiry of broad scientific and societal interest and impact.

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

Comments:

The PO plays an important role in fostering the development of the Archaeology/Archaeometry portfolios. The PO combines both an active and responsive approach in this area. He has structured the allocation of funds across the various competitions he supervises in a way that, appropriately, gives special emphasis to doctoral dissertations, provides a source of significant funding for the development of cutting edge methodologies and infrastructural support in archaeological sciences, allows him to take advantage of potentially high pay-off/high risk endeavors, while still maintaining the single-most important source of funding the work of established archaeologists in the country.

Rather than attempting to define areas of emphasis within this large portfolio, he has, by his adroit choice of *ad hoc* reviewers and panelists, allowed the archaeological community to competitively select the strongest and most meritorious projects to be included in this portfolio. In addition, efforts like the "Grand Challenges" initiative discussed above highlight the Program's forward looking approach to developing the Archaeology portfolio.

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

Comments:

The PO has responded effectively to the 2009 COV comments and recommendations. In several instances he was able to implement their suggestions (i.e. raising the funding ceiling for dissertation and high risk grants). The PO's response to the 2009 recommendations concerning the Archaeometry competition has effectively removed any ambiguity about the goals of this competition (directed mainly toward development of new techniques and building of archaeological sciences infrastructure) and the research oriented goals of the Archaeology competition.

In other instances (i.e. the role of the panel scribe in composing panel summaries, changing the procedures for soliciting *ad hoc* reviewers and notifying them of outcomes, decreasing the size of the Senior panel), he has offered adequate justification why these recommendations have not been implemented. In one case where he was unable to implement a COV recommendation (i.e. making the maximum award levels of CAREER awards more commensurate with Archaeology funding levels), he has instead been able to include at least one such award in the 2010-12 portfolio. As above (Section I:1), we question the cost effectiveness of the CAREER program in the Archaeology/Archaeometry Program.

IV. Portfolio Review. Please provide comments on whether the program’s portfolio goals are appropriate and whether the program has achieved its goals for portfolio balance.

1. Does the program portfolio reflect the disciplines and subdisciplines of the field?

1.1. Is the program responsive to developments within relevant scientific communities?

The portfolio shows remarkable geographic and temporal breadth encompassing essentially all of human history since the origins of the species up to the very recent past. Archaeology is an inherently interdisciplinary field in which analytical tools and perspectives from multiple fields (in both the sciences and the humanities) come together to better understand the direction of human cultural evolution and the forces shaping it. The portfolio also includes a range of theoretical perspectives that mirrors the diversity of epistemological approaches to the study of the human past.

While it is clear that the Archaeology portfolio is strong, we believe that the COV review of the portfolio would be enhanced if it were provided full access to all proposals considered during the cycle under review. We understand concerns about not wanting to overload COV members by providing them access to all proposals reviewed during the cycle – which is why only a random sample of proposals is provided in the EJacket. However, this practice makes it difficult to assess the content of the portfolio for the review cycle with current information and, as a result, address questions in Section IV. We **recommend**, then, that COV members either be provided the entire sample of proposals in the EJacket (with explicit instructions that full review of all proposals is not expected) so that the range of topics of proposals (funded and declined) can be more intelligently assessed. In lieu of this, a list of proposals (including PIs, institutions, competition, duration, award status, and proposal title) would help in this regard.

2. Are awards appropriate in size and duration for the scope of the projects?

We think that award size and duration is appropriate and have no recommendations to make on this subject.

We also feel that the allocation of funds across different competitions is well conceived and appropriate, and, other than our recommended review of the CAREER program, we have no recommendations for changes in this area.

3. What have been especially promising and potentially transformative lines of inquiry that the program has supported?

3.1. What interdisciplinary activities that the program has supported have been especially promising?

The sample of awards in Archaeology (dissertation and senior) provided in the COV 09-11 EJacket is remarkably broad and reflects the highest caliber work on a range of significant and enduring areas of archaeological inquiry. All of this work will advance our understanding of the human past and will provide a strong foundation for the future of archaeology. Proposals that focus on the human/environmental interface, major demographic shifts through history, and the relationships between technological innovation and societal change strike us as especially relevant to present issues in science and society that stand to make significant contributions that reach beyond the disciplinary boundaries of archaeology. Archaeology is inherently interdisciplinary, involving perspectives and analytical tools from the social, biological and physical sciences. This portfolio demonstrates this characteristic well.

The Archaeometry portfolio contains a number of potentially transformation projects in the methods development in the archaeological sciences that if successful will have far reaching implications for archaeology and other disciplines

in the future.

We also believe that the number and nature of co-reviewed proposals in the Archaeology/Archaeometry portfolio is appropriate, given the costs and benefits of this kind of review. We think, however, that Archaeology proposals should be competitive in cross program/division/directorate competitions (e.g. INSPIRE, CNH) that might serve to leverage the amount of funding available to archaeology. To a certain degree, seeking out and pursuing these opportunities should be the responsibilities of PIs and we do not feel that the burden of increasing Archaeology participation in such competitions should fall on the PO. But we do think that BCS might be more proactive in promoting these opportunities through the development of webinars and by sponsoring fora in professional meetings where these opportunities are discussed and we **recommend** that these avenues for promoting these opportunities be pursued.

4. Does the program portfolio demonstrate diversity with respect to geographical distribution of principal investigators and types of institutions?

As for geographic distribution, since the COV was not provided with data on the geographic distribution of submissions, it is difficult to say whether the portfolio of successful proposals is an accurate representation of the geographic diversity of the archaeological community. The lack of any awards to scholars in the upper plains and mid-west (Idaho, Montana, Wyoming, North & South Dakota, Nebraska, and Iowa) is striking, but likely reflects the smaller number of archaeologists in these states and is not of any real concern.

The portfolio shows some skewing in favor of research intensive PhD institutions which were the source of 70% of the proposals submitted during this cycle but received 78% of the proposals funded. Success rates of proposals submitted by PIs from these institutions (at 38%) were also considerably higher than for individuals in other PhD Institutions (26%), and MA only institutions (19%). It is hard to say if these trends represent a bias on part of the review and award process, or (more likely) the more competitive nature of grants submitted by individuals in research intensive PhD granting institutions.

5. Does the program portfolio demonstrate diversity with respect to balance of awards to new investigators, demographics of principal investigators, and participation of underrepresented groups?

Data provided in Program report suggests that the portfolio reflects the diversity in gender, ethnicity of the applicant pool, with no disparities in success rates between these groups.

We did note that while success rates of men and women are roughly equal, the number of submissions from women (generally half that of men) seems very low. This is especially surprising considering that women are increasingly well represented among younger cohorts of archaeologists; they actually are numerically dominant among mid- and early career academic archaeologists. It would be useful to see if this pattern holds for dissertation grants. The pooled statistics presented to us, however, suggests that women are not submitting proposals to NSF at the same rate as men. It may be beyond NSF's ability to affect this trend, but some initiative aimed at investigating this disparity and finding ways to rectify this trend (perhaps done in concert with the Society for American Archaeology) seems warranted and we **recommend** that this be undertaken.

6. Does the program portfolio demonstrate compelling broader impacts, including education, enhancement of diversity, infrastructure, and/or societal relevance?

As above, the 2012 cycle portfolio shows a great deal more attention on the broader impacts of NSF funded research. It also shows a much better grasp (on the part of PIs and reviewers) of what constitutes these impacts. Proposals generally (though not universally) spoke to the broader impacts of the work proposed – usually emphasizing student training and collaborative linkages. A significant number of proposals also had components that brought the research to wider publics and a smaller number spoke to the broader societal impacts of the work. Reviewers too paid more attention to this aspect of the proposals, though, appropriately enough, proposal reviews and funding decisions emphasized intellectual merit to a greater degree than broader impacts.

In view of the importance of Broader Impacts, we were surprised by the fact that so few archaeology proposals took advantage of the REU program. We **recommend** that BCS be more pro-active promoting these opportunities through vehicles like webinars and other means as appropriate.

7. Do you have additional comments about the program portfolio and the projects the program supports?

Nothing to add.

V. Questions for Division Level Discussion. Please provide comment on both scientific and management aspects of the following division-specific questions:

1. Looking forward over the next 10 years, what is your vision for the intellectual future of BCS? Keeping in mind probable budget constraints, what infrastructure would be needed to attain this vision?

Social and behavioral sciences, while recognized as components in many (most) transdisciplinary areas of investigation are often relegated to after-thought add-ons to collaborative efforts focusing on these areas. As a result, the perspectives, analytical tools, and the overall impact of social and behavioral sciences in such initiatives is often limited. BCS (and indeed SBE) “bigger science” should be geared to placing the social and behavioral sciences in the center of initiatives that reach across not only programmatically within BCS, but also across divisions within the SBE directorate, and across other directorates within NSF.

Three such areas arose as the result of a NSF funded conference designed at identifying “Grand Challenge” areas for 21st century archaeology. The goal of this conference, and a preceding “crowd-sourcing” survey of the archaeological community, was to identify broad scale questions of societal relevance that archaeology is well positioned to address. Another goal of the conference was to explore the data and modeling requirements of these questions, with an eye toward building a foundation of a plan for major NSF investment in computational infrastructure that can result in scalar transformations of our ability to address major problems in archaeology and science more broadly.

These three areas are:

Human-Environmental Interactions through Time and Space

This research domain focuses on how human activities have shaped, continue to shape, and will shape earth’s biological and physical systems. It makes reference to the recent effort within the geological sciences to designate a new epoch on the geological time scale, the Anthropocene, in which humans become the dominant drivers of Earth systems – an effort that, to date, has not included researchers in the social sciences. Centering such an effort within BCS, would provide a platform for reaching across programs within the division, across the SBE Directorate, and would engage researchers in other Directorates (i.e. Biological Sciences, Geosciences, Mathematical and Physical Sciences).

Movement, Mobility, and Migration

This research domain would also have a broad temporal reach – past, present, and future, examining the forces that both propel and shape the movement of individuals and groups across a range of spatial scales. Once again, such an initiative would require the collaborative efforts of multiple networks of researchers working within the social sciences, as well as, to some extent, the biological and physical sciences. There might also be opportunity for involvement of more humanities oriented disciplines to play a role in such an initiative.

Cognition, Behavior, and Identity

An initiative focusing on these issues would bring together cognitive sciences and other behavioral and social sciences in examining the factors shaping cognition, behavior, and identity in both individuals and groups. Once again, there would be a deep temporal scale by including the study of the evolutionary factors that shape human cognition and the origins of modern human behavior. The reach of this initiative would likely remain largely within the boundaries of the BCS, but it would provide an opportunity for the somewhat disparate programs included within the division to demonstrate a greater coherency and potential for cross-illumination than might otherwise be apparent.

Specific infrastructure requirements would depend largely on the “big-question” initiatives that are ultimately adopted. Each of the questions outlined above, and indeed any “big-question” initiative would require broad-based, interdisciplinary collaborative efforts involving large networks of researchers. Such questions would also require also major cyber-infrastructure investment in integrating relevant data and modeling, tapping into NSF’s larger interest (and funding pools) for enhancing computational infrastructure.

2. Archeology and Archeometry-14

We suggest a format for the implementation of “big-question” initiatives in Question 2 below.

2. One of the objectives in the BCS Strategic Plan is to fund “bigger science.” In addition, NSF may place greater emphasis on mid-scale research in the near future, to provide a mechanism for researchers to ask for larger awards than the average for a program, but smaller than something like a center/network/observatory. What advice would you give the division in encouraging mid-scale research for the BCS sciences? How might BCS support bigger science, and what metrics might it use to determine success in doing so?

In our view, one of the most efficient ways of generating “bigger science” in BCS is to establish multidisciplinary research centers based the established model of other NSF-funded research centers (e.g. BEACON (Bio/computational Evolution in Action CONSortium) spanning Biology, Computer Science and Engineering). BCS (or perhaps SBE)-focused centers would place at the social sciences at the center of mid-scale integrative research initiatives centered on, for example, the research domains enumerated above (Section V, question 1). The advantage of research centers (either physical or virtual depending on the discipline) is to place scientists from diverse and relevant backgrounds in a position to carry out sustained collaborative initiatives centered on significant and transformative research questions. These centers could also provide the context for other initiatives to further the mission of the center. For example, these might include focused workshop or conference programs designed to bring relevant groups of scientists into sustained discussion around particular topics, issues or collaborative initiatives. Another initiative might be multidisciplinary retraining postdocs designed to provide scientists from one of the collaborating areas with the skills necessary to take full advantage of the multidisciplinary approaches to the research questions relevant to the domain. Still another might be a series of summer schools designed to train doctoral students and others in the methods, techniques and approaches of the center. This is a model successfully used by the Santa Fe Institute and would ensure that the ethos of the center reached further than the more restricted circle of center members.

We recognize that the cost of research centers is significant. However the benefits of the centers to BCS should not be diminished. This type of intense research environment is what is required to place the social sciences at the center of research into major questions that are of concern in the modern world. Not only would they offer the fora to provide answers to some of the major questions confronting 21st Century humanity, but they would also provide an unparalleled training opportunity for young scientists to acquire the academic skills to meet the problems posed by the rapid expansion of humanity and technology and the challenges that this will present in the near and mid-range future.

There are a variety of metrics that could be employed to determine success. These would include annual reports and regular site visits to evaluate center governance, organization and research progress/output. They could also usefully include the success of research students funded by, or otherwise involved with, the center as well as measures of the broader impact in the context of both academic and public engagement with the activities of the center and its research results.

3. As outlined in the division narrative, many programs within BCS are experimenting with innovative approaches to merit review, such as GSS' 1+. What advice would you give the division in thinking about these new approaches? Looking forward, what are effective ways BCS could evaluate and monitor these.

As above (Section I:1) we **recommend** that a two stage review process be adopted for Senior Level grants in which, for the fall review, PIs submit a short (e.g. 3-5 page) structured proposal to be reviewed by 3-4 panel members. This review would not require a formal meeting of the panel. Panel rankings would be submitted to the PO who would determine the proposals that would go forward for full review. Full applications would then be invited from those passing this first level of review. These proposals would go out for *ad hoc* review and be subject to full panel review in the spring. (DIG and High Risk competitions would remain on a rolling submission system.)

We realize that this restructuring would reduce the number of full proposal submissions from two per year to one. But we believe that the pre-application system advocated here will 1) allow PIs to get valuable feedback on proposal concepts prior to preparing a full proposal, 2) provide better control of the volume of full proposals reviewed by the panel, 3) save travel funds by limiting the full panel meeting to one per year, and 4) increase panelist involvement in the review of proposals and thus enhance panel discussions.

We also realize that this reduction in the number of full-submissions submissions from two to one per year might in some programs limit the program's ability to quickly respond to emergent research opportunities. However, we also believe that in the case of many of the programs within BCS this will not be an issue. In most instances, High Risk grants reviewed on a rolling basis allow programs to respond to such opportunities. In general across the Division, we believe that the scale and scope of BSC grants (often involving large teams of individuals, equipment purchases, and complex logistical arrangements) are well suited to such a once a year review process.

Another concern raised about this system is its potential impact on early career researchers for whom NSF funding is an important element in tenure review. The concern here is that a young researcher who does not pass the first level of review will have to wait a year to resubmit a pre-application rather than the current 6 month period. We suspect, however, that the shorter format of the pre-application will actually serve as an inducement to early career researchers to submit proposals to NSF sooner that they would have under the current system. This system will also provide those not proceeding on to the full proposal stage of review useful feedback in revising their resubmissions without the major investment in preparing a full 15 page proposal. For those proceeding on to the next level of review, the preliminary feed-back from panel member reviews will be valuable in framing their full proposals.

Evaluation of the effectiveness of this new system might take the form of:

1. Feedback from PIs, the PO, panel members, and *ad hoc* reviewers
2. Reduction in resubmission rates of full proposals
3. Evaluation of ratios of pre-applications to full-applications for indications that pre-application procedure has succeeded in weeding out uncompetitive submissions
4. Improved panel summaries reflective of broader panel engagement in the review and discussion of proposals

OTHER TOPICS

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

Recommendations made in the body of the report. Starred recommendations will need to be implemented at the agency-wide level.

1. For the DIGs (and perhaps other competitions using *ad hoc* reviewers) a more effective solicitation procedure in which reviewers are given opportunity to decline or accept review responsibility prior to being given access to the proposal should be adopted with the goal of increasing positive response rate and, therefore, lowering the number of review solicitations. *
2. As a further inducement, as possible within NSF guidelines, reviewers should be informed of outcomes of reviews that include redacted copies of all reviews for the applications they reviewed. *
3. The format of the proposal should be streamlined in all competitions to facilitate ease of review (e.g. specified sub-headings that are addressed in order by all applicants). *
4. Consideration should be given to shortening the length of proposals, especially in the case of DIG proposals. *
5. A two stage review process should be adopted for senior level grants in which, for the fall review, PIs would submit a short (e.g. 3-5 page) structured proposal that would be reviewed by 3-4 panel members. This review would not require a formal meeting of the panel. Panel rankings would be submitted to the PO who would determine the proposals that would go forward for full review. Full applications would then be invited from those passing this first level of review. These proposals would go out for *ad hoc* review and be subject to full panel review in the spring.
6. Consideration should be given to finding ways to have more panel involvement in reviewing, or at least reading, all proposals in the spring docket to broaden the forum for discussion of proposals under review.
7. A review should be undertaken of the effectiveness of CAREER grants in the overall Archaeology/Archaeometry program with consideration be given to eliminating this category of proposal from the Archaeology/Archaeometry portfolio.
8. More weight should be put on the data management statement in proposal preparation and review.
9. More explicit guidelines are needed on preparing the Data Management plan. In addition, reviewers need more guidance on criteria for reviewing DM plans.
10. PI should be encouraged to include a line item for data management (digital and non-digital) in proposal budgets, with preference given to data management involving established repositories.
11. A new category of funding should be included in the Archaeometry competition that pertains to data archiving (both basic data storage and improvements in archival practices) along the same line of infrastructural funding NSF currently provides for laboratories conducting archaeometrical research (e.g. MURR and AU dendrocronological laboratory).
12. More attention should be given to ensuring that the panel reviews include a more comprehensive consideration of these *ad hoc* and panelist reviews, especially when there is a difference in rankings. If possible excerpts from the PO panel summary should be included in panel summaries.
13. PIs should be strongly discouraged to resubmit after 3 unsuccessful submissions.

14. A separate (one page) resubmission statement in which the PI is given the opportunity to explicitly address the comments of reviewers should be made a formal part of resubmitted proposals.
 15. Future COV panels should be provided with statistics about resubmission rates and the success of resubmissions.
 16. COV members should be provided either the entire sample of proposals in the EJacket (with explicit instructions that full review of all proposals is not expected) so that the range of topics of proposals (funded and declined) can be more intelligently assessed. In lieu of this, a list of proposals (including PIs, institutions, competition, duration, award status, and proposal title) would help in this regard.
 17. The Archaeology/Archaeometry Program, working in concert with the Society for American Archaeology, should initiate an effort to investigate the disparity in men and women submission rates in Archaeology suggested in the 09-11 data provided to the COV and, if substantiated consider how this disparity might be mediated.
 18. The BCS and the Archaeology/Archaeometry Program should be more proactive in promoting these cross-program initiatives that would help leverage funding for archaeology through such mechanisms as webinars and/or sponsoring fora in professional meetings where these opportunities are discussed.
 19. The Archaeology/Archaeometry Program needs to be more pro-active in promoting REU to the archaeological community through such vehicles as webinars and others means as appropriate.
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.

No additional comments.

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

See above

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

No additional comments.

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

One of us [MZ] served on the 09 COV and can say that the 12 COV was much better briefed about the purpose, the workload, and the expectations of the NSF COV process. The Webinar conducted in August 2012 was remarkably helpful in this regard. Moreover questions on the COV template were stream-lined and had less redundancy than in the 09 COV template. There is some room for improvement and we make two such recommendations (recommendations #15 and 16) above.

SIGNATURE BLOCK:

Leslie Aiello

Melinda Zeder

For the 2012 BCS COV
Nina Jablonski
Chair

3. Biological Anthropology

CORE QUESTIONS and REPORT TEMPLATE for FY 2012 NSF COMMITTEE OF VISITOR (COV) REVIEWS

Background Information: This document includes the FY 2012 set of Core Questions and the COV Report Template for use by NSF staff when preparing and conducting COVs during FY 2012.

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

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

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

**FY 2012 REPORT TEMPLATE FOR
NSF COMMITTEES OF VISITORS (COVs)**

The table below should be completed by program staff.

Date of COV: <i>October 10-12, 2012</i>
Division: Behavioral and Cognitive Sciences (BCS)
Directorate: Social, Behavioral, and Economic Sciences (SBE)
Number of actions reviewed: Awards: 563 Declinations: 571 Other: 15 (includes proposals withdrawn and funded elsewhere [DEL awards funded by NEH])
Total number of competitive actions within the Division during period under review: Awards: 1761 Declinations: 6189 Other: 351 (includes 217 supplement award actions)
Manner in which reviewed actions were selected: <p>Sample Pool: The initial pool of actions sampled for each program included all competitive awards, declines, withdrawn proposals for FYs 2009-2011. In order to prevent oversampling of collaborative projects, lead proposals were included but sub-proposals were not (although the non-lead collaboratives are linked to the leads and made available within the eJacket module). Non-competitive actions, such as continuing grant increments of multi-year awards, and transfers between PIs or Institutions were excluded.</p> <p>Random Sampling Method: Using a random integer function, all proposals in the sample pool were given randomly assigned a number. Lists were then sorted and the first 45 awards/ 45 declines were selected, for a total of 90 actions per program. <u>Exceptions:</u> Geography and Spatial Sciences and Cultural Anthropology programs have much higher proposal loads than other BCS programs, so the first 70 awards/ 70 declines were sampled.</p> <p>For programs that consider a large number of doctoral dissertation research improvement grants</p>

(DDRIGs), those actions were sampled separately from the regular/ senior proposals. The relative percentages of DDRIGs included in the sample are in proportion to the number of DDRIGs handled by those programs, on average.

COIs: for sampled actions in which a relevant committee member had been a PI, or had an institutional conflict of interest, the action was removed and replaced with the proposal assigned the next highest random number.

