

Advisory Committee (AC) to the Directorate for Social, Behavioral, and Economic Sciences (SBE)
National Science Foundation
Room E 2020, 2415 Eisenhower Avenue, Alexandria, VA 22314
December 12-13, 2019
Meeting Summary

SBE AC Members Present:

Dr. Karen Cook, AC Chair, Department of Sociology, Stanford University; Dr. Joseph Altonji, Department of Economics, Yale University; Dr. Ann Bostrom, Daniel J. Evans School of Public Policy & Governance, University of Washington (and Advisory Committee for Environmental Research and Education (AC-ERE) Liaison); Dr. Dominique Brossard, Department of Life Sciences Communication, University of Wisconsin-Madison; Dr. Nilanjana Dasgupta, Department of Psychological and Brain Sciences, University of Massachusetts at Amherst; Dr. Catherine Eckel, Department of Economics, Texas A&M University; Dr. Rayvon Fouché, School of Interdisciplinary Studies, Purdue University; Dr. John Gabrieli, Department of Brain and Cognitive Sciences, MIT; Dr. Sandra Graham, Department of Education, University of California, Los Angeles; Dr. Willie Pearson, School of History and Sociology, Georgia Institute of Technology; Dr. William Riley, Office of Behavioral and Social Sciences Research, National Institutes of Health (NIH; *Ex officio*); Dr. Rocío Titiunik, Department of Politics, Princeton University; Dr. Lydia Villa-Komaroff, Intersections SBD (and Committee on Equal Opportunities in Science and Engineering (CEOSE) liaison); and Dr. Duncan Watts, Department of Computer and Information Science, University of Pennsylvania.

NSF Staff in Attendance:

Dr. F. Fleming Crim, Chief Operating Officer, NSF; Dr. Arthur Lupia, Assistant Director (AD), SBE; Dr. Kellina Craig-Henderson, Deputy AD, SBE; Dr. Daniel Goroff, Division Director (DD), SBE/Division of Social and Economic Sciences (SES); Dr. Alan Tomkins, Deputy Division Director, (DDD), SES; Dr. Vipin Arora, DDD, SBE/National Center for Science and Engineering Statistics (NCSES); Dr. Marc Sebrechts, DD, SBE/Division of Behavioral and Cognitive Sciences (BCS); Dr. Antoinette WinklerPrins, DDD, BCS; Dr. Deborah Olster, Senior Advisor, SBE/Office of the Assistant Director (OAD); Mr. John Garneski, Staff Associate for Budget and Program Analysis, SBE/OAD; Mr. Anthony Teolis, SBE Administrative Coordinator, SBE/OAD; Ms. Clarissa Johnson, IT Specialist, SBE/OAD; Mr. Philip Johnson, IT Specialist, SBE/OAD, and others.

Invited Speakers:

Dr. Jennifer Lerner (Harvard University), Dr. Jennifer Heimberg (National Academies of Science, Engineering, and Medicine; NASEM), Dr. David Allison (Indiana University), Dr. Tim Wilson (University of Virginia), Dr. David Montgomery (Department of Defense), Dr. Rob Rutenbar (University of Pittsburgh and co-