**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 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, <i>ad hoc</i>, site visits) appropriate?</p> <p>Comments:</p> <p>We believe that the ad-hoc plus panel review process works well and is critical to the accurate and efficient evaluation of proposals. We believe in person panel meetings are essential. We discourage the use of virtual panels.</p> <p>We see the ad-hoc review response rate as an issue that needs to be addressed. In many instances reviewer response rate is very low. This is an issue across our discipline (at other agencies as well as journals). Nonetheless, it seems that it would be ideal to have three <i>ad hoc</i> reviews whenever feasible. We believe that only a single <i>ad hoc</i> review is likely insufficient. We recognize that the current program officer has instituted some changes in how reviews are solicited, and that these may increase reviewer response rate. This is an issue that should be watched closely. In addition, we RECOMMEND that the program implement additional measures to increase reviewer response rate. We recommend these include automatic email reminders from the FastLane system as the due date for reviews nears. We additionally suggest the automated use of alternate reviewers that would be invited in the event that a primary reviewer does not respond or declines to review. The use of alternate reviewers will help avoid either over or under yielding reviews and should alleviate the default rate due to reviewers thinking a large number of other reviewers will undertake their task. To build community among reviewers, NSF might consider allowing ad-hoc reviewers to participate (virtually or otherwise) in panel discussion of the proposal(s) they have reviewed.</p>	<p>YES</p>

<p>We RECOMMEND that for future COVs that statistical data be provided that analyzes the success rate of senior proposals relative to the total number of reviews received. Data that considers the success rate of two panel proposals, one of which is Biological Anthropology, would also be useful to the COV.</p>	
<p>2. Are both merit review criteria addressed</p> <p>d) In individual reviews?</p> <p>e) In panel summaries?</p> <p>f) In Program Officer review analyses?</p> <p>Comments:</p> <p>We strongly support the spirit and intent of BI and we see progress from the 2009 report. Nonetheless, we also see some simple steps that are needed to improve the BI plans and their impact on the science and society.</p> <p>While BIs are addressed in reviews and panel summaries, in many instances BIs are simply repeated verbatim from the grant text by the reviewers; and then into the panel summary and review analysis. There were numerous instances in which there was essentially no differentiation made between a well developed BI plan and a poor one. And often within the context of the materials that went to the rejected PI there was no mention made of how to improve BI (or that it was necessary to do so). As a result resubmitted grants often didn't address these. While it is difficult to assess without seeing ALL of the grants awarded and declined in a cycle, it seems there may be no 'value-added' to a grant or its possibility of getting funded if it has a well-developed BI plan. So while the 'box' is getting checked, the intent of the initiative isn't being fulfilled as efficiently as possible.</p> <p>We RECOMMEND that both the Senior and DDRIG programs would benefit from putting greater emphasis on improving BIs between grant submissions and by rewarding good BIs when Intellectual Merit is comparable between grant proposals.</p> <p>We RECOMMEND that the panel summaries and program officer reports focus more intensively and constructively on the BI and how they could be improved. This is especially important for those that go back to declined PIs as they should be encouraged to develop a better BI Plan. The goal should be to move PIs toward developing their research and BI plans in tandem. We understand that NSF already has explicit guidelines for BIs and we RECOMMEND that declined PIs receive an embedded link to these NSF guidelines with their panel summaries. We further recommend that reviewers receive a link to these definitions and a reminder of their critical nature at the time of review.</p>	<p>YES</p> <p>YES</p> <p>YES</p>

<p>3. Do the individual reviewers provide substantive comments to explain their assessment of the proposals?</p> <p>Comments:</p> <p>The program officers do an excellent job of picking appropriate experts for proposal review and the ad-hoc reviewers provide important perspectives on proposals that are an essential part of the merit review process. As is to be expected, there is a range of detail provided by individual reviewers and panels. We RECOMMEND that providing a more structured series of questions that reviewers address may help to standardize the level of reviewer input.</p> <p>As noted above, reviewer yield rate is an issue that needs addressing as both over and under yield may pose issues for panel review. We have made specific suggestions above (I-1) as to how yield might be improved.</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:</p> <p>The panel system is a critical link in the merit review process and it operates well in the biological anthropology program. The panel summaries provide critical information to the PI as to why and how decisions were reached on a particular grant and the context of the other grants with which they were competing. Generally, these summaries are adequate and they are particularly thorough, as we believe they should be, in the DDRIG program.</p> <p>We note that the ranking categories varied by program officer but in most cases included a 'Noncompetitive Revise and Resubmit' category. We RECOMMEND that this be renamed 'Noncompetitive Encourage to Reapply' in order that the resubmission of a modified grant not be misconstrued as similar to the process (and outcome) of revising and resubmitting a paper for publication.</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 jacket usually includes context statement, individual reviews, panel summary (if applicable), site visit reports (if applicable), program officer review analysis, and staff diary notes.)</p> <p>Comments:</p> <p>We were impressed with the documentation.</p>	<p>YES</p>
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<p>6. Does the documentation to 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 or telephoned with diary note in jacket) of the basis for a declination.)</p> <p>Comments:</p>	<p>YES</p>
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<p>7. Additional comments on the quality and effectiveness of the program's use of merit review process:</p> <p>The DDRIG program and the Senior program tend to select for different skill sets in the review process. The DDRIG program tends to work more like a journal review process in which resubmissions work on issues raised on the panel and often get funded in subsequent rounds – even in instances where there still remained important issues. The Senior program does not do this because the <i>ad hoc</i> reviewers often change. There tends to be more flexibility in this program to get appropriate reviewers than there does in the DDRIG. And it is more possible to get funded from a not competitive and do not resubmit category to a fund category in the next round. Whereas there is more institutional memory in the DDRIG. The impacts of COIs on the panel for a DDRIG are more severe than for the senior panel.</p>	
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Summary of Recommendation - Merit Review

1. We RECOMMEND that the program implement additional measures to increase reviewer response rate. We recommend these include automatic email reminders from the FastLane system as the due date for reviews nears.
We additionally suggest the automated use of alternate reviewers that would be invited in the event that a primary reviewer does not respond or declines to review. Further, NSF might consider allowing ad-hoc reviewers to participate (virtually or otherwise) in panel discussion of the proposal(s) they have reviewed.
2. We RECOMMEND that for future COVs that statistical data be provided that analyzes the success rate of senior proposals relative to the total number of reviews received. Data that considers the success rate of two panel proposals, one of which is Biological Anthropology, would also be useful to the COV.
3. We RECOMMEND that both the Senior and DDRIG programs would benefit from putting greater emphasis on improving BIs between grant submissions and by rewarding good BIs when Intellectual Merit is comparable between grant proposals.
4. We RECOMMEND that the panel summaries and program officer reports focus more intensively and constructively on the BI and how they could be improved. This is especially important for those that go back to declined PIs as they should be encouraged to better develop their BI Plan. We understand that NSF already has explicit guidelines for BIs and we RECOMMEND that declined PIs receive an embedded link to these NSF guidelines with their panel summaries. We further recommend that reviewers receive a link to these definitions at the time of review.
5. We RECOMMEND that providing a more structured series of questions that reviewers address would help to standardize reviewer input.
6. We RECOMMEND that the category 'Noncompetitive Revise and Resubmit' be renamed Noncompetitive Encourage to Reapply in order that the resubmission not be misconstrued as similar to the process (and outcome) of revising and resubmitting a paper for publication.

II. Questions concerning the selection of reviewers. Please answer the following questions about the selection of reviewers and provide comments or concerns in the space below the question.

SELECTION OF REVIEWERS	YES , NO, DATA NOT AVAILABLE, or NOT APPLICABLE
<p>1. Did the program make use of reviewers having appropriate expertise and/or qualifications?</p> <p>Comments:</p> <p>The program officers do an excellent job of picking appropriate experts for proposal review and the ad-hoc reviewers provide important perspectives on Senior proposals that are an essential part of that merit review process. Reviewer expertise was sometimes more difficult in the context of the DDRIG program, which is entirely a panel review system in which expertise may be limited by panel composition and size. This is most difficult in cases of multiple COIs with panel members – which results in the experts for that area being unavailable for review and may hinder the appropriate review of that particular DDRIG grant (there was at least one case of this in the materials reviewed by this COV). This may be particularly problematic in years in which there is only a single DDRIG cycle, although the problem may be mitigated if more proposals are funded per cycle. We RECOMMEND that the PO monitor DDRIG COIs closely and solicit ad-hoc reviews when necessary.</p>	YES
<p>2. Did the program recognize and resolve conflicts of interest when appropriate?</p> <p>Comments:</p> <p>The PO, reviewers and panel members do a good job of monitoring and declaring COIs relative to proposals. There were at least two instances of a collaborator ad-hoc reviewing a Senior grant. The COI was declared at the end of the review, and the reviewer suggested that they did not believe this influenced their impartiality. The review stayed in the jacket that the panel considered.</p>	YES

<p>Additional comments on reviewer selection:</p> <p>Summary of Recommendations - Reviewer Selection:</p> <p>1. We RECOMMEND that the PO monitor DDRIG COIs closely and solicit ad-hoc reviews when necessary</p>	<p>NO</p>
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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:</p> <p>Program officers in Biological Anthropology do an excellent job of coordinating a heavy proposal load with limited staff and budget. However, there were multiple program officers in the years being evaluated by the COV, and the current program officer was not part of the team during those years. We believe that the long term program planning and prioritization is negatively impacted by the frequent change in program officer. This is a difficult job to get up to speed on in a single year, and it is difficult to see any carry through and long term planning when the PO is of short duration – thus the program would likely benefit from a longer term person in the ranks.</p>
<p>2. Responsiveness of the program to emerging research and education opportunities.</p> <p>Comments:</p> <p>The program is responding in appropriate ways.</p>

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

Comments:

We think that each of the program officers who have served have been effective stewards of the program. However, we believe that the long term program planning and prioritization is negatively impacted by the frequent change in program officer. This is a difficult job to get up to speed on in a single year, and it is difficult to see any carry through and long term planning when the PO is of short duration – thus we RECOMMEND that the program would likely benefit from a longer term person in the PO ranks or by two POs with staggered terms.

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

Comments:

We strongly support the spirit and intent of BI and we see progress from the 2009 report. The previous COV committee recommended additional attention to BIs and recommended that they be developed along with the development of the research proposal. The two program officers during the time period under review addressed BIs in their review analyses and panel summaries, it is our opinion that some simple steps that are needed to improve the BI plans and their impact on the science and society. Please see our recommendations in section I-2 and IV-6.

Other program responses were appropriate. Following from the preceding COV, program officers committed to multi-year terms starting with Reed (FY10 and FY11) and the current officer who is committed to multiple years in office as allowed by NSF.

IV. Portfolio Review. Please provide comments on whether the program's portfolio goals are appropriate and whether the program has achieved its goals for portfolio balance.

1. Does the program portfolio reflect the disciplines and subdisciplines of the field?

All subdisciplines of biological anthropology are represented in the portfolio, although some appear at lower frequencies than others and may not reflect their relative representation in the field. The three areas with the greatest percentage of the funding are primatology, paleoanthropology, and human biology. Bioarchaeology and possibly molecular anthropology appear underrepresented. We have insufficient data to assess whether these percentages reflect similar success rates (i.e., # funded/#submitted) across disciplines.

Disaggregated by year, there are significantly more proposals funded in the program officer's subdiscipline (i.e., primatology or paleoanthropology). We suspect, but cannot confirm with the data at hand, that this may be due to increased submission rates in those subdisciplines during these years. We RECOMMEND that the relationship between submission rates and program officer subdiscipline be assessed. If differential submission rates are verified, we RECOMMEND that two program officers of different subdiscipline be appointed. We RECOMMEND that future COVs be provided access to the full set of decisions for the period under evaluation such that trends such as these can be assessed by the COV members.

We speculate that the award profile does not reflect the relative size of some subareas within biological anthropology. For example, bioarchaeology is a large and growing area within biological anthropology yet the sample we reviewed had vanishingly few bioarchaeology submissions. We have insufficient data to ascertain whether this is a true reflection of submission rates; however, given the overwhelming number of bioarchaeology presentations given at the annual AAPA meetings and published in the discipline journals, it seems likely that at least this subarea is underrepresented in some way. Genetics also seems underrepresented in the portfolio. We RECOMMEND that the PO may want to explore whether this is the case and if it is, why, and whether there are additional outreach possibilities to reach these communities.

Is the program responsive to developments within relevant scientific communities?

The program has developed synergistic funding programs in, for example, the HOMINID and Integrative Paleoanthropology programs. Other cross-cutting developments have been supported in, for example, proposals in climate change and evolution and the previous HSD program, aspects of which now are incorporated into the biological anthropology program. Additionally, the program has been responsive to the increased use and development of 3d data collection techniques (CT, laser scanning, digital techniques). While genetics and genomics play a role in some primatology and skeletal biology proposals, the PO may want to explore means for partnering with other programs/directorates to leverage more substantial shared funding for genetics/genomics, which may improve the submission rate in this subdiscipline. Similarly, specific funding opportunities for collaborative proposals

that include human remains as a data source might increase submissions in bioarchaeology, for example. The proposals that this initiative could include are: major adaptive shifts in human evolution; human impacts and environment; behavioral and related context for modern human health and evolution.

2. Are awards appropriate in size and duration for the scope of the projects?

Typically budgets awarded are sufficient relative to the amounts requested. But the overall funding levels are often limited due to budget constraints and this has created a 'culture' of under budgeting projects from the start. This is exacerbated by the growing cost of some cutting edge research, and perhaps explaining relatively few genetics submissions. Experience suggests that panels always reach consensus that there are more proposals in the highest tier of the most competitive rank for any given funding cycle than can be supported at the current budgetary levels. This is clearly shown by the greater funding owing to ARRA during FY09, which temporarily allowed increased funding of excellent science. We RECOMMEND an increased budget to the Biological Anthropology program.

3. What have been especially promising and potentially transformative lines of inquiry that the program has supported?

Many of the transdisciplinary programs in which the program participates, such as HOMINID, have been transformative for the relevant subdisciplines. Additionally, highly integrative grants within the program that combine multiple modalities are often transformative. For example, paleoanthropology grants for evolution, climate, environment and context of human evolution are transforming our understanding of early human and primate evolution, and grants that combine genetic and skeletal data, genetic and linguistic data, and genetic and primatological data are transforming the ways in which we consider and understand the evolution, dispersal, and survival of these organisms.

a. What interdisciplinary activities that the program has supported have been especially promising?

See above.

4. Does the program portfolio demonstrate diversity with respect to geographical distribution of principal investigators and types of institutions?

PIs and their institutions occur throughout the US. However, there is a concentration in PhD granting institutions and greater absolute representation of awards in the Midwest-Northeast and California-Southwest. It should be noted that

these frequencies are not adjusted per capita, per submission, or relative to the number of institutions of higher education; and we note that many prominent Biological Anthropology research programs are in these states. The DDRIGs, as one would predict, come exclusively from R1 universities.

5. Does the program portfolio demonstrate diversity with respect to balance of awards to new investigators, demographics of principal investigators, and participation of underrepresented groups?

Given funding limitations, it is difficult to get funded in first submission and this is true for both the Senior and the DDRIG programs. Thus, there appears to be a skew to older, more experienced PIs in the senior program and to resubmissions in the DDRIG. The statistics provided to the COV combined DDRIG (based on advisor status) and Senior award proposals and show a more substantial skew. We RECOMMEND that future COVs receive statistics on senior proposals alone and on resubmission of DDRIGs.

The previous COV asked for gender statistics and these were provided. Males and females submitted similar numbers of proposals in FY11 and had similar success rates in FY 11 and FY10. In FY09 and FY10 females submitted 2/3 as many applications as males and success rates were significantly lower for females than males in FY09.

The statistics prepared by the program suggest that there are similar success rates for underrepresented minority applicants as for majority applicants. However, because the numbers of underrepresented minority proposals are so few, the high percentages of funding simply reflect their small sample. Underrepresented minority representation is an issue that affects the entire discipline and can be most significantly influenced at the graduate funding level. For future COVs, we RECOMMEND that data on DDRIG student statistics (rather than PI) would be extremely useful in assessing progress on this issue.

6. Does the program portfolio demonstrate compelling broader impacts, including education, enhancement of diversity, infrastructure, and/or societal relevance?

A number of important BIs can be identified during the time period in question. However, the BIs were not as strongly supported as they might have been in the review and panel process. As a result, the BI programs are not particularly well developed in proposals, either awarded or declined. The BIs generally did not reflect commitment to diversity beyond gender representation. There were very few that had robust plans for education/societal relevance, and seemingly little reward for those that did. We understand that current efforts within and above the program

level may improve the efficacy of the BIs and this should be monitored closely. However, we RECOMMEND that the panel summaries and program officer reports focus more intensively and constructively on the BIs and how they could be improved. This is especially important for those that go back to declined PIs as they should be encouraged to better develop their BI Plan. We understand that NSF already has explicit guidelines for BIs and we RECOMMEND that declined PIs receive an embedded link to these NSF guidelines with their panel summaries. We further recommend that reviewers receive a link to these definitions at the time of review, making explicit the fundamental role of BIs in proposal preparation.

While we are unable to assess this with the data at hand, we believe it is critically important that when the intellectual merit of two proposals is equivalent, that the grant with the stronger BI plan should receive a higher rank. We RECOMMEND that future COVs receive the necessary data from the full panels so this may be more systematically assessed. It may also be worth calling this a Broader Impact PLAN rather than a response to a general question.

We RECOMMEND that the biological anthropology program develop programs that help to encourage minority representation within biological anthropology. Given that a significant bottleneck occurs between undergraduate and graduate programs, we suggest that these could include: linking undergraduates to graduate programs via: 1) postbaccalaureate programs, 2) bridge programs from historically minority colleges, and 3) support of undergraduate and graduate participation in national meetings.

7. Do you have additional comments about the program portfolio and the projects the program supports?

It is our belief that there will be increased integration of research within biological anthropology involving multiple subdisciplines addressing common interests and questions (e.g., nutritional change and adaptation), linking past and present, as well as integration of various subdisciplines with other areas of science involving the study of big science issues, such as climate and environmental change, cognition and neuroscience, and health and well-being. That is, we envision a biological anthropology program in the future that is considerably more integrative than now. As the only subdiscipline in anthropology and SBE in general that encompasses all humanity, past and present and on a global scale, biological anthropology is positioned to address broad ranging, integrative questions dealing with the human condition, past and present.

Summary of Recommendation - Portfolio Profile

1. We RECOMMEND that future COVs be provided access to the full set of decisions for the period under evaluation such that trends such as these can be assessed by the COV members.
2. We RECOMMEND that the PO explore whether there is underrepresentation of submissions in bioarchaeology and genetics and if there is, why, and whether there are ways of reaching these communities.
3. We RECOMMEND that the budget of the Biological Anthropology program be increased in size as excellent science is routinely declined due at least in part to budgetary constraints.
4. We RECOMMEND that future COVs receive statistics on success of proposals (relative to prior submission status) of senior proposals separate from those of DDRIGs.
5. For future COVs we RECOMMEND that data on ethnicity for DDRIG student statistics (rather than PI) would be extremely useful in assessing progress on this issue.
6. We RECOMMEND that the panel summaries and program officer reports focus more intensively and constructively on the BI and how they could be improved. This is especially important for those that go back to declined PIs as they should be encouraged to better develop their BI Plan. We understand that NSF already has explicit guidelines for BIs and we RECOMMEND that declined PIs receive an embedded link to these NSF guidelines with their panel summaries. We further RECOMMEND that reviewers receive a link to these definitions at the time of review.
7. We believe it is critically important that when the intellectual merit of two proposals is equivalent, that the grant with the stronger BI plan should receive a higher rank. We RECOMMEND that future COVs receive the necessary data from the full panels so this may be assessed. It may also be worth calling this a Broader Impact PLAN rather than a response to a general question.
8. We RECOMMEND that the biological anthropology program develop programs that help to encourage minority representation within biological anthropology. We suggest that these could include: linking undergraduates to graduate programs via: 1) postbaccalaureate programs, 2) bridge programs from historically minority colleges and 3) support of undergraduate and graduate participation in national meetings

V. Questions for Division Level Discussion. Please provide comment on both scientific and management aspects of the following division-specific questions:

1. Looking forward over the next 10 years, what is your vision for the intellectual future of BCS? Keeping in mind probable budget constraints, what infrastructure would be needed to attain this vision?

Looking forward, we believe that the current core programs will and should remain vital components of BCS. Within these core programs, and biological anthropology in particular, we encourage an emphasis on supporting proposals that work to 1) de-atomize the sub-subdisciplines within the program (e.g., that work collaboratively across say human biology and skeletal biology), 2) unify data collection protocols across sub-subdisciplines such that disparate databases that speak to similar questions but at different scales can effectively communicate and 3) build meaningful broader impact plans that support and sustain diversity, broadly defined. Central to the suggestions is our belief that there will and should be increased integration of research within core programs (involving multiple subdisciplines addressing common interests and questions (e.g., nutritional change and adaptation), as well as between core programs of BCS. In addition to increased emphasis on integrated research between core programs, we also recommend strategic development of specialized collaborative programs that consider specific cross-cutting themes.

2. One of the objectives in the BCS Strategic Plan is to fund “bigger science.” In addition, NSF may place greater emphasis on mid-scale research in the near future, to provide a mechanism for researchers to ask for larger awards than the average for a program, but smaller than something like a center/network/observatory. What advice would you give the division in encouraging mid-scale research for the BCS sciences? How might BCS support bigger science, and what metrics might it use to determine success in doing so?

A primary means of encouraging mid-scale research for the BCS sciences is to send out announcements for proposals that address key questions regarding large, integrative issues that require multidisciplinary approaches, such as those relating to climate change, dietary shifts, and natural disasters. These programs should be explicitly designed to provide the possibility for leveraging funds across directorates. BCS could engage bigger science by providing expanded budgets in support of PI, postdoctoral and graduate student salaries, undergraduate training, and staff support that would allow additional dedication of personnel time to the scientific program.

Success of programs and projects can be evaluated on the basis of contributions to the disciplines such as publications, presentations, and public outreach and engagement. Success should also be assessed relative to effectiveness of broader impacts plans in diversifying the discipline, and facilitating the placement of undergraduates in graduate programs and developing a more diverse group of future scientists.

3. As outlined in the division narrative, many programs within BCS are experimenting with innovative approaches to merit review, such as GSS' 1+. What advice would you give the division in thinking about these new approaches? Looking forward, what are effective ways BCS could evaluate and monitor these new practices?

We consider the merit review process used by both the Senior and the DDRIG programs in biological anthropology to be appropriate and effective as currently formulated. We consider *ad hoc* reviews to be a critical part of the Senior merit review process and suggest that ideally 3 *ad hoc* reviews per proposal would be most effective. One *ad hoc* review likely under-represents the level of expertise required for a fully informed decision. We also provide above several suggestions for streamlining the *ad hoc* review process and increasing yield rates on *ad hoc* reviews. We believe that the newly instituted funding cycle developed by biological anthropology (3 panels per year; alternating between 1 senior and 2 DDRIG and 2 senior and 1 DDRIG yearly) is likely to reduce workload and enhance *ad hoc* review yield. We would not at this time advocate any greater changes to the *ad hoc* review process. However, if *ad hoc* review yields are not effectively increased over the next three year period, the next COV may wish to consider means for involving *ad hoc* reviewers in panel discussion or other means.

Summary of ALL recommendations - bioanthro COV

Summary of Recommendation - Merit Review

1. We RECOMMEND that the program implement additional measures to increase reviewer response rate. We recommend these include automatic email reminders from the FastLane system as the due date for reviews nears. We additionally suggest the automated use of alternate reviewers that would be invited in the event that a primary reviewer does not respond or declines to review. Further, NSF might consider allowing ad-hoc reviewers to participate (virtually or otherwise) in panel discussion of the proposal(s) they have reviewed.
2. We RECOMMEND that for future COVs that statistical data be provided that analyzes the success rate of senior proposals relative to the total number of reviews received. Data that considers the success rate of two panel proposals, one of which is Biological Anthropology, would also be useful to the COV.
3. We RECOMMEND that both the Senior and DDRIG programs would benefit from putting greater emphasis on improving BIs between grant submissions and by rewarding good BIs when Intellectual Merit is comparable between grant proposals.
4. We RECOMMEND that the panel summaries and program officer reports focus more intensively and constructively on the BI and how they could be improved. This is especially important for those that go back to declined PIs as they should be encouraged to better develop their BI Plan. We understand that NSF already has explicit guidelines for BIs and we RECOMMEND that declined PIs receive an embedded link to these NSF guidelines with their panel summaries. We further recommend that reviewers receive a link to these definitions at the time of review.
5. We RECOMMEND that providing a more structured series of questions that reviewers address would help to standardize reviewer input.
6. We RECOMMEND that the category 'Noncompetitive Revise and Resubmit' be renamed Noncompetitive Encourage to Reapply in order that the resubmission not be misconstrued as similar to the process (and outcome) of revising and resubmitting a paper for publication.

Summary of Recommendations - Reviewer Selection:

1. We RECOMMEND that the PO monitor DDRIG COIs closely and solicit ad-hoc reviews when necessary

Summary of Recommendation - Management

1. We RECOMMEND that the program would likely benefit from a longer term person in the PO ranks or two POs with staggered terms.

Summary of Recommendations - Portfolio Profile

1. We RECOMMEND that future COVs be provided access to the full set of decisions for the period under evaluation such that trends such as these can be assessed by the COV members.
2. We RECOMMEND that the PO explore whether there is underrepresentation of submissions in bioarchaeology and genetics and if there is, why, and whether there are additional outreach possibilities to reach these communities.
3. We RECOMMEND that the budget of the Biological Anthropology program be increased in size as excellent science is routinely declined due only to budgetary constraints.
4. We RECOMMEND that future COVs receive statistics on success of proposals (relative to prior submission status) of senior proposals separate from those of DDRIGs.
5. For future COVs we RECOMMEND that data on ethnicity for DDRIG student statistics (rather than PI) would be extremely useful in assessing progress on this issue.
6. we RECOMMEND that the panel summaries and program officer reports focus more intensively and constructively on the BI and how they could be improved. This is especially important for those that go back to declined PIs as they should be encouraged to better develop their BI Plan. We understand that NSF already has explicit guidelines for BIs and we RECOMMEND that declined PIs receive an embedded link to these NSF guidelines with their panel summaries. We further RECOMMEND that reviewers receive a link to these definitions at the time of review.
7. We believe it is critically important that when the intellectual merit of two proposals is equivalent, that the grant with the stronger BI plan should receive a higher rank. We RECOMMEND that future COVs receive the necessary data from the full panels so this may be assessed. It may also be worth calling this a Broader Impact PLAN rather than a response to a general question.
8. We RECOMMEND that the biological anthropology program develop programs that help to encourage minority representation within biological anthropology. We suggest that these could include: linking undergraduates to graduate programs via: 1) postbaccalaureate programs, 2) bridge programs from historically minority colleges and 3) support of undergraduate and graduate participation in national meetings

SIGNATURE BLOCK:

For the 2012 BCS COV

Susan Antón

Clark Larsen

OTHER TOPICS

1. Please comment on any program areas in need of improvement or gaps (if any) within program areas.
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.
3. Please identify agency-wide issues that should be addressed by NSF to help improve the program's performance.
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.

SIGNATURE BLOCK:

For the 2012 BCS COV
Nina Jablonski
Chair

4. Cognitive Neuroscience

CORE QUESTIONS and REPORT TEMPLATE for FY 2012 NSF COMMITTEE OF VISITOR (COV) REVIEWS

Background Information: This document includes the FY 2012 set of Core Questions and the COV Report Template for use by NSF staff when preparing and conducting COVs during FY 2012.

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

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

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

**FY 2012 REPORT TEMPLATE FOR
NSF COMMITTEES OF VISITORS (COVs)**

The table below should be completed by program staff.

<i>Date of COV: October 10-12, 2012</i>
Division: Behavioral and Cognitive Sciences (BCS)
Directorate: Social, Behavioral, and Economic Sciences (SBE)
Number of actions reviewed: Awards: 563 Declinations: 571 Other: 15 (includes proposals withdrawn and funded elsewhere [DEL awards funded by NEH])
Total number of competitive actions within the Division during period under review: Awards: 1761 Declinations: 6189 Other: 351 (includes 217 supplement award actions)
Manner in which reviewed actions were selected: <p>Sample Pool: The initial pool of actions sampled for each program included all competitive awards, declines, withdrawn proposals for FYs 2009-2011. In order to prevent oversampling of collaborative projects, lead proposals were included but sub-proposals were not (although the non-lead collaboratives are linked to the leads and made available within the eJacket module). Non-competitive actions, such as continuing grant increments of multi-year awards, and transfers between PIs or Institutions were excluded.</p> <p>Random Sampling Method: Using a random integer function, all proposals in the sample pool were given randomly assigned a number. Lists were then sorted and the first 45 awards/ 45 declines were selected, for a total of 90 actions per program. <u>Exceptions:</u> Geography and Spatial Sciences and Cultural Anthropology programs have much higher proposal loads than other BCS programs, so the first 70 awards/ 70 declines were sampled.</p> <p>For programs that consider a large number of doctoral dissertation research improvement grants</p>

(DDRIGs), those actions were sampled separately from the regular/ senior proposals. The relative percentages of DDRIGs included in the sample are in proportion to the number of DDRIGs handled by those programs, on average.

COIs: for sampled actions in which a relevant committee member had been a PI, or had an institutional conflict of interest, the action was removed and replaced with the proposal assigned the next highest random number.

**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 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>QUALITY AND EFFECTIVENESS OF MERIT REVIEW PROCESS</p>	<p>YES, NO, DATA NOT AVAILABLE, or NOT APPLICABLE</p>
<p>1. Are the review methods (for example, panel, <i>ad hoc</i>, site visits) appropriate?</p> <p>Comments:</p> <p>The CNS division has effectively implemented review procedures over the reviewed period, utilizing expert panels and appropriately chosen external (ad-hoc) reviewers where necessary. Panel make-up has consisted of both senior and junior investigators, although the weighting towards more junior members was felt to be a continuing challenge, and efforts to increase the ratio of senior members who will have a larger perspective on the field, should be emphasized. Continuity on the panel was seen as an issue, again, particularly with regard to senior membership. We found that very few members served more than 2 or 3 times consecutively. Many members served only once in the cycle.</p> <p>With regard to utilization of ad-hoc reviewers, the COV members charged with evaluating the CNS program felt that the large disparities in the numbers of ad-hoc reviewers assigned to any given proposal was a potentially serious issue. While it is understood that engaging outside reviewers is a major challenge, this variability has the potential to adversely impact review consistency. More generally, we worried that the ad-hoc reviews were highly variable in quality, and may not be given a great deal of weight at panel discussions. Given that the ad-hoc reviewer often sees only a single proposal, there is a potential issue regarding calibration of scoring. Frankly, the use of the ad-hoc reviewer system was questioned as a whole. Objective measures to assess the impact of ad-hoc reviews above and beyond member reviews could shed some</p>	<p style="text-align: center;">YES</p>

<p>much needed light on this issue. That is, do the ad-hoc reviews significantly impact ranking decisions and provide valuable feedback to the applicants. Applicants receiving multiple reviews are not provided with information regarding the differential weighting of member reviews over ad-hoc reviews (a weighting disparity that was acknowledged by NSF program staff). This could be easily remedied by identifying those reviews that came from panel members versus ad-hocs.</p> <p>Suggestions to streamline and accelerate the entire review system (provided below) could potentially obviate the need to engage so many reviewers (often as many as 8), reduce the burden on both program staff and reviewers, likely without any loss of fidelity in the system.</p>	
<p>3. Are both merit review criteria addressed</p> <p>g) In individual reviews? Typically they are, although there clearly remains some confusion amongst both reviewers and proposers as to exactly what these two rather broad criteria actually mean. Since this is a perennial issue, and has been raised in previous COV cycles, we have provided some concrete proposals for reorganizing the review process (and the proposal categories) to address this confusion (see below).</p> <p>h) In panel summaries? In the past cycle, the PO has done an excellent job in this regard. As above.</p> <p>i) In Program Officer review analyses? As above, the PO has done an admirable job in summarizing both criteria for each proposal.</p> <p>Comments:</p> <p>Please see suggestions for amendments to the review procedures.</p>	<p>YES</p>

<p>3. Do the individual reviewers provide substantive comments to explain their assessment of the proposals?</p> <p>Comments:</p> <p>The quality of the reviews (especially from panel members) tends to be excellent and typically quite comprehensive. On the other hand, as mentioned above, there is great variability across ad-hoc reviewers, ranging from superb to sometimes quite poor. Greater structure to the review template would likely alleviate much of this variance in review quality. Use of numerical scales could help to make the process more objective and to allow for tracking of metrics.</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:</p> <p>The PO's panel summaries were universally excellent in this regard.</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 jacket usually includes context statement, individual reviews, panel summary (if applicable), site visit reports (if applicable), program officer review analysis, and staff diary notes.)</p> <p>Comments:</p> <p>The analyses provided for funding decisions were very thoughtful and comprehensive. It was clear that the PO's decision was consistent with the panel discussion and general scoring patterns. Rationales for pursuing different aspects of the portfolio were well-reasoned and compelling, and the write-ups were transparent and helpful.</p>	<p>YES</p>

<p>6. Does the documentation to 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 or telephoned with diary note in jacket) of the basis for a declination.)</p> <p>Comments:</p> <p>These documents were extremely well constructed and very comprehensive. A wealth of relevant and direct information is provided to the PI. One note though pertains to the distinction between member reviews and ad-hoc reviews detailed above. It is clear that member reviews receive greater weighting during the panel (since they are obviously in situ to argue their case). This differential weighting is not communicated in the documentation provided to the applicants.</p>	<p>YES</p>
<p>7. Additional comments on the quality and effectiveness of the program's use of merit review process:</p> <p>While it was felt that the program staff has done an admirable job over the past 3 years, suggestions for reorganization of the merit review process are appended here.</p> <p>In order to increase the quality and innovativeness of the science submitted to the CNS program, we recommend several changes for the streamlining and acceleration of proposal review and turnaround. This is felt necessary if NSF-CNS is not to continue being seen by the CNS research community as a secondary (fallback) funding source to that of the NIH. That is, the program needs to distinguish itself from the NIH institutes by becoming a rapid-responding system for high-impact basic research.</p> <ol style="list-style-type: none"> 1) Move to at least three review dates per annum. 2) Use online interactive panel reviews, which will curtail costs associated with travel and necessary time investment of review panel. The savings will allow for expansion of the number of sitting panel members, reduction in the number of proposals to be reviewed by each, and obviate the need for ad-hoc reviewers. 3) Restructure the review template with an itemized scoring system that allows for more objective inter-proposal numerical comparisons (Example sections: 1) Innovation and Impact, 2) Benefit to Society, 3) Research Strategy, 4) Research Environment and Personnel, 5) Training, 6) Data-sharing & Dissemination Plan). 4) Reduce proposal to ten pages in length and restrict potential funding period to a maximum of three years. 	

<p>5) Limit annual direct costs to \$120,000.</p> <p>6) Set a hard streamlining cut-off (e.g. 60% and below) to allow for more meaningful discussion of potentially competitive proposals during panel discussion. Release unedited reviews to streamlined grants as soon as possible so that PI's can revise proposals speedily and resubmit on a considerably accelerated timescale. Release scores to all grant proposals within 7 days of panel meeting, and release summary statements within 6 weeks.</p> <p>7) Implement a three-strikes rule for repeatedly uncompetitive proposals. Further submissions would need prior approval of the PO.</p> <p>8) Introduce a mechanism (i.e. a rebuttal page) so that PI's can respond to previous reviews effectively.</p>	
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II. Questions concerning the selection of reviewers. Please answer the following questions about the selection of reviewers and provide comments or concerns in the space below the question.

SELECTION OF REVIEWERS	YES , NO, DATA NOT AVAILABLE, or NOT APPLICABLE
<p>1. Did the program make use of reviewers having appropriate expertise and/or qualifications?</p> <p>Comments:</p> <p>As above, we would recommend a stronger representation of more senior faculty who will bring greater expertise and a broader perspective.</p>	YES
<p>2. Did the program recognize and resolve conflicts of interest when appropriate?</p> <p>Comments:</p> <p>We found no issues relating to COIs.</p>	YES

<p>Additional comments on reviewer selection:</p> <p>Maintain a database of reviewers and metrics on their performance, turn-around times, quality etc.</p>	
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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:

Given the general limitations in resources, the program management has been very effective. We would note that the previous COV recommended the appointment of a permanent PO, which is clearly badly needed, but this program still relies on a single rotating individual. This is simply not ideal and undoubtedly contributes to the relatively slow pace of review. In a field that is moving at the incredibly rapid rate that CNS is, this lack of responsiveness is greatly diminishing the effectiveness of this program and its attractiveness to our leading researchers.

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

Comments:

The portfolio of funded projects spans all the major cutting-edge techniques and has responded very well to emerging areas of high impact. There has been investment in multi-modal imaging techniques, computational modeling approaches, animal and human models. Of course, given the size of the program, these investments have been necessarily limited.

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

Comments:

Unclear what this means.

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

Comments:

Both POs have carefully considered previous COV comments and recommendations. The July 2012 updates have been particularly useful. However, it was also clear that it has not been possible to implement many of the suggested changes for various reasons, including financial and logistic.

IV. Portfolio Review. Please provide comments on whether the program's portfolio goals are appropriate and whether the program has achieved its goals for portfolio balance.

1. Does the program portfolio reflect the disciplines and subdisciplines of the field?

1.1 Is the program responsive to developments within relevant scientific communities?

The portfolio of funded projects spans all the major cutting-edge techniques and has responded exceptionally well to emerging areas of high impact. Areas of particular strength are seen in multisensory integration (cross-modal) projects, visual object recognition and learning studies, selective attention and language/speech representation. A very wide range of methodologies, theoretical approaches and domains of investigation are represented, and the COV found very little to fault in this regard. Perhaps one area that might be targeted for amplification is work in the area of cognitive and brain development in children and adolescents, an undertaking that might be best achieved through close collaboration with the Developmental & Learning Sciences program. Another area that might be targeted is higher-order decision-making and problem-solving mechanisms, although there is some modest representation of this field in the portfolio. The portfolio is dominated by single-investigator initiated projects, and an effort to build larger integrative teams of scientists across both institutions and scalar levels of study could be considered. Here again, this might be best achieved by forming better alliances across the BCS programs. Perhaps a joint RFA could be considered (e.g. emanating from Cogneuro, Social and Developmental). While there is work bridging non-human primate work and human neuroscience, there is as yet, no effort underway to link human cognitive neuroscience work to work in lower experimental animals, and genetic models - which might benefit from joint programs with the section on Biological Sciences. Lastly, there is a bias in the portfolio to studies in the visual system which may well represent a bias in the proposals being submitted, but some emphasis could be put on expanding the portfolio into other sensory and multimodal systems. Overall, however, the COV could find very little fault in the breadth and scope of the portfolio that has been compiled over the past three years.

<p>2. Are awards appropriate in size and duration for the scope of the projects?</p> <p>In general, awards seem appropriate in both size and duration, although a recommendation would be to consider initiating a rapid-review small-grants program that would be more responsive to cutting-edge, fast moving projects.</p>
<p>3. What have been especially promising and potentially transformative lines of inquiry that the program has supported?</p> <p>3.1 What interdisciplinary activities that the program has supported have been especially promising?</p> <p>There has been significant investment in multi-modal imaging techniques, computational modeling approaches, and both animal and human models. It is recommended that this aspect of the portfolio be further enhanced as it still represents a minority of current projects, and it represents a direction that the field should be moving strongly towards.</p>
<p>4. Does the program portfolio demonstrate diversity with respect to geographical distribution of principal investigators and types of institutions?</p> <p>The distribution of awards reflects the existing geographic concentrations of major research institutions.</p>
<p>5. Does the program portfolio demonstrate diversity with respect to balance of awards to new investigators, demographics of principal investigators, and participation of underrepresented groups?</p> <p>There is an excellent mix of both seasoned senior investigators and up-and-coming junior scientists. Female investigators are very well represented. Hispanic and Asian investigators are very well represented, but African Americans are not, although the number of applications submitted by this latter group is small relative to the other groups.</p>
<p>6. Does the program portfolio demonstrate compelling broader impacts, including education, enhancement of diversity, infrastructure, and/or societal relevance?</p> <p>Metrics of achievement with respect to broader impacts are generally ill-defined and could be significantly improved since there is a lot of variability in individual PI's accomplishments in this regard. One approach suggested above is to have a more</p>

concrete and structured listing of specific components that constitute broader impacts. Most projects do, however, include significant involvement of graduate students, postdocs and other trainees and often detail explicit plans to include more diverse involvement of trainees and participants.

7. Do you have additional comments about the program portfolio and the projects the program supports?

V. Questions for Division Level Discussion. Please provide comment on both scientific and management aspects of the following division-specific questions:

1. Looking forward over the next 10 years, what is your vision for the intellectual future of BCS? Keeping in mind probable budget constraints, what infrastructure would be needed to attain this vision?

1. Brain Imaging Database Management and Data Organization Tools for Sharing Data and Meta-analysis

2. Development of Novel Methods for Brain Imaging, especially multimodal imaging

3. Neuroinformatics for Cognitive, Behavioral and Systems Neuroscience

4. Integrative Programs to link Computational, Cognitive and Systems Neuroscience

5. Large-scale Modeling of Brain Systems, including Development of Computational Resources

2. One of the objectives in the BCS Strategic Plan is to fund “bigger science.” In addition, NSF may place greater emphasis on mid-scale research in the near future, to provide a mechanism for researchers to ask for larger awards than the average for a program, but smaller than something like a center/network/observatory. What advice would you give the division in encouraging mid-scale research for the BCS sciences? How might BCS support bigger science, and what metrics might it use to determine success in doing so?

Contributions from the CNS COV members are included in the full BCS COV summary.

3. As outlined in the division narrative, many programs within BCS are experimenting with innovative approaches to merit review, such as GSS’ 1+. What advice would you give the division in thinking about these new approaches? Looking forward, what are effective ways BCS could evaluate and monitor these new practices?

We have addressed this important issue in great detail above. Our recommendations address specific challenges faced by fast moving research programs covered by CNS.

OTHER TOPICS

1. Please comment on any program areas in need of improvement or gaps (if any) within program areas.
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.
3. Please identify agency-wide issues that should be addressed by NSF to help improve the program's performance.
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.

SIGNATURE BLOCK:

John J. Foxe, Ph.D.
Vinod Menon, Ph.D.

For the 2012 BCS COV
Nina Jablonski
Chair

5. Cultural Anthropology

CORE QUESTIONS and REPORT TEMPLATE for FY 2012 NSF COMMITTEE OF VISITOR (COV) REVIEWS

Background Information: This document includes the FY 2012 set of Core Questions and the COV Report Template for use by NSF staff when preparing and conducting COVs during FY 2012.

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

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

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

**FY 2012 REPORT TEMPLATE FOR
NSF COMMITTEES OF VISITORS (COVs)**

The table below should be completed by program staff.

<i>Date of COV: October 10-12, 2012</i>
Division: Behavioral and Cognitive Sciences (BCS)
Directorate: Social, Behavioral, and Economic Sciences (SBE)
Number of actions reviewed: Awards: 563 Declinations: 571 Other: 15 (includes proposals withdrawn and funded elsewhere [DEL awards funded by NEH])
Total number of competitive actions within the Division during period under review: Awards: 1761 Declinations: 6189 Other: 351 (includes 217 supplement award actions)
Manner in which reviewed actions were selected: <p>Sample Pool: The initial pool of actions sampled for each program included all competitive awards, declines, withdrawn proposals for FYs 2009-2011. In order to prevent oversampling of collaborative projects, lead proposals were included but sub-proposals were not (although the non-lead collaboratives are linked to the leads and made available within the eJacket module). Non-competitive actions, such as continuing grant increments of multi-year awards, and transfers between PIs or Institutions were excluded.</p> <p>Random Sampling Method: Using a random integer function, all proposals in the sample pool were given randomly assigned a number. Lists were then sorted and the first 45 awards/ 45 declines were selected, for a total of 90 actions per program. <u>Exceptions:</u> Geography and Spatial Sciences and Cultural Anthropology programs have much higher proposal loads than other BCS programs, so the first 70 awards/ 70 declines were sampled.</p> <p>For programs that consider a large number of doctoral dissertation research improvement grants</p>

(DDRIGs), those actions were sampled separately from the regular/ senior proposals. The relative percentages of DDRIGs included in the sample are in proportion to the number of DDRIGs handled by those programs, on average.

COIs: for sampled actions in which a relevant committee member had been a PI, or had an institutional conflict of interest, the action was removed and replaced with the proposal assigned the next highest random number.

**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 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>QUALITY AND EFFECTIVENESS OF MERIT REVIEW PROCESS</p>	<p>YES, NO, DATA NOT AVAILABLE, or NOT APPLICABLE</p>
<p>1. Are the review methods (for example, panel, <i>ad hoc</i>, site visits) appropriate?</p> <p>Comments:</p> <p>CA routinely has 2 panel reviews on senior proposals and a minimum of 1 <i>ad hoc</i> review; DDRIG proposals are usually reviewed entirely by the panel, with <i>ad hoc</i> reviews in rare cases. These methods are working well and we see them as appropriate, although the program is under strain to staff panels. In some cases senior proposals receive only 1 <i>ad hoc</i> review, which is unfortunate, but it occurs mainly with generally uncompetitive proposals. This may be a necessary concession to the reality of needing reviews for such a large number of proposals with a limited pool of reviewers.</p>	
<p>4. Are both merit review criteria addressed</p> <p>j) In individual reviews?</p> <p>k) In panel summaries?</p> <p>l) In Program Officer review analyses?</p>	

<p>Comments:</p> <p>Both intellectual merit and broader impacts were consistently addressed in the jackets we reviewed. We noted substantive feedback in response to PI's, frequently including suggestions for improvement, which is particularly important given the program's low success rate.</p>	
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<p>3. Do the individual reviewers provide substantive comments to explain their assessment of the proposals?</p> <p>Comments:</p> <p>The great majority of reviewers did provide substantive comments, often providing ideas for improvement in both funded and declined proposals.</p>	
<p>4. Do the panel summaries provide the rationale for the panel consensus (or reasons consensus was not reached)?</p> <p>Comments:</p> <p>Panel summaries generally do a good job of highlighting key points of consensus. We did not note any issues here.</p>	
<p>5. Does the documentation in the jacket provide the rationale for the award/decline decision?</p> <p>(Note: Documentation in jacket usually includes context statement, individual reviews, panel summary (if applicable), site visit reports (if applicable), program officer review analysis, and staff diary notes.)</p> <p>Comments:</p> <p>Documentation in all the jackets we reviewed provided the necessary information to explain award decisions.</p>	

<p>6. Does the documentation to 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 or telephoned with diary note in jacket) of the basis for a declination.)</p> <p>Comments:</p> <p>Documentation to PI's in the proposals we reviewed conveyed the rationale for their decision.</p>	
<p>7. Additional comments on the quality and effectiveness of the program's use of merit review process:</p> <p>Regarding the management of the review process, we note that in FY 2011 the CA program reviewed more proposals than any other BCS program, with one permanent program officer and one junior rotating officer. At the same time the CA program maintained the division's top rating for dwell time (as measured by % proposals processed within 6 months).</p> <p>We see the program's quality of review as still quite high, but under strain to remain so. The program officer makes a convincing case on the value of conventional panel meetings in the review process, but since submission rates are likely to keep climbing faster than operational budgets, it will be imperative to begin to consider alternatives. As technology rapidly evolves, and with it people's expectations in interpersonal communication, teleconferencing may have to play a role in the review process. We recommend the program begin to explore roles that teleconferencing may play that would have the least negative impact on the review process.</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.

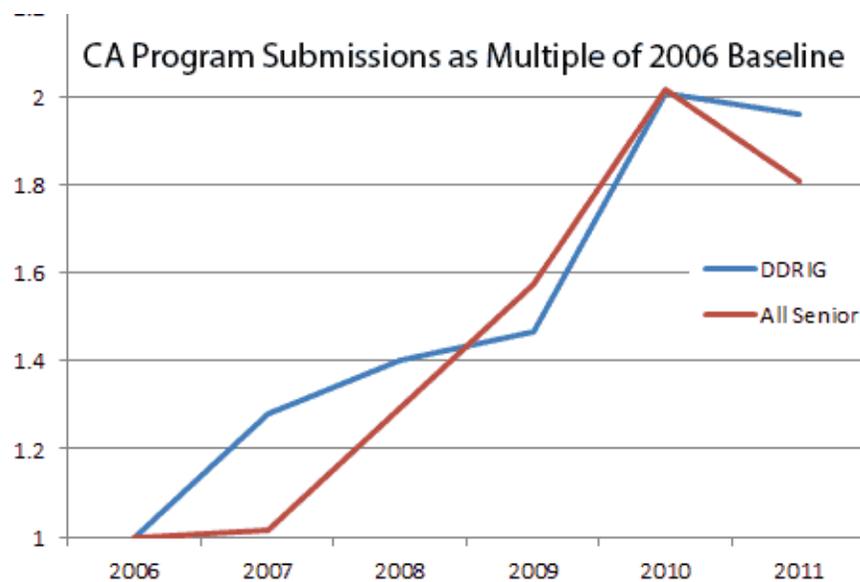
SELECTION OF REVIEWERS	YES , NO, DATA NOT AVAILABLE, or NOT APPLICABLE
<p>1. Did the program make use of reviewers having appropriate expertise and/or qualifications?</p> <p>Comments:</p> <p>We found membership for both senior and DDRIG panels to be well balanced in area of expertise and seniority. In <i>ad hoc</i> reviews we noted sound balance in expertise, including general anthropology and specific topical expertise. We also note that recruitment of panelists and <i>ad hoc</i> reviewers has become especially challenging for program officers as the CA submission rates continue to climb more sharply than any other program, raising the workload for panelists, and increasing the number of <i>ad hoc</i> reviews needed. We recommend the program officers continue the current policies of panel and reviewer recruitment.</p>	
<p>2. Did the program recognize and resolve conflicts of interest when appropriate?</p> <p>Comments:</p> <p>Yes. We encountered no problems in managing COI's in our review.</p>	
<p>Additional comments on reviewer selection:</p> <p>Competent reviews are a valuable and finite resource that the CA program seems to be husbanding intelligently. We also note there is an appropriate degree of regional and institutional diversity among reviewers.</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: Since the current program officer took over in 2005, the CA program has grown by 134% as measured by number of submissions, compared to 32% for BCS in general. This was the direct result of a major push by the program officer to increase quantity and quality of proposals, in particular senior proposals. DDRIG submissions have also risen, following an almost identical trajectory:



Overall the program is funding very high quality research.

At the same time, dwell time is the division's lowest and quality of feedback on reviews remains high. The fact that this was accomplished by a program officer working solo until 2010 illustrates outstandingly efficient management.

Since the program now handles more submissions than any other program in the division, and the program officer who did the work of building it up to this point is soon going on sabbatical, staff workload must be an area of concern, and we recommend that increased staffing be seen as an

urgent priority.

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

Comments:

The CA program has been sponsoring a range of scientific education programs and been nimble in doing so, adjusting funding towards more successful types of programs. Funded projects often include educational broader impacts. A core part of CA's educational portfolio has been methods workshops for many years. These are run efficiently and may well be having a salutary effect, but given the unusually tight supply of funding and the surge in strong proposals, we feel it is necessary to seek metrics on the actual impact of the training programs. We were therefore pleased to learn from the program officer that funding was included in the recent grant for training workshops to hire a professional firm to audit impacts. We strongly recommend that the training programs be kept only if the audit finds significant impact.

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

Comments:

The program has met the requirements of the NSF and the discipline. We felt the program resources, which are relatively scarce, are being used creatively.

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

Comments:

The program engaged all previous COV recommendations, responding positively to many and providing a logical explanation in cases where suggestions were not followed.

IV. Portfolio Review. Please provide comments on whether the program’s portfolio goals are appropriate and whether the program has achieved its goals for portfolio balance.

<p>1. Does the program portfolio reflect the disciplines and subdisciplines of the field?</p> <p>Is the program responsive to developments within relevant scientific communities? Topically we see the portfolio as responsive to developments in the field. We also see the funding patterns as encouraging rigorous methodologies.</p>
<p>2. Are awards appropriate in size and duration for the scope of the projects?</p> <p>In general, yes. However we do feel that given the severe budget challenges (discussed below), CAREER awards are a questionable investment.</p>
<p>3. What have been especially promising and potentially transformative lines of inquiry that the program has supported? What interdisciplinary activities that the program has supported have been especially promising?</p> <p>Particularly fruitful funded projects have dealt with medical anthropology, immigrant issues, human-environmental interactions, and STS. Workshops too have dealt with interesting areas such as food issues and mental health. We also note that there has been a high rate of contribution from other programs to CA grants, reflecting a pattern of productive interdisciplinary work.</p>
<p>4. Does the program portfolio demonstrate diversity with respect to geographical distribution of principal investigators and types of institutions?</p> <p>We saw no areas of concern here; grants appear to be going to strong proposals regardless of geography and type of institution.</p>
<p>5. Does the program portfolio demonstrate diversity with respect to balance of awards to new investigators, demographics of principal investigators, and participation of underrepresented groups?</p> <p>We saw no areas of concern here, although we had limited information on participation of underrepresented groups.</p>

6. Does the program portfolio demonstrate compelling broader impacts, including education, enhancement of diversity, infrastructure, and/or societal relevance?

Projects do fulfill NSF broader impacts requirements but there is room for proposals to make more compelling cases as to such impacts.

7. Do you have additional comments about the program portfolio and the projects the program supports?

The CA program has been undergoing major changes and overall making admirable progress. We gave particular attention to the balance of award types, on which we took a longitudinal view. Between 2006-12, senior proposal submissions rose by 86% (56-104), or 81% (68-123) if non-regular proposals (EAGER, RAPID etc.) are included. This does not include co-reviewed proposals, which would make the numbers even higher. During this period, DDRIG submissions rose by 96% (199-390). During this period, overall BCS submissions rose 27% (2090-2648). During this time the CA program base budget has only risen by 14% (3.24-3.69m). Therefore the program has been a victim of its own success. The success rate for senior proposals has dropped to 15% and to 13% for DDRIGs. (The program officer reports a major drop in DDRIG submissions in the latest competition.) We also were struck with the quality in both categories of proposals, and fully agree with the program officer's assertion that many excellent projects are now being declined in both categories.

Addressing the disparity between funding and strong applications is a real problem and there are very few responses we can suggest. It is essential to keep funding DDRIG awards and indeed to get the success rate higher. Since dissertation awards not only contribute to training but have high scientific impact, as they have a relatively low cost (especially with their lack of salary); they are highly efficient in generating published research.

We do recommend phasing out CAREER awards, which will free up enough to slightly mitigate the problem. These awards funnel the equivalent of several typical-sized grants (or several dozen DDRIG's) to a single investigator who in many cases would be competitive for conventional funding disparity.

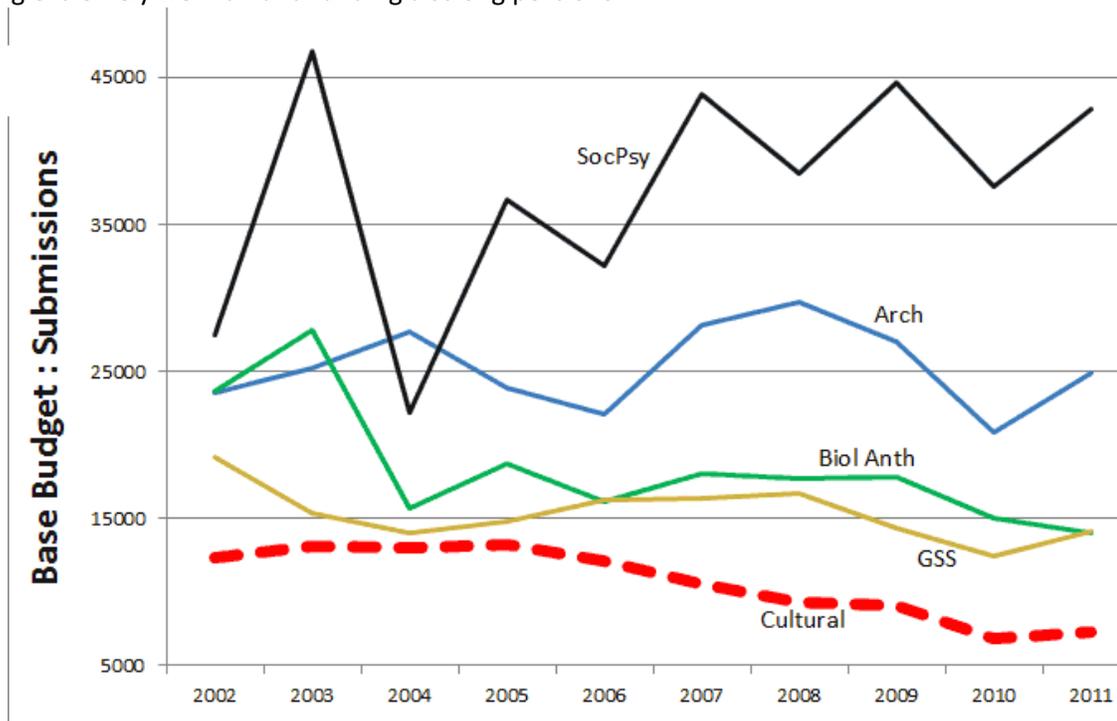
Investment in training programs also deserve a close look as noted above.

We see the Scholars Training Awards as a good investment—not very expensive and tending to produce interesting research while encouraging future investigation that tends to be innovative and interdisciplinary.

The final option would be to increase the program's share of base funding within BCS, and we feel the facts supporting this are compelling. We know that it is common for programs to feel they merit increases in funding, but it is decidedly uncommon for a program to see an 86% rise in senior submissions with a 14% increase in funding. Our review of base budgets across the division suggests that historical funding patterns play a major role in allocation of

funds. This is why we urge the division to reconsider our own assessment and its basis in unmistakable recent trends.

The following chart is instructive. It charts the ratio of base budget dollars to proposals reviewed. Note that CA, which began with the lowest ratio in BCS, has steadily dropped while other programs have held their own or climbed. This is despite the evidence of the program being extremely well run and funding a strong portfolio.



V. Questions for Division Level Discussion. Please provide comment on both scientific and management aspects of the following division-specific questions:

- | |
|--|
| <p>1. Looking forward over the next 10 years, what is your vision for the intellectual future of BCS? Keeping in mind probable budget constraints, what infrastructure would be needed to attain this vision?</p> |
| <p>2. One of the objectives in the BCS Strategic Plan is to fund “bigger science.” In addition, NSF may place greater emphasis on mid-scale research in the near future, to provide a mechanism for researchers to ask for larger awards than the average for a program, but smaller than something like a center/network/observatory. What advice would you give the division in encouraging mid-scale research for the BCS sciences? How might BCS support bigger science, and what metrics might it use to determine success in doing so?</p> |
| <p>3. As outlined in the division narrative, many programs within BCS are experimenting with innovative approaches to merit review, such as GSS’ 1+. What advice would you give the division in thinking about these new approaches? Looking forward, what are effective ways BCS could evaluate and monitor these new practices?</p> |

OTHER TOPICS

1. Please comment on any program areas in need of improvement or gaps (if any) within program areas.
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.
3. Please identify agency-wide issues that should be addressed by NSF to help improve the program's performance.
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.

SIGNATURE BLOCK:

Glenn Davis Stone
Robert Alvarez

For the 2012 BCS COV
Nina Jablonski
Chair

6. Developmental and Learning Sciences

CORE QUESTIONS and REPORT TEMPLATE for FY 2012 NSF COMMITTEE OF VISITOR (COV) REVIEWS

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

**FY 2012 REPORT TEMPLATE FOR
NSF COMMITTEES OF VISITORS (COVs)**

The table below should be completed by program staff.

<i>Date of COV: October 10-12, 2012</i>
Division: Behavioral and Cognitive Sciences (BCS)
Directorate: Social, Behavioral, and Economic Sciences (SBE)
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Total number of competitive actions within the Division during period under review: Awards: 1761 Declinations: 6189 Other: 351 (includes 217 supplement award actions)
Manner in which reviewed actions were selected: <p>Sample Pool: The initial pool of actions sampled for each program included all competitive awards, declines, withdrawn proposals for FYs 2009-2011. In order to prevent oversampling of collaborative projects, lead proposals were included but sub-proposals were not (although the non-lead collaboratives are linked to the leads and made available within the eJacket module). Non-competitive actions, such as continuing grant increments of multi-year awards, and transfers between PIs or Institutions were excluded.</p> <p>Random Sampling Method: Using a random integer function, all proposals in the sample pool were given randomly assigned a number. Lists were then sorted and the first 45 awards/ 45 declines were selected, for a total of 90 actions per program. <u>Exceptions:</u> Geography and Spatial Sciences and Cultural Anthropology programs have much higher proposal loads than other BCS programs, so the first 70 awards/ 70 declines were sampled.</p> <p>For programs that consider a large number of doctoral dissertation research improvement grants</p>

(DDRIGs), those actions were sampled separately from the regular/ senior proposals. The relative percentages of DDRIGs included in the sample are in proportion to the number of DDRIGs handled by those programs, on average.

COIs: for sampled actions in which a relevant committee member had been a PI, or had an institutional conflict of interest, the action was removed and replaced with the proposal assigned the next highest random number.

**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 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, <i>ad hoc</i>, site visits) appropriate?</p> <p>Comments:</p> <p>Our comments pertain to panel and <i>ad hoc</i> reviews only (not site visits). There seems to be an appropriate mix of panel and <i>ad hoc</i> reviewers with appropriate expertise distributed among both. We recommend that more than three reviews be obtained for each proposal if possible. We recommend that the program collect demographic information for the panel and <i>ad hoc</i> reviewers. Specifically, we recommend that race, ethnicity, gender and rank (e.g. Assistant, Associate, etc.) are collected for evaluative purposes. We recommend that the program officer create a standing board of <i>ad hoc</i> reviewers that could be called upon to regularly review proposals. These board members would include individuals who the program officer has full confidence would provide reliable, comprehensive and accurate reviews.</p>	Yes
<p>2. Are both merit review criteria addressed</p> <p>m) In individual reviews? yes</p> <p>n) In panel summaries? yes</p> <p>o) In Program Officer review analyses? yes</p>	Yes

Comments:

The broader impacts section includes a wide range of criteria that fall within specific disciplines and that also have implications for the larger society. We recommend that the program officer counsel prospective investigators to utilize the NSF document (Merit Review Broader Impacts Criterion: Representative Activities July 2007) to include the most relevant features appropriate for each proposal (e.g., training, underrepresented groups, infrastructure, dissemination) and to use his/her discretion in balancing the importance of these disciplinary versus societal criteria in judging the proposal.

<p>3. Do the individual reviewers provide substantive comments to explain their assessment of the proposals?</p> <p>Comments:</p> <p>All of the reviewers have provided substantive comments. We noticed that the positive reviews tended to be shorter whereas the negative reviews tended to be longer. We recommend that the program officer encourage reviewers to be more balanced such that the positive reviews have sufficient detail to benefit the PI. We also recommend that the negative reviews focus on the major limitations, rather than overly detailed critiques.</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:</p> <p>The panel summaries provide a comprehensive rationale for the consensus that was reached by the panel members. The summary sufficiently describes the strengths and limitations of the proposals, as well as the level of enthusiasm based on the reviews and panel discussion so that the Program Officer can act according about funding.</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 jacket usually includes context statement, individual reviews, panel summary (if applicable), site visit reports (if applicable), program officer review analysis, and staff diary notes.)</p> <p>Comments:</p> <p>The panel reviews, the <i>ad hoc</i> reviews, the panel summary, the context statement and the program officer review provide sufficient rationale for the decision. The staff diary notes were not present.</p>	<p>Yes</p>

<p>6. Does the documentation to 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 or telephoned with diary note in jacket) of the basis for a declination.)</p> <p>Comments:</p> <p>It appears the once a decision has been made, the PI is provided with a pro forma document that indicates whether the proposal has been awarded or declined. In either case, the PI can access all the relevant feedback (reviews, panel summary, context summary) via Fastlane. We recommend, in the case of declined proposals, that the Program Officer reach out to the PI to provide any further feedback and recommendations for future proposals that are not contained in the written reports.</p>	<p>Yes</p>
<p>7. Additional comments on the quality and effectiveness of the program's use of merit review process:</p> <p>We are concerned that the resubmission process is vague. We recommend that this process be improved with more feedback contained in the panel summary using a three category checklist:</p> <ol style="list-style-type: none"> 1 highly encouraged to resubmit (particularly relevant for junior investigators) 2 unclear if a revision would be successful without substantial revision 3 does not likely have the intellectual merit or broader impact to become a funded proposal 	<p>Yes</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:</p> <p>Most reviewers appeared to provide high quality reviews and to be at a high level of expertise. However, given the difficulty of finding appropriate reviewers, we are concerned that key reviewers may not agree to serve. This will have the effect of compromising the quality of reviews.</p> <p>Please see our recommendation for creating a board of <i>ad hoc</i> reviewers.</p>	<p>Yes and no</p>
<p>2. Did the program recognize and resolve conflicts of interest when appropriate?</p> <p>Comments:</p>	<p>Yes</p>
<p>Additional comments on reviewer selection:</p> <p>We wish to reiterate the need to gather specific demographic information from panelists and <i>ad hoc</i> reviewers. Specifically, we recommend that the Fastlane system be used to collect demographic information for all reviewers (panelists and <i>ad hoc</i> reviewers). We also recommend the development of a linkage between the Fastlane profiles of submitters and reviewers, such that this information is collected in one place within the Fastlane system.</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:

The program officers for DLS have effectively managed scarce resources and provided a comprehensive and fair review process. We think it is highly impressive that the program officers have consistently met the stated goal of a six month turnaround in the grant review process.

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

Comments:

The PO of DLS is taking advantage of the interdisciplinary nature of the DLS portfolio. Within the portfolio he/she is supporting proposals and workshops across subdisciplines such as education and development. He/she is partnering with other programs outside BCS (e.g., Cyber-enabled Discovery Initiative, Reese) and within BCS (Cognitive Neuroscience, Cultural Anthropology, Linguistics, PAC, Social Psychology) to forge links across programs that are concerned with children, development, and learning.

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

Comments:

The bulk of the funded awards cover the infancy and middle childhood periods (62%) whereas only 12% of the funded awards cover the adolescent period. We recommend that the program consider whether this is a selection bias or an impression bias. It is possible that DLS has a reputation for funding infant and child research such that adolescent researchers seek funding elsewhere. Alternatively, research on adolescence may be funded by other programs (e.g., Social Psychology). We recommend that the program officer engage in outreach efforts to encourage adolescent researchers to apply for funding within DLS.

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

Comments:

In general, the program officers have been responsive to the comments made by the 2009 COV report. However, there are some issues in which we feel that we cannot adequately respond to the questions because the appropriate information is not available. For example, one of the previous recommendations included more funding for the following specific areas: the relationship between early cognitive and linguistic abilities on later school performance, intergroup relations, and developmental neuroscience. It is hard to evaluate whether the program has diversified over the past 3 years because the information regarding submitted grants compared to funded grants is not specific. The information suggests that the submitted grants are heavily skewed (by age group and subdiscipline) but does not include specific information for more refined analyses. We recommend that the PIs provide keyword information regarding the grant as is done for most journal submissions such that funding rates can be tracked by subdisciplines. Some examples of keywords include age range (e.g., infancy, adolescence), subfield (e.g., Cognitive, Social, Linguistic) or methodology (qualitative or quantitative).

We also recommend that the program officer attend the adolescent meeting (Society for Research on Adolescence) and conduct speed networking sessions with adolescent scholars. This effort would increase DLS exposure to adolescent researchers, which might ultimately increase the portfolio in regards to the adolescent area, which is woefully underrepresented.

IV. Portfolio Review. Please provide comments on whether the program’s portfolio goals are appropriate and whether the program has achieved its goals for portfolio balance.

<p>1. Does the program portfolio reflect the disciplines and subdisciplines of the field? Yes</p> <p>1.1 Is the program responsive to developments within relevant scientific communities?</p> <p>The range of topics appears to cover both traditional questions and new initiatives in the field of developmental science.</p>
<p>2. Are awards appropriate in size and duration for the scope of the projects? Yes</p> <p>Given the budget constraints at NSF, the awards seem appropriate and modest for the scope of the work.</p>
<p>3. What have been especially promising and potentially transformative lines of inquiry that the program has supported?</p> <p>a. What interdisciplinary activities that the program has supported have been especially promising?</p> <p>Although the portfolio includes cutting edge research in developmental and learning science, it isn’t clear what mechanism NSF uses to evaluate whether a particular grant is transformative. For example, NIH uses a system (e.g., PMID) that tracks specific publications to specific grants, which affords the opportunity to assess specific outcomes from funded grants.</p>
<p>4. Does the program portfolio demonstrate diversity with respect to geographical distribution of principal investigators and types of institutions?</p> <p>Regarding geographical diversity, it appears diverse with some exceptions. It is surprising that there were zero awards from Ohio, Washington and Missouri given the quality institutions located in those states.</p> <p>Regarding institution type, it appears to be a one-third and two-third split between private and public institutions, which appears to be representative.</p>
<p>5. Does the program portfolio demonstrate diversity with respect to balance of awards to new investigators, demographics of principal investigators, and participation of underrepresented groups?</p> <p>Regarding the distribution for new and prior investigators, the balance of first time funded and previously funded investigators appears to evenly split. However, the funding rate for new investigators appears to be three times more difficult compared to more senior investigators. We encourage the program officer to continue efforts to</p>

assist first time investigators in securing NSF funds.

Regarding the racial/ethnic diversity of the portfolio, there appears to be a balance between the percentage of submitted grants by members of underrepresented groups (19%) and the percentage of grants funded by members of underrepresented groups (17%).

Regarding the gender diversity of the portfolio, there appears to be a disparity when comparing the funded awards to the applicant pool. The funded percentage (56%) is good given the 50/50 ratio of males and females in the general population. However, 69% of proposals were submitted by females, which is significantly higher than the percentage that was funded.

6. Does the program portfolio demonstrate compelling broader impacts, including education, enhancement of diversity, infrastructure, and/or societal relevance?

We think that the funding portfolio encompasses awards that speak to broader societal impacts (e.g., cyber bullying, cross cultural views of cognition), enhancement of diversity (adjustment of Mexican-American youth, Chinese-American children) and education and societal relevance (K-12 stem education).

Although our sample did not include examples of infrastructure support, we note in the program summary that DLS sponsored a workshop to promote better systems for data sharing.

7. Do you have additional comments about the program portfolio and the projects the program supports?

We notice that approximately 14% of the funded research grants were co-funded with other programs or other divisions within NSF. This seems like a reasonable way of ensuring inter-disciplinary work and also distributing resources accordingly.

V. Questions for Division Level Discussion. Please provide comment on both scientific and management aspects of the following division-specific questions:

- | |
|--|
| <p>1. Looking forward over the next 10 years, what is your vision for the intellectual future of BCS? Keeping in mind probable budget constraints, what infrastructure would be needed to attain this vision?</p> |
| <p>2. One of the objectives in the BCS Strategic Plan is to fund “bigger science.” In addition, NSF may place greater emphasis on mid-scale research in the near future, to provide a mechanism for researchers to ask for larger awards than the average for a program, but smaller than something like a center/network/observatory. What advice would you give the division in encouraging mid-scale research for the BCS sciences? How might BCS support bigger science, and what metrics might it use to determine success in doing so?</p> |
| <p>3. As outlined in the division narrative, many programs within BCS are experimenting with innovative approaches to merit review, such as GSS’ 1+. What advice would you give the division in thinking about these new approaches? Looking forward, what are effective ways BCS could evaluate and monitor these new practices?</p> |

OTHER TOPICS

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

We would like to make a recommendation to streamline the review process. The point of this suggestion is to reduce the time pressure on the panelists to review all the submitted proposals before the meeting. This would also reduce the amount of time that the panel needs to meet.

We suggest a multistage process:

- 1) The program officer would assign the grants to the internal reviewers (i.e., panelists) as usual.
- 2) The panelists would skim all the assigned grants and send a yes/no rating within four weeks to the program officer (i.e., judged to be in the top 50%).
- 3) All grants that receive a unanimous “no” would not be discussed at the panel meeting. All grants that receive a unanimous “yes” would be discussed at the panel meeting. If there is disagreement among the panel members regarding the yes/no rating, those grants would also be discussed at the panel meeting.
- 4) All grants would receive *ad hoc* reviews, which is customary.
- 5) The panel reviews of the non-discussed grants would be due a month after the panel meeting.

We recommend a strategy for improving the funding rate for early investigators. The program officer could assign an *ad hoc* reviewer (who provided an evaluation of the grant) to each declined submission from an early investigator. The reviewer could contact the PI and offer to serve as a mentor for the subsequent submission. The mentor would subsequently be recused from any official duties as a reviewer of that PI's grant submissions. We believe that such mentoring would assist early investigators as they attempt to secure external funding.

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

See earlier comments regarding goals and objectives.

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

Our recommendation for streamlining the review process might be useful for other programs and divisions within NSF.

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

N.A.

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

The meeting could be reduced to two days instead of three with the orientation materials being presented in a webinar a week in advance of the meeting at NSF.

Regarding the DLS visitors, we had a brief orientation with Peter Vishton which was extremely helpful and vital to our successful visit. Peter explained the e jacket website and demonstrated all of the materials that were necessary for the completion of this document. This hour long orientation was invaluable to our understanding of the process and the materials.

SIGNATURE BLOCK:

Eleanor Seaton
Richard Aslin

October 12, 2012

For the 2012 BCS COV
Nina Jablonski
Chair

7. Documenting Endangered Languages

CORE QUESTIONS and REPORT TEMPLATE for FY 2012 NSF COMMITTEE OF VISITOR (COV) REVIEWS

Background Information: This document includes the FY 2012 set of Core Questions and the COV Report Template for use by NSF staff when preparing and conducting COVs during FY 2012.

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

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

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

**FY 2012 REPORT TEMPLATE FOR
NSF COMMITTEES OF VISITORS (COVs)**

The table below should be completed by program staff.

<i>Date of COV: October 10-12, 2012</i>
Division: Behavioral and Cognitive Sciences (BCS)
Directorate: Social, Behavioral, and Economic Sciences (SBE)
Number of actions reviewed: Awards: 563 Declinations: 571 Other: 15 (includes proposals withdrawn and funded elsewhere [DEL awards funded by NEH])
Total number of competitive actions within the Division during period under review: Awards: 1761 Declinations: 6189 Other: 351 (includes 217 supplement award actions)
Manner in which reviewed actions were selected: <p>Sample Pool: The initial pool of actions sampled for each program included all competitive awards, declines, withdrawn proposals for FYs 2009-2011. In order to prevent oversampling of collaborative projects, lead proposals were included but sub-proposals were not (although the non-lead collaboratives are linked to the leads and made available within the eJacket module). Non-competitive actions, such as continuing grant increments of multi-year awards, and transfers between PIs or Institutions were excluded.</p> <p>Random Sampling Method: Using a random integer function, all proposals in the sample pool were given randomly assigned a number. Lists were then sorted and the first 45 awards/ 45 declines were selected, for a total of 90 actions per program. <u>Exceptions:</u> Geography and Spatial Sciences and Cultural Anthropology programs have much higher proposal loads than other BCS programs, so the first 70 awards/ 70 declines were sampled.</p> <p>For programs that consider a large number of doctoral dissertation research improvement grants</p>

(DDRIGs), those actions were sampled separately from the regular/ senior proposals. The relative percentages of DDRIGs included in the sample are in proportion to the number of DDRIGs handled by those programs, on average.

COIs: for sampled actions in which a relevant committee member had been a PI, or had an institutional conflict of interest, the action was removed and replaced with the proposal assigned the next highest random number.

**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 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, <i>ad hoc</i>, site visits) appropriate?</p> <p>Comments: Excellent participation from the intellectual community. The review methods (panel plus <i>ad hoc</i>) are entirely appropriate for the program's goals. We note that the number and quality of <i>ad hoc</i> reviews is excellent.</p> <p>We recommend that the COI policy be revised to e.g. reduce from 48 months to 24 or even 12 the limit for coauthorship, coeditorship, etc.; in our small field, the growing trend toward collaborative research makes the field a dense network and it becomes very difficult to have expert review without COI caused by years-old coauthorship.</p> <p>In some proposals and reviews the time required for annotation of language data is underestimated.</p>	<u>YES</u>
<p>2. Are both merit review criteria addressed</p> <p>a) In individual reviews? Yes, in general.</p>	

b) In panel summaries?
Yes, these are generally excellent on both criteria.

c) In Program Officer review analyses?
Yes, these are generally excellent on both criteria.

Comments:

DEL work generally has important broader impacts by definition, as it directly affects communities of speakers. Some of the proposals we reviewed were more articulate and polished than others, as some applicants are more practiced than others at producing grant proposals. This did not correlate directly with the potential scientific value of the proposals. We found that the panel and program officers generally did a very good job of identifying the actual potential of a proposal. Language documentation ideally produces material (data, knowledge, resources) that is intrinsically repurposable. It is also inherently connected to language preservation. One reviewer writes, "The value of language revitalization as a scientific, as opposed to humanistic, enterprise is under contention." Revitalization is not a DEL goal so the issue may seem moot, but we emphasize that revitalization can have scientific goals as well, including continued availability of information on the language, the possibility of collecting large linguistic corpora for research in such fields as natural language processing (NLP) and learning research, and possibilities for study of the re-acquisition process itself, an area in which there has been very little research.

<p>3. Do the individual reviewers provide substantive comments to explain their assessment of the proposals?</p> <p>Comments:</p> <p>Yes, most of the reviews were thorough and well-considered.</p>	
<p>4. Do the panel summaries provide the rationale for the panel consensus (or reasons consensus was not reached)?</p> <p>Comments:</p> <p>With rare exception, the panels did provide appropriate rationale for the panel consensus.</p>	
<p>5. Does the documentation in the jacket provide the rationale for the award/decline decision?</p> <p>(Note: Documentation in jacket usually includes context statement, individual reviews, panel summary (if applicable), site visit reports (if applicable), program Director review analysis, and staff diary notes.)</p> <p>Comments:</p> <p>Yes, generally excellent. Sometimes the program officer, in writing the review analysis, was able to pinpoint an aspect of either intellectual merit or broader impact that had not come through comparably clearly in the other materials. A number of review analyses contain summary statements that could be used to support arguments about the general importance of documentation. This is also true of some of the declined proposals, where there are strengths of real value identified in the review analyses.</p>	

<p>6. Does the documentation to 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 Director (written or telephoned with diary note in jacket) of the basis for a declination.)</p> <p>Comments:</p> <p>Yes, generally excellent. The panel summaries were clear, to the point, and diplomatic. Compared to similar documentation we are familiar with from other granting agencies supporting language documentation, DEL's are considerably more explicit, substantive, and useful.</p>	
<p>7. Additional comments on the quality and effectiveness of the program's use of merit review process:</p> <p>Excellent, judicious, both from the reviewers and to the applicants. The occasional very negative review is given serious weight when its rationale coincides with science, but much less weight when it appears the reviewer is inexperienced or uninformed about the proposed activity.</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:</p> <p>Most of the proposals I read were for native American languages, so reviewers were mostly North American. But for proposals from e.g. the Pacific, South America, etc. there was a good representation of reviewers from those parts of the world. Good to seek international reviewers when possible.</p>	
<p>2. Did the program recognize and resolve conflicts of interest when appropriate?</p> <p>Comments:</p> <p>Nearly always. Almost never a problem of unrecognized conflicts of interest.</p>	
<p>Additional comments on reviewer selection:</p> <p>We recommend more outreach to under-utilized reviewers, including younger scholars. Even in the well-connected DEL field not everyone knows everyone. It would be easy to be part of a closed circle without realizing it. We recommend using the LSA website, Linguist List, SSILA as sources for relevant reviewers.</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:

It is very good that DEL is separate from Linguistics. The linguistic specializations, urgencies, methods, and criteria for DEL and general linguistics are different. Both documentary and other linguists respect each other's priorities and goals and make much use of each other's results, but if their proposals were considered by a single panel they would compete for funding on different criteria, a situation not beneficial to either field.

The panel has consistently recognized that languages with even a few thousand speakers face the probability of loss in the near future, and are as urgently in need of documentation as are languages with a dozen or with three speakers. In some cases, documentation of languages with a larger number of speakers can result in a higher quality of documentation than do languages for which there is not a viable speech community. Documentation of ritual language, narrative, and other registers of speech are essential, in addition to collecting vocabulary tokens and morphosyntactic examples. Some genres can generally be documented only when some critical mass of speakers actively use the language.

Recommendation: Statements about broader impact need to be refashioned to do a better job of communicating to non-linguists, including policy makers and the lay public, the value of documentation and linguistic research. Further recommendation: make this expectation explicit to potential applicants, reviewers, and panelists. Everyone involved needs to be articulate about the scientific value of documenting endangered languages, in ways that may not be apparent to non-linguists. Some of these include: recording variations in typology (patterns of syntax, word formation), environmental data (biological, geophysical) having to do vocabulary, semantic and conceptual relationships; evidence for cognitive variation in humans, evidence for historic/prehistoric data on social contact with other speech communities; data on geophysical and meteorological phenomena. In short, we recognize the encyclopedic nature of data collected from speakers of endangered languages and its value to cognitive, social, and environmental sciences. Once these languages are no longer spoken our only opportunity to observe their scientific contribution will be from written or electronically recorded materials.

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

Comments:

Emerging research and education opportunities are very well recognized in panel summaries and communications to PI's. Innovative threads and potentials are noted and encouraged. The combination of selecting external reviewers and weighing their comments allows innovative directions to percolate upwards and be recognized in award decisions (and be communicated to applicants whether or not the proposal was successful).

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

The definition of DEL directs the planning and prioritization.

Comments:

Recommendation: Recognize the importance of use and preservation of earlier documentation. Fund digitization, collection, etc. of legacy materials still in the hands (and minds) of linguists who collected them in the 1950's, 1960's, etc., and those who have inherited such materials.

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

Comments:

DEL is a relatively new program, only recently independent of the Linguistics program.

IV. Portfolio Review. Please provide comments on whether the program’s portfolio goals are appropriate and whether the program has achieved its goals for portfolio balance.

1. Does the program portfolio reflect the disciplines and subdisciplines of the field?
Yes

1.1 Is the program responsive to developments within relevant scientific communities?

One of the most visible developments in all kinds of linguistics in the last few years is the explosive growth of quantitative methods and analyses in linguistics. For such work, increasingly anything beyond the most rudimentary analysis requires large corpora and/or very large language samples and/or very many types of data from languages. This development makes DEL's work more important than ever. The number of languages on which we have adequate information is too small for accurate modeling of most processes, and it is urgent to record every possible fact about every possible language; in the case of endangered languages it is essential to do this immediately. Large corpora are available for relatively few languages, most of them major world languages with fairly similar grammatical structures. Some DEL-funded work is compiling corpora for languages of varied and exotic types that still have enough speakers, sufficient vitality in different genres and styles, etc., that they could provide large corpora; these will be invaluable for work on language processing, language learning, cognition, and grammatical structure for the long future.

DEL has been responsive to this trend. We note especially that panels have recognized the urgency of documenting languages that still have viably sized speech communities but in which the range of functions, genres, styles, etc. is threatened.

2. Are awards appropriate in size and duration for the scope of the projects?

We have the impression that long-term projects are rarely funded by DEL, but long-term work on the same language can be enormously valuable. Not every project needs to be large, but long-term and/or extensive documentation can be extremely valuable; there needs to be some way to encourage this. The tendency of DEL to automatically cut budgets substantially and reduce time frames substantially may be limiting field linguists to superficial documentation.

It would be a mistake to think an endangered language can be adequately documented by a single person or during a single season of fieldwork. Clearly DEL should consider proposals that add to earlier work, or analyze materials gathered earlier. Connected speech in electronically recorded or written texts and stories can be the source of analysis, while grammars, however, cannot be sources of texts.

3. What have been especially promising and potentially transformative lines of inquiry that the program has supported?

See 1.1 above.

3.1 What interdisciplinary activities that the program has supported have been especially promising?

All DEL work is interdisciplinary in the sense that every documentation project contributes not just to documentary linguistics but to all subfields of linguistics as well as to knowledge/science in general.

Many proposals are interdisciplinary in the sense that one fieldworker or fieldwork team collects material of both linguistic and, e.g., ethnographic value. There are relatively few collaborative interdisciplinary projects (e.g., a linguist, an ethnographer, a botanist, and a geographer document language and traditional ethnobotany), though these can be extremely valuable to all the fields. Such collaborative work is a coming trend; DEL could not support large projects like these single-handedly, but we recommend encouraging collaboration, e.g. in calls for proposals both to DEL and other programs.

We recommend that scholars from other disciplines be encouraged to include a linguist in projects of various kinds. DEL funding for a small amount could significantly expand and enhance the range of other projects. It is imperative that the scientific knowledge encoded in these languages (their ethno-astronomy, - botany, -cosmology, ...-zoology) be collected as soon as possible.

4. Does the program portfolio demonstrate diversity with respect to geographical distribution of principal investigators and types of institutions?

Yes, excellent diversity of geography and types of institutions. DEL does an admirable job of addressing the needs of communities of speakers of endangered languages. Scholars typically include the participation of the ethnic communities in planning for the project. Projects submitted by indigenous communities typically have the advice and assistance of linguists.

Also, the *ad hoc* reviewers represent a wide range of geographic locations and types of institutions.

5. Does the program portfolio demonstrate diversity with respect to balance of awards to new investigators, demographics of principal investigators, and participation of underrepresented groups?

Yes, both experienced and new scholars are awarded, and as noted above, underrepresented groups are represented both by investigators and by the communities of speakers of endangered languages. We don't have the data on PIs to evaluate demographic balance.

6. Does the program portfolio demonstrate compelling broader impacts, including education, enhancement of diversity, infrastructure, and/or societal relevance?

See above. Societal relevance in terms of documenting intellectual history and diversity is central to the purpose of DEL.

7. Do you have additional comments about the program portfolio and the projects the program supports?

Given that documentation of endangered languages has broader societal impacts by definition, part of the role of DEL and DEL awardees is to communicate to both the lay public and the rest of the scientific community the essential scientific value of documentation and the urgent need for documentation of all languages that are endangered. Field work provides the essential building blocks and foundational elements to the rest of linguistics, playing a role similar to that of field surveys, classification, description, nomenclature, and cladistics in the biological sciences, or identification and description of elementary particles in physics. Without this foundation, languages cannot be utilized in either linguistics or other sciences. Recent quantitative work (see again IV.1.1 above) is a case in point; a number of highly visible contributions in recent years have been deeply flawed by use of poor or incomplete or improperly analyzed linguistic data and/or poor language sample design. Some of them have been set right by better-informed analyses and statistical techniques such as randomization that enable us to work at the far edge of minimal sample size, but in some cases we simply need more information about more languages in order to do the job. Among other things this imperative entails that documentary linguists and fieldworkers must be methodologically and theoretically sophisticated grammatical analysts, alert to phenomena in their languages that can be of broader impact. We think the panels and *ad hoc* reviewers have done admirably well at guaranteeing a high level of sophistication in the funded proposals.

The budget for the DEL program is woefully inadequate in the face of the immediate extinction of thousands of languages within the next few decades. Many language varieties have not been documented at all, and many have been documented only by a single person. Too often the linguistic literature gives courtesy recognition to

earlier descriptions that are in fact inadequate or substandard in documentation and analysis. These descriptions need to be reanalyzed in the light of theoretical advances in linguistic science over that last century, and the documentation refreshed to look at language change in the decades following the earliest descriptions.

What to do about the fact that descriptions that were brilliant for their time (Boas, Sapir, Barker,...) left out whole areas of grammar that were unknown to the theory of their day? How can we anticipate future theoretical developments in today's documentation? Probably the best assurance is to collect very large corpora of all possible genres, styles, different speakers, etc. and hope that things we do not yet know about will be retrievable from corpora. But these require long-term fieldwork, usually more than one individual to make recordings, and substantial transcribing and annotating effort.

V. Questions for Division Level Discussion. Please provide comment on both scientific and management aspects of the following division-specific questions:

1. Looking forward over the next 10 years, what is your vision for the intellectual future of BCS? Keeping in mind probable budget constraints, what infrastructure would be needed to attain this vision?

BCS must expand, both intellectually and financially.

2. One of the objectives in the BCS Strategic Plan is to fund “bigger science.” In addition, NSF may place greater emphasis on mid-scale research in the near future, to provide a mechanism for researchers to ask for larger awards than the average for a program, but smaller than something like a center/network/observatory. What advice would you give the division in encouraging mid-scale research for the BCS sciences? How might BCS support bigger science, and what metrics might it use to determine success in doing so?

At first glance it would seem that most DEL projects work better if funded on a local, specific project. Bigger science might appear less relevant to the needs of documenting specific languages. However, most projects are quite limited in scope, compared to the amount and quality of the data that should be collected. This is to say nothing of the fact that thousands of languages are currently endangered, and once they are lost, unless they have been adequately documented, knowledge of them cannot be recovered.

3. As outlined in the division narrative, many programs within BCS are experimenting with innovative approaches to merit review, such as GSS’ 1+. What advice would you give the division in thinking about these new approaches? Looking forward, what are effective ways BCS could evaluate and monitor these.

OTHER TOPICS

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

The field of linguistics (DEL and Linguistics) will need to become more responsive to the need for quantitative work (see above), encouraging interdisciplinary collaborative projects funded not entirely from DEL and Linguistics.

We don't know where the funding can or should come from, but not only DEL but other subfields of linguistics badly need computational tools to expedite the time-consuming side of documentation—chiefly transcription and annotation, each of which generally requires anywhere from 10 to 100 times the real-time duration of the recording.

Recommendation: DEL and Linguistics program directors to reach out to ERC, ESF, and other European organizations to urge them to set up dedicated documentation programs. Now that DoBeS has ceased and the Rausing ELDP program ends next year, there is no dedicated funding source for European field and documentation linguists. There is excellent communication and collaboration between field and other linguists in Europe, but (as with DEL and Linguistics in NSF) it is artificial to make their proposals compete with each other; the criteria are different. The leadership of NSF Linguistics in establishing BABEL and securing a second round of DoBeS funding is much appreciated worldwide, and this leadership is still needed. (We also note that dedicated funding in Europe would still leave linguists from other countries without a funding source for field projects. Linguists from Australia, Mexico, Canada, and South America are among the major contributors to documentation, but documentation work is done in other countries as well.)

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

Recommendation: send out anonymous copies of the reviews to all the reviewers of a proposal along with the funding decision.

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

Locating and downloading files was unnecessarily time-consuming.

Suggestions for the ejacket:

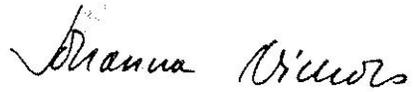
Use proposal number for the beginning of all documents relating to that proposal (so they can be sorted after downloading). Example: 1099654_entire_proposal Bundle together in one file all documents for each proposal that the COV member is most likely want to download, namely, the entire proposal, all reviews, panel summary, review analysis.

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

COV review process seemed to go rather smoothly. Good to interact with scholars from other disciplines. Excellent job by COV chair (Nina).

Entire overview of NSF, BCS, and DEL programs was very informative and helpful.

SIGNATURE BLOCK:



Johanna Nichols



Martha J. Macri

For the
2012 BCS
COV Nina
Jablonski
Chair

8. Geographical and Spatial Sciences

CORE QUESTIONS and REPORT TEMPLATE for

FY 2012 NSF COMMITTEE OF VISITOR (COV) REVIEWS

Background Information: This document includes the FY 2012 set of Core Questions and the COV Report Template for use by NSF staff when preparing and conducting COVs during FY 2012.

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

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

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

**FY 2012 REPORT TEMPLATE FOR
NSF COMMITTEES OF VISITORS (COVs)**

The table below should be completed by program staff.

<i>Date of COV: October 10-12, 2012</i>
Division: Behavioral and Cognitive Sciences (BCS)
Directorate: Social, Behavioral, and Economic Sciences (SBE)
Number of actions reviewed: Awards: 563 Declinations: 571 Other: 15 (includes proposals withdrawn and funded elsewhere [DEL awards funded by NEH])
Total number of competitive actions within the Division during period under review: Awards: 1761 Declinations: 6189 Other: 351 (includes 217 supplement award actions)
Manner in which reviewed actions were selected: <p>Sample Pool: The initial pool of actions sampled for each program included all competitive awards, declines, withdrawn proposals for FYs 2009-2011. In order to prevent oversampling of collaborative projects, lead proposals were included but sub-proposals were not (although the non-lead collaboratives are linked to the leads and made available within the eJacket module). Non-competitive actions, such as continuing grant increments of multi-year awards, and transfers between PIs or Institutions were excluded.</p> <p>Random Sampling Method: Using a random integer function, all proposals in the sample pool were given randomly assigned a number. Lists were then sorted and the first 45 awards/ 45 declines were selected, for a total of 90 actions per program. <u>Exceptions:</u> Geography and Spatial Sciences and Cultural Anthropology programs have much higher proposal loads than other BCS programs, so the first 70 awards/ 70 declines were sampled.</p> <p>For programs that consider a large number of doctoral dissertation research improvement grants</p>

(DDRIGs), those actions were sampled separately from the regular/ senior proposals. The relative percentages of DDRIGs included in the sample are in proportion to the number of DDRIGs handled by those programs, on average.

COIs: for sampled actions in which a relevant committee member had been a PI, or had an institutional conflict of interest, the action was removed and replaced with the proposal assigned the next highest random number.

**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 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, <i>ad hoc</i>, site visits) appropriate?</p> <p>Comments:</p> <p>Using ad-hoc reviews and panel reviews for standard proposals is a good mix. Scores for significance and likelihood of success are a good way to help prioritize amongst large numbers of proposals.</p> <p>We do have concern regarding whether the panel-only review for DDRI proposals provides for sufficient expert input. (See Section II, no. 1 for our recommendation).</p>	YES
<p>2. Are both merit review criteria addressed</p> <p style="padding-left: 20px;">a) In individual reviews? Yes.</p> <p style="padding-left: 20px;">b) In panel summaries? Yes</p> <p style="padding-left: 20px;">c) In Program Officer review analyses? Yes</p> <p>Comments:</p> <p>Reviews and panel summaries explicitly addressed this. Both criteria appeared to be carefully considered. We were pleased to see that the template used for the</p>	YES

<p>panel summaries and the PO Review Analysis required that both be addressed.</p> <p>We noted that in many cases, the PIs' discussion of broader impacts seemed to be an "add-on" instead of deeply woven into the proposal.</p> <p>Recommendation: We recommend that PO's strongly encourage prospective PI's to think about the broader impacts criterion when they <i>begin</i> to design their research project, not just after the proposal is completed.</p>	
<p>3. Do the individual reviewers provide substantive comments to explain their assessment of the proposals?</p> <p>Comments:</p> <p>Generally yes. We saw a few cases in which the review panel had extremely brief reviews with which to work.</p>	YES
<p>4. Do the panel summaries provide the rationale for the panel consensus (or reasons consensus was not reached)?</p> <p>Comments:</p> <p>Panel summaries captured this rationale in the vast majority of cases. We appreciated that panel summaries strove to emphasize, in all cases, the positive aspects of the proposals in addition to problem areas. In some cases, however, the summaries were rather terse.</p>	YES
<p>5. Does the documentation in the jacket provide the rationale for the award/decline decision?</p> <p>(Note: Documentation in jacket usually includes context statement, individual reviews, panel summary (if applicable), site visit reports (if applicable), program officer review analysis, and staff diary notes.)</p> <p>Comments:</p> <p>The review analyses were particularly useful in this regard.</p>	YES
<p>6. Does the documentation to PI provide the rationale for the award/decline decision?</p> <p>(Note: Documentation to PI usually includes context statement, individual reviews,</p>	YES

<p>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 or telephoned with diary note in jacket) of the basis for a declination.)</p> <p>Comments:</p> <p>Yes, there was adequate rationale provided in the vast majority of cases.</p>	
<p>7. Additional comments on the quality and effectiveness of the program's use of merit review process:</p> <p>The GSS program is one of the largest programs in the BCS division, which speaks to the relevance and strong growth of the Geography and Spatial Science disciplines. Despite the large number of submissions, we were most impressed to see the high quality and effectiveness of the merit review process. In particular, the review analysis for each proposal was thoughtfully prepared and captured the rationale behind the decision. Additionally the dwell time for the GSS program was well over 90% and amongst the highest in the BCS division.</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:</p> <p>We were concerned that the panel-only review of DDRI proposals may not provide sufficient expert input into the wide range of proposals. GSS officers indicated that they are now trying to include a third, off-site reviewer in situations where there may not be the right expertise on the panel.</p> <p>Recommendation: We recommend that the GSS program continue to seek creative ways to get the necessary expert input in reviewing DDRI proposals.</p>	YES
<p>2. Did the program recognize and resolve conflicts of interest when appropriate?</p> <p>Comments:</p> <p>We did not catch any COI issues in the proposals we reviewed.</p>	YES
<p>Additional comments on reviewer selection:</p> <p>We were pleased to see that PO's are reaching out to reviewers from abroad and from other disciplines. This injects both interdisciplinary and international perspectives into the assessment of the research project, and engages a broader community of scholars in geographic research being done by U.S. researchers.</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:

The program is being managed very well and the PO's are continually working to monitor and refine systems and processes. Some examples of this:

- GSS moving to a 1+ review cycle this year.
- Allocation of scores for significance and likelihood of success for each proposal to help in the decision process.
- Creation of "Springboard" awards to support potentially innovative proposals that would not otherwise be funded.

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

Comments:

The GSS program officers are to be commended for their efforts in advancing multi-disciplinary and interdisciplinary research. They regularly reach out to other program officers for joint consideration of proposals. Almost 75% of GSS proposals that were funded in FY12 were funded jointly with another program.

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

Comments:

PO's use the historical allocation of proposals amongst the various categories (e.g. standard vs. DDRI grants) as very general starting point. However they remain very flexible to modifying this based on the quality and types of the proposals they receive in any funding cycle.

Additional direction is provided by a recently refreshed strategic plan.

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

Comments:

We were satisfied with the responsiveness of the program officers to the 2009 COV recommendations.

IV. Portfolio Review. Please provide comments on whether the program’s portfolio goals are appropriate and whether the program has achieved its goals for portfolio balance.

1. Does the program portfolio reflect the disciplines and subdisciplines of the field?

1.1 Is the program responsive to developments within relevant scientific communities?

YES. The POs are highly respected scholars who are aware of the directions in geography and allied fields. This knowledge has made the program highly responsive to emerging directions. Senior program officers are also known for their promotion of interdisciplinary research, which messages out to PI’s that the program welcomes cross-cutting proposals.

2. Are awards appropriate in size and duration for the scope of the projects?

Generally yes; however, we observed that funded PIs routinely were asked to shrink their budgets. While this was done in order to fund a greater number of high quality proposals, it may have the effect of shrinking the scope of some worthy projects. On a related note, we noted that the average size of GSS awards was about \$250K. Our concern is that some prospective PIs with ideas for major, transformative projects may be limiting their vision to conform to the typical amounts of GSS awards.

The size of the DDRI awards is appropriate.

Recommendation: That GSS follow through with the objective stated in its strategic plan to support at least three large awards at \$400K or greater each year, and that the PO’s communicate this widely to the geography community.

3. What have been especially promising and potentially transformative lines of inquiry that the program has supported?

The philosophy of the GSS program officers is not to pre-determine what would be transformative areas of inquiry, but rather to let PIs present their own ideas. We note that highly ranked proposals came from across the breadth of the discipline, and thus have potential to be transformative in different ways.

3.1 What interdisciplinary activities that the program has supported have been especially promising?

The GSS program has been a model of interdisciplinary initiative and funding. The program has supported proposals in areas that include Coupled Natural Human Systems

and SEES (Science, Engineering, and Education for Sustainability).

4. Does the program portfolio demonstrate diversity with respect to geographical distribution of principal investigators and types of institutions?

YES – this was clear from the distribution shown in the map and from documentation in the report.

5. Does the program portfolio demonstrate diversity with respect to balance of awards to new investigators, demographics of principal investigators, and participation of underrepresented groups?

YES, we did not see any problems in this area. The demographic distribution of PI's reflects the diversity of the discipline.

6. Does the program portfolio demonstrate compelling broader impacts, including education, enhancement of diversity, infrastructure, and/or societal relevance?

Careful attention was given to broader impacts at the level of individual proposals. This has meant that, collectively, the program portfolio demonstrates compelling broader impacts.

7. Do you have additional comments about the program portfolio and the projects the program supports?

The portfolio shows a good distribution of support across the subareas of geography. Particularly gratifying is that funding has been good for physical geography, even though the BCS division title does not explicitly reflect/include the environmental sciences. This shows the important work being done by the program officers.

V. Questions for Division Level Discussion. Please provide comment on both scientific and management aspects of the following division-specific questions:

1. Looking forward over the next 10 years, what is your vision for the intellectual future of BCS? Keeping in mind probable budget constraints, what infrastructure would be needed to attain this vision?

--refer to group discussion--

2. One of the objectives in the BCS Strategic Plan is to fund “bigger science.” In addition, NSF may place greater emphasis on mid-scale research in the near future, to provide a mechanism for researchers to ask for larger awards than the average for a program, but smaller than something like a center/network/observatory. What advice would you give the division in encouraging mid-scale research for the BCS sciences? How might BCS support bigger science, and what metrics might it use to determine success in doing so?

3. As outlined in the division narrative, many programs within BCS are experimenting with innovative approaches to merit review, such as GSS’ 1+. What advice would you give the division in thinking about these new approaches? Looking forward, what are effective ways BCS could evaluate and monitor these new practices?

GSS 1+ has been thoughtfully designed to be equitable to PI’s, require less travel by panelists, and encourage resubmission of the most promising proposals not funded in the first review cycle. At the same time, it is expected to improve the workflow of PO’s, save money (which can be reallocated to research support). It preserves the benefits of the face-to-face panel meeting, but reduces the number of in-person panels to one per year, with decisions about resubmitted proposals made in virtual panel meetings. As options for virtual meetings are rapidly evolving, the GSS 1+ provides a hybrid model worth watching. Monitoring and evaluation should include numbers of proposals, costs of panels, feedback from panelists, and feedback from PO’s. PO feedback can include data and comments on whether the new system reduces the number of worthy proposals declined.

OTHER TOPICS

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

None that were apparent to us. We feel that the Program Officers widely publicize funding opportunities to all areas of the discipline and then remain open to the proposals that are submitted.

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.

The program is meeting its goals.

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

We were struck by the data showing that GSS was amongst the programs with the highest volume of submissions but also amongst those that had the lowest funding rates. This is an issue that we believe deserves review by NSF. If necessary, there needs to be a reallocation of resources amongst programs to reflect the energy and activity in the discipline.

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.

Dates and approximate start/end times of the COV meetings needs to be communicated very early for members to make their travel arrangements. This cannot wait until the agenda is set.

COI instructions can be quite daunting. It may help to ask COV members to carefully go thorough their own CV's particularly the last 2 years to review activities and possible COIs regarding honoraria, etc.

The organization of documents in the E-jacket does not allow easy identification of important documents. We suggest that division wide documents and charges to the COV as a whole be listed at the top. Documents for each of the programs should be nested in separate folders. This would save COV members much time.

SIGNATURE BLOCK:

For the 2012 BCS COV
Nina Jablonski
Chair

9. Linguistics

CORE QUESTIONS and REPORT TEMPLATE for

FY 2012 NSF COMMITTEE OF VISITOR (COV) REVIEWS

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FY 2012 REPORT TEMPLATE FOR

NSF COMMITTEES OF VISITORS (COVs)

The table below should be completed by program staff.

<p><i>Date of COV: October 10-12, 2012</i></p>
<p>Division: Behavioral and Cognitive Sciences (BCS)</p>
<p>Directorate: Social, Behavioral, and Economic Sciences (SBE)</p>
<p>Number of actions reviewed:</p> <p>Awards: 563 Declinations: 571 Other: 15 (includes proposals withdrawn and funded elsewhere [DEL awards funded by NEH])</p>
<p>Total number of competitive actions within the Division during period under review:</p> <p>Awards: 1761 Declinations: 6189 Other: 351 (includes 217 supplement award actions)</p>
<p>Manner in which reviewed actions were selected:</p> <p>Sample Pool: The initial pool of actions sampled for each program included all competitive awards, declines, withdrawn proposals for FYs 2009-2011. In order to prevent oversampling of collaborative projects, lead proposals were included but sub-proposals were not (although the non-lead collaboratives are linked to the leads and made available within the eJacket module). Non-competitive actions, such as continuing grant increments of multi-year awards, and transfers between PIs or Institutions were excluded.</p> <p>Random Sampling Method: Using a random integer function, all proposals in the sample pool were given randomly assigned a number. Lists were then sorted and the first 45 awards/ 45 declines were selected, for a total of 90 actions per program. <u>Exceptions:</u> Geography and Spatial Sciences and Cultural Anthropology programs have much higher proposal loads than other BCS programs, so the first 70 awards/ 70 declines were sampled.</p> <p>For programs that consider a large number of doctoral dissertation research improvement grants</p>

(DDRIGs), those actions were sampled separately from the regular/ senior proposals. The relative percentages of DDRIGs included in the sample are in proportion to the number of DDRIGs handled by those programs, on average.

COIs: for sampled actions in which a relevant committee member had been a PI, or had an institutional conflict of interest, the action was removed and replaced with the proposal assigned the next highest random number.

**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 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, <i>ad hoc</i>, site visits) appropriate?</p> <p>Comments:</p> <p>We believe that the combination of <i>ad hoc</i> and panel reviews is appropriate and necessary for Linguistics given the diversity of the field. However, we believe that DDRIG grants are a category of grant whose administration could be streamlined, perhaps by the use of sub-panels or other means, and taking advantage of teleconferencing options. Such subpanels could also be effectively employed to triage clearly uncompetitive proposals. This would then improve the functioning of existing panels.</p>	YES
<p>2. Are both merit review criteria addressed</p> <p>a) In individual reviews? b) In panel summaries? c) In Program Officer review analyses?</p> <p>Comments:</p> <p>Both proposals and reviews often give short shrift to broader impacts, which frequently appear to be appended as afterthoughts. Most proposal limit their discussion of broader impacts to the training of graduate students and postdoctoral researchers. Instead, proposers should integrate broader impacts from the beginning</p>	YES

<p>of the crafting of the proposal. The panel does seem to pay attention to broader impacts when they involve creative or innovative approaches. We believe that some form of mentoring (see comments below) could substantially improve statements of broader impact and could convince more PIs of their usefulness.</p>	
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<p>3. Do the individual reviewers provide substantive comments to explain their assessment of the proposals?</p> <p>Comments:</p> <p>In general, reviewers do provide substantive comments. However, we did find some disconnect between the scores provided by reviewers and their discursive comments. The panels seemed to address this issue by paying more attention to the substantive comments.</p> <p>Three suggestions for improvement:</p> <ol style="list-style-type: none"> 1. Provide more explicit criteria for the ratings, similar to what is done at NIH. 2. Find a mechanism to allow reviewers to see the other [redacted] reviews of the proposal in order to better calibrate their future reviews Even if this must be restricted to funded proposals it would be beneficial. Those reviews would be provided after the granting decision had been made. 3. Occasionally there are factual or typographical errors in reviews. It would be beneficial for reviewers to be able to go back and edit their reviews, a function not supported by the current Fastlane system. 	<p>YES and NO</p>
<p>4. Do the panel summaries provide the rationale for the panel consensus (or reasons consensus was not reached)?</p> <p>Comments:</p> <p>When the panel judgment disagrees with the reviews, the panel summary is longer and provides ample justification for the panel's decision. Occasionally an additional review is requested.</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 jacket usually includes context statement, individual reviews, panel summary (if applicable), site visit reports (if applicable), program officer review analysis, and staff diary notes.)</p> <p>Comments:</p>	<p>YES</p>

<p>6. Does the documentation to 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 or telephoned with diary note in jacket) of the basis for a declination.)</p> <p>Comments:</p>	<p>YES</p>
<p>7. Additional comments on the quality and effectiveness of the program's use of merit review process:</p> <ul style="list-style-type: none"> • There is a good balance of reviewers and panelists across many criteria of diversity (gender, geography, institutional type, subfield, etc.). • We understand that there is a database of reviewers that could be utilized more effectively to provide context for their reviews. • The use of a preliminary informal contact prior to an official Fastlane invitation is effective in ensuring a positive response to the invitation, deflecting COIs, and recruiting junior reviewers. • The addition of new mechanisms to widen the field of potential reviewers, especially junior reviewers would improve the review process. 	

II. Questions concerning the selection of reviewers. Please answer the following questions about the selection of reviewers and provide comments or concerns in the space below the question.

SELECTION OF REVIEWERS	YES , NO, DATA NOT AVAILABLE, or NOT APPLICABLE
<p>1. Did the program make use of reviewers having appropriate expertise and/or qualifications?</p> <p>Comments:</p> <p>There is a good balance and selection of reviewers.</p>	<p>YES</p>
<p>2. Did the program recognize and resolve conflicts of interest when appropriate?</p> <p>Comments:</p> <p>The program officers' initiative to make informal contacts first greatly reduces the incidence of COIs. For the purposes of the COV review, it was difficult to find COI information without looking through the jackets individually.</p>	<p>YES</p>
<p>Additional comments on reviewer selection:</p> <p>The COV members from other disciplines note a disparity in the numbers of reviews received in their programs. This was apparently due to the variability of responses to official Fastlane solicitations. The preliminary contact by the program officers before official solicitation substantially ameliorates this problem.</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:

The management of the program is excellent, and we believe that regular proposals are handled completely appropriately. We believe that the review of DDRIGs would be made more effective by streamlining the process. In particular, since time is more important for students at the dissertation stage, we believe that sub-panels meeting through videoconferencing could accomplish the task more expeditiously. Even if the reviewing process is carried out more efficiently, to be effective this change would also require coordination with the Division Director signoff.

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

Comments:

One emerging research opportunity that was identified generally within the COV panel was the use of "big data." The program officers have clearly thought about this issue, and have crafted a multifaceted response:

1. They are highlighting to potential PIs NSF-wide initiatives in this area, such as INSPIRE.
2. Because these grants tend to be larger, they are seeking co-funding opportunities with other programs. We understand that 40% of LING proposals are co-funded, an indication of the effectiveness of that approach.

A second emergent research opportunity within linguistics has been the increasing number of cross-linguistic studies in semantics. The program has been very successful in funding proposals in that area. We would encourage theoretical syntacticians to look to the success of cross-linguistic semantics as a model for NSF funding for syntactic research, which currently constitutes less than 10% of awards.

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

Comments:

The program officers are faced with a very hard choice in balancing size vs. diversity of awards. The Division is looking to expand the number of midsize awards, perhaps at the expense of a larger number of small awards. The NSF used to have other mechanisms for small “starter” awards, especially for junior faculty, and we believe that the reinstatement of such a program would be beneficial, because it is important to facilitate junior faculty success in grant activities, particularly since success in extramural sponsored research is increasingly important to tenure and promotion. For similar reasons, we strongly support the maintenance of the DDRIG awards within the program, as they provide an opportunity to students writing dissertations to gain grant experience. Support of conferences has been invaluable for new initiatives in research, and the amount of conference support within the program seems appropriate.

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

Comments:

The previous COV panels outlined problems with the CAREER awards in Linguistics and in other BCS programs. CAREER awards continue to be funded at a rate below that of regular proposals over the last three years. A previous recommendation to increase the flexibility and to reduce the minimum size of CAREER awards in fields such as Linguistics has not been implemented by the Foundation, but we continue to advocate for this. Operating within the current funding constraints the program officers have struck the best balance available to them, and have made 1-3 CAREER awards per year.

Alternative grant opportunities for young researchers at a smaller size than CAREER awards would help to alleviate the winner-take-all effect within Linguistics where the minimum size of the award means that very few of them can be funded during a single cycle.

Another recommendation from previous COV panels was to increase awards to new investigators, noting a success rate of only 7% in 2008. We note that the Linguistics program has improved the success rate to 20% for new investigators during the period 2009-2011, though this remains at about half of the level for established researchers. We suggest that to further support the success of new investigators a pool be established of retired successful grantees to serve as mentors to young researchers.

IV. Portfolio Review. Please provide comments on whether the program's portfolio goals are appropriate and whether the program has achieved its goals for portfolio balance.

1. Does the program portfolio reflect the disciplines and subdisciplines of the field?

Yes, with the proviso that theoretical syntax appears to be underrepresented (however, when syntax is connected with experimental or cross-linguistic work, it does seem to receive funding). That said, not only are there fewer awards, but there are also fewer applications, so the numbers reflect the applicant pool. Additional efforts to attract more proposals in this area could counteract that trend.

1.1 Is the program responsive to developments within relevant scientific communities?

Within traditional areas of linguistics, yes. The increase in cross-linguistic semantics has received a great deal of support. We identified two other areas that could be promoted more, i.e., bio-linguistics and evolutionary linguistics. A number of theoretical syntacticians are involved in those two fields, and a greater emphasis could help to alleviate the paucity of theoretical syntax awards. Proposals with significant contributions from biology and evolutionary biology could be eligible for additional co-funding opportunities.

2. Are awards appropriate in size and duration for the scope of the projects?

Generally, yes. The average award has risen from approximately \$80,000 per year to approximately \$95,000, which seems appropriate. Information on the frequency of renewals, no-cost extensions, and substantially similar new projects would be needed to determine whether the projects are really of the appropriate size.

3. What have been especially promising and potentially transformative lines of inquiry that the program has supported?

One avenue of research that seems particularly promising is the area of cross-linguistic semantics. As mentioned above, we would like to see this serve as a model for syntacticians. The linguistics program has been a long-standing supporter of data collection efforts, especially the collection of speech and language corpora, which constitute a lasting resource for language scientists.

3.1 What interdisciplinary activities that the program has supported have been especially promising?

Approximately 40% of the funded linguistics proposals are co-funded with other programs, which constitutes an extraordinarily high degree of leveraging and support for interdisciplinary efforts.

4. Does the program portfolio demonstrate diversity with respect to geographical distribution of principal investigators and types of institutions?

Yes, definitely. The only lacunae we observe are states that do not have a history of strong programs in linguistics.

5. Does the program portfolio demonstrate diversity with respect to balance of awards to new investigators, demographics of principal investigators, and participation of underrepresented groups?

As was explained to the panel, there is insufficient demographic data on underrepresented groups. New investigators are successful at about half the rate of established investigators. As a possible way of addressing this gap, as described above, we would suggest the recruitment of a pool of mentors to be drawn from retired successful investigators. We would like to reiterate our support for greater flexibility or an additional mechanism as an alternative to the CAREER awards, as a way to provide greater opportunities for younger investigators.

6. Does the program portfolio demonstrate compelling broader impacts, including education, enhancement of diversity, infrastructure, and/or societal relevance?

Unfortunately, many of the statements of broader impact are limited to education, such as the training of graduate students and post-docs. Linguistics is by no means unique in this regard. Some division or Foundation-wide re-commitment to the explanation and dissemination of the goals of including broader impact is advisable.

7. Do you have additional comments about the program portfolio and the projects the program supports?

One item that came up for general discussion at the division level is a comprehensive research initiative into individual differences across a number of programs. We suggest a general rubric of "Individuals, Identity, Groups, and Community." This would connect linguistic research with measures of genetic diversity, specific language impairment, in-group vs. out-group, the relation between dialects and language, biological foundations of perception, diverse solutions to common problems, learning styles, memory, and language and other kinds of aptitude.

V. Questions for Division Level Discussion. Please provide comment on both scientific and management aspects of the following division-specific questions:

- | |
|--|
| <p>1. Looking forward over the next 10 years, what is your vision for the intellectual future of BCS? Keeping in mind probable budget constraints, what infrastructure would be needed to attain this vision?</p> |
| <p>2. One of the objectives in the BCS Strategic Plan is to fund “bigger science.” In addition, NSF may place greater emphasis on mid-scale research in the near future, to provide a mechanism for researchers to ask for larger awards than the average for a program, but smaller than something like a center/network/observatory. What advice would you give the division in encouraging mid-scale research for the BCS sciences? How might BCS support bigger science, and what metrics might it use to determine success in doing so?</p> |
| <p>3. As outlined in the division narrative, many programs within BCS are experimenting with innovative approaches to merit review, such as GSS’ 1+. What advice would you give the division in thinking about these new approaches? Looking forward, what are effective ways BCS could evaluate and monitor these new practices?</p> |

OTHER TOPICS

1. Please comment on any program areas in need of improvement or gaps (if any) within program areas.
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.
3. Please identify agency-wide issues that should be addressed by NSF to help improve the program's performance.
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.

SIGNATURE BLOCK:

Susan Fischer
William Idsardi

For the 2012 BCS COV
Nina Jablonski
Chair

10. Perception, Action, and Cognition

CORE QUESTIONS and REPORT TEMPLATE for FY 2012 NSF COMMITTEE OF VISITOR (COV) REVIEWS

Background Information: This document includes the FY 2012 set of Core Questions and the COV Report Template for use by NSF staff when preparing and conducting COVs during FY 2012.

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

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

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

**FY 2012 REPORT TEMPLATE FOR
NSF COMMITTEES OF VISITORS (COVs)**

The table below should be completed by program staff.

Date of COV: October 10-12, 2012
Division: Behavioral and Cognitive Sciences (BCS)
Directorate: Social, Behavioral, and Economic Sciences (SBE)
Number of actions reviewed: Awards: 563 Declinations: 571 Other: 15 (includes proposals withdrawn and funded elsewhere [DEL awards funded by NEH])
Total number of competitive actions within the Division during period under review: Awards: 1761 Declinations: 6189 Other: 351 (includes 217 supplement award actions)

Manner in which reviewed actions were selected:

Sample Pool: The initial pool of actions sampled for each program included all competitive awards, declines, withdrawn proposals for FYs 2009-2011. In order to prevent oversampling of collaborative projects, lead proposals were included but sub-proposals were not (although the non-lead collaboratives are linked to the leads and made available within the eJacket module). Non-competitive actions, such as continuing grant increments of multi-year awards, and transfers between PIs or Institutions were excluded.

Random Sampling Method: Using a random integer function, all proposals in the sample pool were given randomly assigned a number. Lists were then sorted and the first 45 awards/ 45 declines were selected, for a total of 90 actions per program. Exceptions: Geography and Spatial Sciences and Cultural Anthropology programs have much higher proposal loads than other BCS programs, so the first 70 awards/ 70 declines were sampled.

For programs that consider a large number of doctoral dissertation research improvement grants (DDRIGs), those actions were sampled separately from the regular/ senior proposals. The relative percentages of DDRIGs included in the sample are in proportion to the number of DDRIGs handled by those programs, on average.

COIs: for sampled actions in which a relevant committee member had been a PI, or had an institutional conflict of interest, the action was removed and replaced with the proposal assigned the next highest random number.

**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 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, <i>ad hoc</i>, site visits) appropriate?</p> <p>Comments:</p> <p>Given the scope and availability of <i>ad hoc</i> reviewers it would appear, given the constraints, that the procedures are as good as can be expected.</p> <p>The current program officers show balance between the impact of the <i>ad hoc</i> reviews and the panels' recommendations given the advisory roles of both.</p>	<p>YES</p>

<p>2. Are both merit review criteria addressed</p> <ul style="list-style-type: none"> a) In individual reviews? b) In panel summaries? c) In Program Officer review analyses? <p>Comments:</p> <p>Both ‘ Intellectual Merit’ and ‘Broader Impacts’ receive important consideration, bearing in mind that intellectual merit is perhaps more precisely evaluated with respect to the science, in contrast to determining the broader impacts which, to some degree, might be somewhat more conjectural.</p> <p>The program officers strive to seek a balance between the two, but broader impacts remain subordinate to overall intellectual merit.</p>	<p>YES</p>
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<p>3. Do the individual reviewers provide substantive comments to explain their assessment of the proposals?</p> <p>Comments:</p> <p>It appears that, with some exceptions, the reviewers provide substantial and constructive input. In situations where the reviews are ambiguous, the program officers have sought further input via additional, specialized <i>ad hoc</i> reviews.</p>	<p>YES, Largely so.</p>
<p>4. Do the panel summaries provide the rationale for the panel consensus (or reasons consensus was not reached)?</p> <p>Comments:</p> <p>It isn't always clear that consensus is an absolute necessity. The panel summaries provide a broad overview of the panelists' sentiments along with <i>ad hoc</i> reviews when necessary.</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 context statement, individual reviews, panel summary (if applicable), site visit reports (if applicable), program officer review analysis, and staff diary notes.)</p> <p>Comments:</p> <p>Again, given the constraints of the process itself, it seems that the collective impact of the panel summary, individual reviews - <i>ad hoc</i> and panelist, and the PO's review analysis, every proposal receives a justifiable rationale.</p> <p>This question relates only to NSF-internal decision processes, the PO's seek additional input from potential partners inside NSF (other programs such as Cog Neuro, Develop, Social Psych, Geo) ,and from external agencies, such as the AFSOR, ONR, etc.</p>	<p>YES</p>

<p>6. Does the documentation to 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 or telephoned with diary note in jacket) of the basis for a declination.)</p> <p>Comments:</p> <p>Given the information available in the jackets as well as anecdotal information from the POs, it would seem that the rationale is clearly communicated. We acknowledge that it is difficult to communicate negative decisions in justifying what strives to be an essentially objective set of guidelines. Occasionally, some PIs perceive the decision to be more subjective than objective;.this can be a challenge for the PO.</p>	<p>YES</p>
<p>7. Additional comments on the quality and effectiveness of the program’s use of merit review process:</p> <p>To some degree, we must ask- “What is the alternative?” There is no real alternative to a merit review — and these must be based on the two review criteria of intellectual merit and, to a lesser extent, the broader impacts. Especially if NSF is to achieve its larger objective of transformational science.</p> <p>It is clear that the program has responded to a significant number of the 2009 COV recommendations.</p> <p>The merit review process would be improved in no small measure if more pressure was placed on institutions to play their part in the merit review process. This could be accomplished by institutions rewarding and incentivizing faculty to participate in the NSF merit review process. If institutions value faculty obtaining NSF funding they should also support the process whereby this is made possible.</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:</p> <p>They POs make a good faith effort to do this largely since it is in the program’s best interest to do so. As noted above, appropriate <i>ad hoc</i> reviewers are used when proposals exceed the expertise of the panel.</p>	YES
<p>2. Did the program recognize and resolve conflicts of interest when appropriate?</p> <p>Comments:</p> <p>COIs are not unusual in this field and are dealt with by standard operating procedure — e.g. non-participation in discussions, etc. The POs are complementary in many cases where they may have a conflict, and in the rare situation where there is a mutual conflict they have called in external POs to manage the discussions / decisions.</p>	YES
<p>Additional comments on reviewer selection:</p> <p>We mention above that a larger pool of <i>ad hoc</i> reviewers would be desirable. Furthermore, institutional support for this would ease the process for reviewers in general. We feel that it would be in everyone’s best interest to broaden the number of reviewers; spread the workload across a larger pool of reviewers ; and potentially realize cost savings.</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:</p> <p>As noted in the 2009 COV report, the quality, expertise and commitment to the mission of the program as well as BCS is well represented in the current permanent and rotating program officers.</p>
<p>2. Responsiveness of the program to emerging research and education opportunities.</p> <p>Comments:</p> <p>To remain sensitive to emerging educational and research opportunities it is essential that the POs are afforded the maximum opportunity to engage scientists at relevant scientific meetings ,visit institutions specializing in high-quality graduate and undergraduate research and education.</p>
<p>3. Program planning and prioritization process (internal and external) that guided the development of the portfolio.</p> <p>Comments:</p> <p>Since the last COV(2009) review the POs have developed an excellent working knowledge of other programs in BCS and how, when appropriate, to collaborate on funding projects whose research crosses disciplinary boundaries — both explicit and some not so obvious. Furthermore they engage with external partners, e.g. agencies outside NSF, thereby extending the funding available for meritorious proposals.</p>

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

Comments:

Since the last COV (2009) review, PAC has balanced their approach to the portfolio of experimental work that is its broad mission. The rotating program officer addresses the perceived under represented areas of attention, learning and memory.

IV. Portfolio Review. Please provide comments on whether the program's portfolio goals are appropriate and whether the program has achieved its goals for portfolio balance.

1. Does the program portfolio reflect the disciplines and sub-disciplines of the field?

Earlier concerns (COV 2009) regarding the portfolio with respect to attention, learning and memory have been addressed by the current program officers such that there is a better balance across the portfolio of discipline areas in the program's mission. This has been achieved via the introduction of a second rotating program officer. We recommend that this level of staffing continue with the possibility of additional assistance of a dedicated Science Assistant to assist with the ever-increasing clerical workload with managing the review process.

1.1. Is the program responsive to developments within relevant scientific communities?

They encourage the combination of experimentation and modeling of dynamical systems which separate them from the more usual modeling form of enquiry that would be serviced by a different program or area. This program provides a basis for potential funding that is currently unavailable from other agencies - where the proposal would find the merit review process most challenging.

2. Are awards appropriate in size and duration for the scope of the projects?

Median award is c.a. \$100,000 / year of direct cost, resulting in grants of approximately \$450,000. Despite the global funding exigencies, this amount remains a substantive level of reward for the areas covered by the program's mission.

It might be desirable to consider NIH R03-type initiatives for testing new ideas, protocols, or other interdisciplinary or potentially transformative opportunities - with the caveat that the institutions redirect a portion of the indirect costs to the project to support the overwhelmingly large personnel costs.

Furthermore this might help fill the funding deficit for mid-range equipment costs associated with this program's portfolio of research — much of it technology driven. Even larger awards can't fund some of this necessary research cost that exists in the donut hole of funding between programmatic offerings and Major Research Instrumentation initiatives.

Legal restrictions prohibit the the NSF from requiring the institutions to cost-share or even requiring that the indirect costs be related to the project. Despite this, this presents a serious growth problem and should be delicately addressed.

3. What have been especially promising and potentially transformative lines of inquiry that the program has supported?

3.1 What interdisciplinary activities that the program has supported have been especially promising?

The program continues to seek and acquire co-funding for interdisciplinary, synergistic activities - most notably through other BCS programs : Cognitive Neuroscience, Developmental and Learning Sciences, Linguistics and Social Psychology.

These collaborative initiatives provide substantial added-value to the PAC budget of approximately fifty cents on the dollar. This is a nontrivial enhancement to the program's budget

4. Does the program portfolio demonstrate diversity with respect to geographical distribution of principal investigators and types of institutions?

The program cannot dictate the geographical nature of its applications; it seems that the distribution is largely 'where the action is' with respect to the sciences. It's not clear that one should expect a uniform distribution of PAC funded activity nationwide. POs should continue to encourage under-represented institutions to apply for program funds.

The institutional types follow a similar patterns with a similar sets of constraints. In order to encourage underrepresented groups, with respect to gender and race, the program might consider an increase in support of undergraduate research initiatives — such as REUs and RUI. Data suggest that filling this gap is difficult at the higher-levels of the educational process. Encouraging and retaining undergraduate students from these under-represented groups should be a priority in order to generate larger pools of potential science graduate students and, subsequently investigators.

5. Does the program portfolio demonstrate diversity with respect to balance of awards to new investigators, demographics of principal investigators, and participation of underrepresented groups?

We suggest a strategy, outlined above, to address this question.

6. Does the program portfolio demonstrate compelling broader impacts, including education, enhancement of diversity, infrastructure, and/or societal relevance?

Again, there is an essential redundancy of the above. In our judgment PAC continues to support the larger mission of SBE/BCS.

7. Do you have additional comments about the program portfolio and the projects the program supports?

We feel we have covered these adequately in the previous sections.

V. Questions for Division Level Discussion. Please provide comment on both scientific and management aspects of the following division-specific questions:

1. Looking forward over the next 10 years, what is your vision for the intellectual future of BCS? Keeping in mind probable budget constraints, what infrastructure would be needed to attain this vision?

It is often said that “three years is a lifetime” for long-term strategic planning. Given the uncertainty of funding 10 years out, the destination seems to be preempting the journey! For example, several issues that are relevant in the current portfolio of the NSF, and more specifically the BCS may no longer be as critical or necessary in the science of the next decade.

Since the template question specifies a 10 year time frame we will do our best to suggest a “destination”.

For example, consider fMRI: The current panacea and method of choice for much of neuroscience. Investigators are becoming more aware of the limitations of the technique and problems with the underlying philosophical assumptions and, as such, have returned to earlier techniques (EEG) which have greatly benefitted from unanticipated improvements in technology.

Secondly, consider the ‘co-modification’ of some advanced technologies. Highly sophisticated computer graphics have gone from requiring \$100,000 in quickly depreciating hardware to being of zero-cost, included with almost every computational device imaginable. The Wii Board, at \$100, with appropriate software, is a reliable substitute for a \$30,000 force-plate system. Consumer-grade electroencephalography equipment, designed for the entertainment market, can now reliably substitute for tens-of-thousands of dollars of EEG equipment.

We note that there is substantial co-funding between Perception and Action, Cognitive Neuroscience, Development and Learning Science, and Social Psychology. We further note that there is a trend toward the ‘fracturing’ of programs into newer administrative units. Given the fact that there is significant co-funding between these areas perhaps some thought should be given to the current structure of these programs. It should be stressed that we are not recommending a reduction in funding of any of these units, only that a certain economy of scale may be gained by repartitioning the local mission of each unit to better serve the broader mission of BCS.

We fully realize that this will not impact the overall workload, or realize any significant savings for BCS.

2. One of the objectives in the BCS Strategic Plan is to fund “bigger science.” In addition, NSF may place greater emphasis on mid-scale research in the near future, to provide a mechanism for researchers to ask for larger awards than the average for a program, but smaller than something like a center/network/observatory. What advice would you give the division in encouraging mid-scale research for the BCS sciences? How might BCS support bigger science, and what metrics might it use to determine success in doing so?

This begs the question of whether this objective is truly a wise move — NSF is already divided into focused, well-managed units and may suffer from the “mile-long-inch-deep” problem if this becomes a priority.

However, we feel that “bigger science”, a seductive, exciting, yet somewhat vague concept, is served best by ‘bigger questions’, such as the nature of mind, creativity, intelligence and/or a more innovative approach to the traditional mind/body dichotomy.

Metrics for success are difficult, as even well defined AI criteria, such as the Turing Test have proven to not be a truly sufficient benchmark in retrospect.

Therefore, NSF and BCS might do well to organize a series of selected workshops, along the lines of the old NATO ASI/ASW programs, on the above topics. By bring in many diverse perspectives allows us to begin the process of determining appropriate support and metrics of evaluation.

3. As outlined in the division narrative, many programs within BCS are experimenting with innovative approaches to merit review, such as GSS’ 1+. What advice would you give the division in thinking about these new approaches? Looking forward, what are effective ways BCS could evaluate and monitor these new practices?

We suggest the GSS’1+initiative might be instituted across all programs in BCS for say 3 years, as a serious trial period to evaluate its impact for merit awards. It allows PO’s increased flexibility to fund innovative applications that do not ‘pass muster’, but are sufficiently meritorious at the initial review.

A possible caveat might be that new applications may be superior to applicants that are getting a ‘second look” via a 1+ process, yet these might unintentionally punish the new applicants by getting ‘pushed back’ in time.

OTHER TOPICS

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

Outlined above.

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.

There are a few emerging ideas that are gaining traction in the field. These include replication of prior, benchmarking experiments; databases for stimuli, human motion, resting state fMRI, etc; crowdsourcing of experimental subjects; and interpersonal perception and action.

Advances in technology have made these viable, reliable and cost effective and PAC should consider investing some of its resources in these areas.

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

The structure and management of NSF gives an appropriately high degree of autonomy to the individual programs. We strongly support this structure since it gives all levels of the agency a degree of ownership for the success of the entire enterprise.

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

NA

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

NA

SIGNATURE BLOCK:

Dr. Michael G. Wade, Professor, University of Minnesota
Dr. Flip Phillips, Professor, Skidmore College

For the 2012 BCS COV
Nina Jablonski
Chair

11. Social Psychology

CORE QUESTIONS and REPORT TEMPLATE for

FY 2012 NSF COMMITTEE OF VISITOR (COV) REVIEWS

Background Information: This document includes the FY 2012 set of Core Questions and the COV Report Template for use by NSF staff when preparing and conducting COVs during FY 2012.

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

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

FY 2012 REPORT TEMPLATE FOR

NSF COMMITTEES OF VISITORS (COVs)

The table below should be completed by program staff.

<i>Date of COV: October 10-12, 2012</i>
Program/Cluster/Section: Social Psychology
Division: Behavioral and Cognitive Sciences (BCS)
Directorate: Social, Behavioral, and Economic Sciences (SBE)
Number of actions reviewed: Awards: Declinations: Other:
Total number of actions within Program/Cluster/Division during period under review: Awards: Declinations: Other:
Manner in which reviewed actions were selected:

**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 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 style="text-align: center;">QUALITY AND EFFECTIVENESS OF MERIT REVIEW PROCESS</p>	<p style="text-align: center;">YES, NO, DATA NOT AVAILABLE, or NOT APPLICABLE</p>
<p>1. Are the review methods (for example, panel, <i>ad hoc</i>, site visits) appropriate?</p> <p>Comments:</p> <p>The Social Psychology program utilizes review methods that rely on the expert judgment of <i>ad hoc</i> reviews and panel members. The combination of these two groups of reviewers works well. <i>Ad hoc</i> reviewers are selected for their in-depth knowledge of the specific issues addressed in a proposal. They are in a position to judge the merit of a proposal in relation to current trends in their field of specialization. Panel members as a group bring breadth and experience that allow them to judge the merit of a proposal in relation to other proposals submitted to the program.</p> <p>The program officers should be commended for keeping dwell times low. The dwell times were generally lower relative to other program and met NSF's goals of having 70% of proposals processed within six months of submission.</p> <p>We discussed specific issues that directly affect the quality of the merit review</p>	<p>YES</p>

process. One issue is the load panel members have in reviewing proposals. There are two review cycles per year. The service of panel members ranges from one (half-year) to six cycles (3-year term). Each cycle, a panel member will read carefully and write a 1 to 5-page review for 11-15 proposals. We also discussed the issue of difficulties program officers confront in obtaining *ad hoc* reviews. In response to these issues, we identified some modifications to the current peer review system.

Recommendations:

1) One suggestion is to institute a two-stage merit review in order to reduce the number of proposals that are submitted to the panel, as is being implemented in the Perception, Action, and Cognition (PAC) program. The first stage makes use of recommendations by *ad hoc* reviewers. PAC obtains three *ad hoc* reviews and requires at least 1 excellent (E) rating or two very good (VG) ratings among these three reviews for the proposal to go before the panel. This method of streamlining reduces the workload for panel members, but also provides important feedback to those submitting proposals that are not considered for full review.

Similarly, we recommend that the Social Psychology program officers obtain three non-panel reviews to determine whether proposals meet a minimum standard of merit to warrant being evaluated by the panel. Whereas the standard used by PAC (1 E or 2 VGs) identifies particularly strong proposals, we recommend using a standard that identifies particularly weak proposals and eliminates them from further review. It is also possible that this system be tested for a trial period. For example, decisions about proposals that would be streamlined can be logged without using it as a filtering criterion for one or two panels. Then POs can compare the panel evaluations of those proposals that would be streamlined to see if there is consensus. If a satisfactory degree of consensus is found over two cycles, the program could be implemented.

2) A second suggestion is to establish a rotating Consulting Committee (CC) of scholars, representing many different areas within social-personality psychology, to serve as reviewers in a manner similar to members of a consulting editor board for peer-reviewed journals. The purpose of the CC would be three-fold. First, Program Officers could select *ad hoc* reviewers from the CC. The function of a CC is not to be gatekeepers controlling which proposals are forwarded to the panel, but rather to serve in a reviewing capacity more frequently than would be expected of *ad hoc* reviewers. In this way, we are proposing that program officers seek three reviews of each proposal, from CC members, *ad hoc* reviewers, or a combination; and evaluate the ratings of the three reviewers to determine which proposals should be eliminated from panel review. Second, POs can use the CC as a source of recommendations for potential *ad hoc* reviewers. If the panel is comprised of

<p>experts in a variety of fields, they would, ostensibly, have more detailed knowledge about the appropriateness of potential reviewers than the PO would. Of course, the PO can decide whether to use the CC in this regard, retaining the freedom to select <i>ad hoc</i> reviewers without consultation. Third, the CC could be a sounding board for the POs with respect to cutting edge developments in the field of social-personality psychology.</p> <p>3) We recommend the creation of a Consulting Committee AND implementing a two-stage evaluation process for several reasons. One benefit is the potential reduction in the number of proposals that panel members review. A second benefit is that serving on the CC provides a formalized way of recognizing the efforts of individuals are committing to review for NSF but not serving as panel members; being appointed to the CC should provide an incentive to complete reviews of NSF proposals. Thus, a third benefit is the potential increase in the rate of accepting review assignments and completing them among non-panel members. A fourth benefit is the potential to add breadth of expertise among reviewers. Specifically, CC members will broaden the expertise of reviewers committed to reviewing NSF proposals beyond panel members. CC members also can suggest additional reviewers. A fifth benefit is that serving on the CC would provide a training function for more junior scholars who have clear expertise on a topic but a limited record of funding. Each member would see multiple proposals over their term, and provide a better context for evaluating proposal than simply a single <i>ad hoc</i> review. A sixth benefit would occur when a panel member steps down; the CC would provide a pool of individuals who could serve as a replacement, even though ultimately others beyond the CC could serve as replacements as well.</p> <p>In Section II below we provide additional suggestions on establishing a CC that fulfills important reviewing functions.</p> <p>4) We recommend that the review analysis differentiate reviews obtained from CC members, <i>ad hoc</i> reviewers, and panel members. Indicating this information would provide a way of documenting the relative influence of each type of reviewer on the evaluation of proposals.</p>	
<p>2. Are both merit review criteria addressed</p> <ul style="list-style-type: none"> a In individual reviews? b In panel summaries? c In Program Officer review analyses? 	

Comments:

Ad hoc and panel reviewers consistently provide excellent evaluations of intellectual merit. There is less consistency in the evaluation of broader impacts. Most but not all reviews mention broader impacts but seem to weigh it less than intellectual merit in the recommendation. Program officers do a much better job in addressing both criteria in the review analysis. Our understanding is that NSF views both criteria as equally important, but in practice, intellectual merit has a disproportionate (if not complete) influence in the evaluation process and funding decisions. Program officers provide *ad hoc* reviewers with a 1½-page description of merit review criteria.

Recommendations:

1) We recommend that reviewers and panel member read a more complete description of broader impacts, such as the 4-page [statement](#) published by NSF in July 2007 elaborating on the broader impacts criterion.

2) Currently, proposals are given a single rating on a 5 point scale of E, VG, G, F, and P. We recommend that reviewers provide two SEPARATE 5-point ratings of proposals in terms of their intellectual merit AND broader impacts, and that these ratings are also recorded numerically for the purposes of averaging.

3) In addition, we recommend that proposals are also evaluated on a) the specific types of broader impacts (e.g., advance discovery and understanding while promoting teaching, training, and learning; broaden participation of underrepresented groups; enhance infrastructure for research and education; broad dissemination to enhance scientific and technical understanding, and benefits to society). Proposals that are funded may vary in the extent to which they satisfy each merit criterion. Program officers may determine that a particular proposal with more distal impact may merit funding as much as one with more direct impact. The purpose of providing specific reviewer ratings is to increase the relevance of broad impacts in discussions of proposals. It will also help POs and the COV to determine the quality of the research portfolio.

4) We recommend that each proposal be evaluated with respect to the extent that it a) deepens existing knowledge; b) produces potentially transforming knowledge; c) represents interdisciplinary work, d) is innovative in terms of complexity science, or e) advances infrastructure. Again, these ratings will help POs and the COV to determine the quality of the research portfolio.

5) We recommend that proposal be classified according to the topics of the research, also to aid portfolio evaluation by the PO and COV. A sample taxonomy is represented below:

Aggression
Attitudes
Close Relationships
Cultural Psychology
Embodied Cognition
Emotion
Evolutionary Psychology
Group Processes
Stereotypes and Prejudice
Intergroup Relations
Judgment and Decision Making
Lifespan Social-Personality
Morality and Justice
Nonverbal Behavior
Political Psychology
Psychology of Religion and Spirituality
Self & Identity
Social Cognition
Social Influence
Social Neuroscience
Social Personality and Health
Social Psychology and Law

This list provides an initial way of categorizing and tracking the topics proposals. Any list used, ultimately, may include different topics. THIS IS NOT A LIST THAT WE ARE SUGGESTING AS MAJOR AREAS OF FUNDING; existing lines of research will fall into one or more of these topics to varying degrees, and some cycles will not include any proposals for particular topics. Again, the responsibility of classifying the proposal could be given to either the PI, the Reviewers, or both, with the PO having the final say. An additional suggestion would be to have each area rated on a scale of 0 to 5 on each topic dimension to get a sense of the degree to which proposals reflect various topics and approaches. A scaled rating system of this type could easily be coded as a categorical system depending on whether ratings for any particular topic fall above some pre-determined threshold.

<p>3. Do the individual reviewers provide substantive comments to explain their assessment of the proposals?</p> <p>Comments:</p> <p>Most reviews conform to the standard and suggested length of 1-3 pages. Also, most reviews are balanced in the assessment of a project’s specific aspects and broader merit. Most reviews also comment on strengths, as well as suggestions for improvement. Overall, the substantive comments reviewers provide are excellent.</p> <p>Most (but not all) reviewers provide a summary statement on the assessment of the proposal, and this practice should continue to be encouraged. Reviewers could be directed to mention both evaluation criteria in their summary statement, rather than giving more weight to intellectual merit (as stated above).</p> <p>Recommendation:</p> <p>The inclusion of explicit ratings for the intellectual merit AND each of the broader impact criteria as suggested above will compel reviewers to includes comments about both in their summary statements</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:</p> <p>The panel summaries we reviewed provided the rationale for consensus. We also noted high consistency in the format of panel summaries, which made salient the rationale for the panel recommendation.</p>	<p>YES</p>
<p>5. Does the documentation in the jacket provide the rationale for the award/decline decision? (Note: Documentation in jacket usually includes context statement, individual reviews, panel summary (if applicable), site visit reports (if applicable), program officer review analysis, and staff diary notes.)</p> <p>Comments:</p> <p>Yes, jackets consistently include documentation supporting the decision. PIs</p>	<p>YES</p>

<p>receive documentation that reflects much of what goes into award/decline decisions. Specifically, they are given a context statement, each <i>ad hoc</i> review, and the panel summary. These documents together convey reviewer ratings, analysis by reviewers and panel members, and an evaluation of the proposal's intellectual merit and broader impact. The jacket also includes the Review Analysis, which includes a section called the Program Officer's Evaluation and Recommendation. Critically, this section provides an explicit rationale that is more highly correlated with the POs funding recommendation than either the Panel Summary or <i>Ad hoc</i> Reviews. Diary Notes are an eJacket function used to convey additional, internal rationale for award/decline decisions.</p>	
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<p>6. Does the documentation to PI provide the rationale for the award/decline decision? (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 or telephoned with diary note in jacket) of the basis for a declination.)</p> <p>Comments:</p> <p>Yes and no. PIs receive documentation that reflects much of what goes into award/decline decisions. Specifically, they are given the context statement, each <i>ad hoc</i> review, and the panel summary. These documents together convey reviewer ratings, analysis by reviewers and panel members, and an evaluation of the proposal's intellectual merit and broader impact. What PIs do not see is the Program Officer's Evaluation and Recommendation as stated in the Review Analysis, which provides an explicit rationale for the funding recommendation. From the perspective of the PI (who does not see this section of the Review Analysis) sometimes a rationale for a decision is not clear from the reviews and panel summary, which may be quite favorable for proposals that are ultimately declined, or unfavorable for proposals that are ultimately funded. Communicated to us in person was that NSF recommends the "best practice" of communicating this information to PI's via Program Officer comments, email correspondence, and other communication -- while documenting any rationale to be kept private using the Diary Notes. BUT IT IS NOT CLEAR THAT THIS PRACTICE IS USED CONSISTENTLY. Proposals that are declined that the panel decides not to discuss have fairly impoverished summary statements and instead rely on the reviews, which are sometimes not detailed. It is important that PIs are provided with feedback on their proposals that gives clear guidelines on how to improve them for future submission. But, at the same time, it is important that Program Officers are provided with the</p>	<p>YES</p>
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<p>flexibility to use <i>ad hoc</i> reviews, panel reviews, and other information available to them (e.g., balance of the portfolio, idiosyncrasies of panelists or <i>ad hoc</i> reviews, relative weight of broader impacts vs. intellectual merit) to make funding recommendations.</p> <p>Recommendations:</p> <p>Standardize and institutionalize the practice of communicating the rationale for award declinations using the PO Comment function to ensure that PIs get adequate feedback about their proposals true chances for funding.</p>	
<p>7. Additional comments on the quality and effectiveness of the program's use of merit review process:</p> <p>Recommendations:</p> <p>We recommend provide reviewers with feedback of the proposal decision, insofar as this is allowable. Any communication of award decision would be preferable to no communication. Ideally, reviewers would get feedback to help them to gauge the quality of their review in the context of other reviews.</p> <p>We further recommend that PO use reviewer expertise to classify and quantify ratings of the proposals in the manner suggested in the items above in order to permit a more quantitative analysis of portfolio characteristics and facilitate feedback to PIs and, if possible, 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.

<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:</p> <p>The <i>ad hoc</i> reviewers selected for specific proposals generally had the appropriate expertise and/or qualifications. However, in some instances reviewers included <i>ad hoc</i> reviewer and two panel members. As noted in the program report, panel members bring breadth to the review process and an ability to evaluate proposals in a relative sense, where others beyond the panel provide depth of knowledge on a topic. When possible, the program should make use of more than one reviewer beyond the panel.</p> <p>Recommendations:</p> <p>In the previous section we recommended establishing a consulting committee of individuals who are not panel members and yet provide reviews on a regular basis. The committee can be composed of individuals who bring the appropriate expertise and/or qualifications, or who can suggest reviewers that meet this standard. The committee might ideally be comprised of some individuals who are former panel members in order to take further advantage of their expertise. The details of this recommendation are provided above in Section I.</p>	<p>Yes</p>
<p>2. Did the program recognize and resolve conflicts of interest when appropriate?</p> <p>Comments:</p>	<p>Yes</p>

<p>The program has in place appropriate methods for handling conflicts of interest with <i>ad hoc</i> reviewers, panel members, or the acting program director. There is no evidence that conflicts of interest compromised the fair review of proposals within this COV period.</p>	
<p>Additional comments on reviewer selection:</p> <p>None.</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:</p> <p>Sections below discuss our evaluation of ways in which the program was managed to connect funded research with goals set by the program and division. Here we evaluate the general management of the program in terms of whether the program had explicit goals, and was provided with sufficient resources and staffing to carry out its goals. The effects of recent staff turnover are not apparent in the time period covered by this COV, as the staffing changes took place in the Spring of 2012. However, we would like to note that the system currently in place of having two rotating Program Officers is not ideal. The system of one permanent officer and one rotating officer has enormous benefits for the program, balancing experience and institutional memory with a new and fresh perspective on emerging trends in the fields. We strongly encourage BCS move in this direction.</p> <p>The program report reflects the goals that guided the portfolio. The stated goals were to fund projects that deepen existing knowledge or potentially transform knowledge; encourage innovative science (i.e., reflecting complexity science, multidisciplinary, efforts to establish infrastructure) and the science of broadening participation; make awards using varying mechanisms and award types; and achieve a balance in the composition of PIs funded, including new PIs, junior and senior scholars, from varying geographic regions, and representing men and women equally as well as various racial/ethnic groups.</p>

Recommendation:

We recommend that the program continue to use these guidelines in shaping the portfolio.

We discussed with current and former program officers the issue of how to train program officers in their capacity to adopt reactive and proactive roles in guiding the portfolio. A reactive role is one in which program officers become highly familiar with the landscape of topics that define current research in social-personality psychology; portfolio development along these lines reflect efforts to deepen knowledge of these topics. A proactive role involves defining new and innovative topics and directions for social-personality psychology, encouraging proposal through new program announcements; developing the portfolio in this way reflects projects that propose new and exciting ideas that are less well established. It is challenging to keep abreast of developments in a field to fulfill both roles. We discussed ways in which program officers do this, by attending flagship conferences, and remaining up to date and active in research areas one knows well. Moreover, the longer program officers serve as program officers, merely scanning the topics proposed in submissions will inform current research and help in serving a reactive role. Other ways of staying informed on current topics and future directions include surveying panel members, and surveying members of a consulting committee that was described above (see Section I).

Recommendation: We recommend that program officers continue efforts to stay informed on topics and research areas that define current social-personality psychology, as well as innovative directions for new research, by surveying experts in the field (panel members, consulting committee members), attending conferences, noting the existence of annual conferences and pre-conferences to flagship conventions.

With respect to available funds, program officers have succeeded in supplementing the base budget by 19% in 2010, 31% in 2011; in 2009, the base budget was almost doubled (95% increase) through the inclusion of ARRA funds. As stated in the review of the portfolio, it is important to fund projects that are innovative, which often translates into more expensive projects by virtue of requiring additional equipment and infrastructure, supporting multiple collaborators from different disciplines, using physiological and neural variables in complexity research, and paying participants in pursuing the science of broadening participation. Big science often (but not always) means big bucks.

Recommendation: We recommend continued efforts to supplement the program's base budget with additional sources of funding, especially with respect to research that is innovative.

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

Comments:

This continues to be excellent, as was the case in the previous COV review.

The program also was responsive to several education opportunities. There were projects funded under the Research at Undergraduate Institutions (RUI) program, which integrates research and education. Although the number of proposals for training and workshops remains low, those that are funded are visible, highly respected, and effective at research training, such as the Summer Institute for Social Psychology (SISP), the 16th Annual Black Graduate Conference for Students in Psychology, and the 2011 National Black Graduate Conference in Psychology.

The program also continues to fund emerging research opportunities through RAPID rewards, in which investigators identify research opportunities that are time sensitive. There was use of a mechanism to offer incentive awards to junior investigators with hopes of seeding competitive proposals in the future.

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

Comments:

Section III.1 above (Management of portfolio) describes our understanding of how program officers monitor the field of social-personality psychology for research trends and opportunities that might define the portfolio (external influence on the portfolio). The program report also described several areas of emphasis identified internally by the SBE Directorate that resulted in funding of proposals in the areas of complexity science, interdisciplinary research, infrastructure, potentially transformative research, and science of broadening participation. In addition, we see a commitment by program officers to diversify the portfolio in terms of characteristics of PIs (geographic location, experience in previous funding, demographic characteristics) and the types of awards, with the majority of awards being senior awards. We see these are good practices that should be continued in the program.

The Division's COV discussed funding big science. For social-personality psychology, this emphasis on big science may translate into projects that are large in scope or potentially transformative. We recommend that program officers increase the importance of projects that are particularly innovative, large in scope or potentially transformative – projects that stand to have a big impact on the study of social-personality psychology – relative to projects that are incremental or smaller in impact.

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

Comments:

In general, responsiveness was good even if recommendations were not adopted. In one case, a

recommendation for an Advisory Board (similar to the Consulting Committee we are currently recommending) was not addressed in either 2009 or 2012. A similar omission took place regarding a recommendation for the structure of panel reviews and the involvement of scribes. This was essentially an oversight, as these “recommendations” were listed as “suggestions”.

Several recommendations were adopted: 1) an elaboration of broader impacts to the reviewers; 2) the inclusion of sections outlining the strengths and weaknesses of both intellectual merits and broader impacts in the reviews and panel summary; 3) more detailed explanation of the reviewer guidelines in the invitation for *ad hoc* reviews; 4) improving feedback to PIs; 5) Junior incentive awards. For other recommendations that were not adopted, the rationale was provided.

IV. Portfolio Review. Please provide comments on whether the program's portfolio goals are appropriate and whether the program has achieved its goals for portfolio balance.

1 Does the program portfolio reflect the disciplines and subdisciplines of the field?
Yes.

1.1 Is the program responsive to developments within relevant scientific communities?

The program is responsive to developments within social-personality psychology. Indeed, one of the guiding priorities in developing the portfolio is to support current trends in research, as described above (Program Management, question 3). The most obvious examples are the support for proposals submitted through the RAPID funding mechanism, as well as the responsiveness to the Directorate level initiatives.

2 Are awards appropriate in size and duration for the scope of the projects?

One indicator of whether awards were appropriate in size is to correlate the size in dollar amount and number of months for funded proposals. Among the sample of proposals in the Social Psychology program that were the basis of our review ($n = 104$), we examined standard proposals that were funded ($n = 35$). Other types of proposals, such as CAREER awards or workshops, were excluded because they are not likely to have comparable budgets. Among the 35 standard proposals (PD 98-1332) that were funded, the correlation between number of months and dollar amount was $r = .32$, which suggests the presence of a positive association, assuming a two-tailed test and alpha of .05.

The more relevant analysis, however, concerns whether projects funded at higher levels (i.e., costing more) indeed have a broader scope than those funded at lower levels. To assess this, we evaluated the scope of some of the most expensive projects, as compared with some of the least expensive projects. Our assessment was that compared with less expensive projects, more expensive projects were justified in having larger budgets.

The data reported in the program report regarding the number of awards by size for each COV year (pages 11 – 13) reveal a trend of awarding smaller amounts of money over time. The number of smaller awards increased after FY2009. Even more pronounced is the trend of decrease over time in large awards. An analysis of awards above \$300,000, for example, is revealing: In 2009,

approximately one third (32%) were larger than \$300,000, as compared with much lower numbers in 2010 (17%) and 2011 (20%). The report attributes this pattern to an anomaly in 2009, namely the availability of ARRA funds. It is unfortunate the 2009 award sizes could not be maintained or, more crucially, increased. The size of these awards is relatively small given the NSF aim of funding research that is interdisciplinary, reflects complexity science, builds infrastructure, or is potentially transformative. If SBE generally, and BCS in particular is serious about promoting these research aim and big science more generally, then there needs to be sufficient funds to grant relatively large awards. We recommend that BCS increase the funds available to the Social Psychology program for large awards, as deemed necessary to fund big science.

3 What have been especially promising and potentially transformative lines of inquiry that the program has supported?

3. 1 What interdisciplinary activities that the program has supported have been especially promising?

The program has supported many lines of research that extend to other disciplines and have been co-funded by other programs, as listed on pages 13 – 15 of the program report. The practice of co-funding programs extends beyond the social-personality psychology program and characterizes many of the programs within BCS.

We identified several funded projects that were potentially transformative and/or interdisciplinary. Some projects described in the program report or contained among the proposals reviewed integrated biological, behavioral, and self-report data (e.g., David Sbarra’s research on recovering from the dissolution of a romantic relationship, Jon Maner’s research on hormonal and behavioral responses to social threats). Other funded projects exemplified made interesting and promising connections among topics studies in different disciplines (e.g., Dan Wegner’s research on the dimensions relevant to inferring other people’s minds). We recommend that the program continue to identify and fund innovative lines of inquiry.

4 Does the program portfolio demonstrate diversity with respect to geographical distribution of principal investigators and types of institutions?

Apparently, but it is difficult to assess. There is apparent diversity in terms of the fact that each category seems to be represented in some way. One possible standard of comparison is with the field of submitted proposals. A figure in the program report (p. 10) outlines the geographic diversity of awards with information about the number of awards in each state, and what percentage of the total awards it represents. However, it would be useful to see the total applications for each state as well, or information about the percentage of proposal from each state that were funded.

In contrast, the table provided (p. 10) lists the number of awards and declinations from a variety of institution types. This table contains information that would allow one to calculate both the percentage of total awards as well as the percentage award within each institution type. This kind

of standardization in the presentation of data would be extremely useful for assessment purposes.

5 Does the program portfolio demonstrate diversity with respect to balance of awards to new investigators, demographics of principal investigators, and participation of underrepresented groups?

The portfolio suggests a great deal of variability in the rate of awards to new PIs relative to submissions (see table on p. 8). For new PIs applications, the award rates were 13% in 2009, 18% in 2010, and 8% in 2011. The variability seems to reflect responsiveness to the level in prior years. But the average (13%) appears to be much lower when compared to the prior 3 year period (17.5%), suggesting a decreasing percentage of awards among new investigators. There seems to be balance in the percentage of awards that go to new versus prior PIs, with a slight edge toward priors.

The demographic information suggests some degree of gender and racial balance in the portfolio (see the program report, tables on p. 9). It would seem that Blacks are overrepresented while Asians are underrepresented, both relative to the number of total awards and relative to the number of submissions from each group. The funding rates for minority investigators is comparable to the rate for majorities over the three year period (27.8% vs. 22.2% in 2009, 13.8% vs. 23.4% in 2010, 16.7% vs. 14.7% in 2011). But the number of submissions for minorities is dwarfed by the number from Whites (30 vs. 95). It was also noted that investigators who don't indicate their racial/gender data have a much lower funding rate, for whatever reason.

Recommendations:

What might be useful is some understanding of the intersection of racial and gender categories in tabular form. This would allow an examination of, for example, the joint contribution that race and gender play in funding rates.

6 Does the program portfolio demonstrate compelling broader impacts, including education, enhancement of diversity, infrastructure, and/or societal relevance?

Yes. The program is successful in selecting a portfolio that represents the Broader Impacts Merit Review Criterion. However, there is a great deal of information in the portfolio that is difficult to assess. We find it interesting that the program report does not include a section that relates to the POs attention to broader impacts, nor is there any summary information that would help to make this determination. From an examination of the jackets, intellectual merit is of primary importance when evaluating proposals. However, there is a continuing uncertainty about the role that broader impacts may play in proposal decisions. Another problem relates to the relative representation/importance of the classes of broader impacts that NSF identifies in their 2007 [statement](#).

Recommendations:

As mentioned above, we recommend that the POs include broader impacts ratings for reviewers (and perhaps a checklist for applicants) that identifies the nature of broader impacts addressed in the proposal. The problem is that it is difficult to address the question of balance without data on which broader impacts seem to be addressed.

7 Do you have additional comments about the program portfolio and the projects the program supports?

Questions 1, 3, and 6, are most crucial for the integrity of the program's portfolio. This raises a number of considerations in setting the priorities that guide development of the portfolio.

One issue is how to balance reactive versus proactive approaches to funding decisions. A reactive approach involves funding the most rigorous projects that reflect current research trends. Some funded proposals were not particularly innovative but they fulfill an important role in strengthening current scientific claims (e.g., deepening understanding in a topic, identifying boundary conditions, comparative analysis of causal variables). A proactive approach involves funding innovative research that falls into a zone of imminent development. Examples included funded proposals that examined novel and important topics, or examined existing ideas in ways that were transformative (e.g., in ways that fit with complexity science, using interdisciplinary approaches, focusing on broader impact). The current portfolio reflects a good balance between these two approaches, but even more effort could go toward increasing science that is innovative and potentially transformative, and decreasing (in a relative sense) science that is incremental.

Even in this context, efforts can be made to encourage and support research that goes beyond deepening our understanding of particular topics and moves toward integrating the theories, methods, and techniques from seemingly disparate subareas within psychology toward addressing broader issues (e.g., prejudice and relationships). Integrative work of this type represents the initial theoretical and conceptual work that bridges to the bigger science initiatives that NSF envisions for the future.

C.6. Program-Specific Questions.

1. The SBE directorate is currently encouraging submissions covering three areas -- complexity science, large-scale interdisciplinary research and infrastructure. First, what does complexity science mean to social psychology?

In many fields, complexity science has referred to the understanding of complex systems, chaos theory, and dynamical systems. One approach in social-personality psychology would be the direct application of complex or dynamic systems analysis to model individuals interacting with others in various settings (stranger interactions, family

settings, intimate relationships, peer groups, work groups). A related application is to model complex cognitive processes, which often has adopted a computational approach.

What is likely to be more generative in social-personality psychology than adopting the conventional definitions, however, is to conceive of complexity science as the study of complex processes as expressed in distinct and connected levels of analysis. A major organizing theme of social-personality psychology is the study of how people relate to each other, where interactions may be real or implied, positive or negative, and have an intense or diffuse impact on an individual or group. A complexity research approach might be to link temperamental or innate tendencies with experiences in situations that define one's self (social or nonsocial experiences), which together affect the expression of individual behavior and group tendencies. Such an approach might combine different types of variables (genetic markers, physiological measures, self-report measures, observational or behavioral variables, changes over time in patterns of neural activation) and connect different levels of analysis (genetic, biological, physiological, neurological, perceptual, behavioral).

There are other major organizing themes in social-personality psychology. One is the study of basic cognitive processes as shaped by social sources of influences (real or implied others). Another is how specific situational characteristics affect cognitive, affective, personality, and behavioral processes. In each case, complexity science translates into studying topics by examining and connecting the expression of social phenomena as they occur at different levels of analysis.

We recommend that the program encourage complexity science and retain a distinction between studying complex processes versus modeling processes through computational methods. We also recommend, however, keeping a diverse portfolio by continuing to support research that is not complex or does not include measures attempting to link different expressions of a phenomenon at varying levels of analysis. A lot of research in social-personality psychology can be simple in design, elegant, and extremely powerful and innovative.

2. What kind of infrastructure does the field need for which we might encourage and support? What sort of infrastructure might be potentially transformative in terms of the way social psychologists do research or in terms of what social psychologists research?

Not sure. It would depend on the big science questions we pursue.

3. Finally, do you have ideas about the kinds of large scale interdisciplinary projects that social psychologists might be involved in that would advance understanding of social behavior?

The full COV committee in BCS discussed various ideas of big science. One idea centered around studying human interaction with technology, as it occurs today and as it changes

over time (both, in the sense of examining technological changes but also how cohorts of people differ in their interface with technology).

One consideration is whether technology is designed to replace face-to-face interaction versus serve another purpose. Phones, computer-mediated interactions, virtual meetings all involve interfacing with the aim of substituting face-to-face interaction. This suggests a role for social and cognitive psychologists in studying how well technology serves the substitution role, and when/how technology falls short in this role. Face-to-face interaction coordinates sensory experiences, perceptual and inferential processes, and actions. (For example, we discussed doing virtual panel meetings. Some people were not enthusiastic of the idea because such technology-mediated interaction may lose things not captured in face-to-face interaction.) We see this topic as one in which social-personality psychology would have a role of being a “hub” linking other disciplines given the strong social psychological tradition of modeling basic processes involved in interaction.

Another big science idea explored by the full COV was the study of human movements, mobility, and interactions through time. Social-personality-personality psychology has long explored human interaction at the interpersonal and intergroup level. These theories and approaches describe and predict the antecedents and consequences on interactions with the goal of facilitating positive interactions with favorable outcomes. Issues of human movement and interaction reflect aspects of cognition, identity, and behavior, and social-personality psychologists are well-situated to contribute to this broader-scale exploration.

A third big science involved studying human-environment interactions. Social psychology has a tradition of modeling person-situation interactions, which, again, often is studying by examining basic processes in specific settings (group, family, work, or every day setting). What we found exciting was the possibility of looking at social psychological processes (e.g., social cognition, affect, actions) as they affect and are affected by geographic distance, cultural contexts, and virtual environments.

4. As reported in the data above, we funded a handful of proposals from minority PIs and only a small number even applied. What suggestions do you have as we continue our efforts to encourage greater participation from members of underrepresented groups, as PIs and as reviewers?

In order to increase participation from members of underrepresented groups, the program officers might begin to make more explicit, face-to-face contact with potential applicants. This can be done during attendance at conferences where informal contacts can be made to encourage participation. The program officers might also attempt to create networks among individuals from underrepresented groups who have been awarded funding to encourage their peers to submit proposals.

V. Questions for Division Level Discussion. Please provide comment on both scientific and management aspects of the following division-specific questions:

- | |
|---|
| <p>1 Looking forward over the next 10 years, what is your vision for the intellectual future of BCS? Keeping in mind probable budget constraints, what infrastructure would be needed to attain this vision?</p> |
| <p>2 One of the objectives in the BCS Strategic Plan is to fund “bigger science.” In addition, NSF may place greater emphasis on mid-scale research in the near future, to provide a mechanism for researchers to ask for larger awards than the average for a program, but smaller than something like a center/network/observatory. What advice would you give the division in encouraging mid-scale research for the BCS sciences? How might BCS support bigger science, and what metrics might it use to determine success in doing so?</p> |
| <p>3 As outlined in the division narrative, many programs within BCS are experimenting with innovative approaches to merit review, such as GSS’ 1+. What advice would you give the division in thinking about these new approaches? Looking forward, what are effective ways BCS could evaluate and monitor these new practices?</p> |

OTHER TOPICS

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

See comments above.

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.

Covered in comments above.

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

Two issues mentioned above were meeting needs in staffing (at least two program officers, one of whom fills a permanent positions) and having sufficient funds to make awards that fit with the idea of big science.

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.

It would be helpful to have additional basic information about each proposal, information that could be tallied when actions are taken. Specifically, it would be useful to future COVs to have a spreadsheet that includes all of the current information provided (e.g., PI name, institution, action taken) but also includes: the number of reviewers tallied into categories of reviewer type (SP panel member, other panel member, SP consulting committee as described above, *ad hoc* reviewer); reviewer ratings; whether the program officer provided PIs with additional information about a funding decision beyond the documents automatically provided to PI (e.g., reviews, panel summary) and how that information is conveyed (PO comments, email); whether a proposal was reviewed by more than one panel; and possibly additional information.

It helps to have someone serve two consecutive COVs, so as to provide familiarity with the process.

SIGNATURE BLOCK:

Ximena Arriaga

October 12, 2012

Date

Keith Maddox

October 12, 2012

Date

Visitors for the Social Psychology Program

For the 2012 BCS COV
Nina Jablonski
Chair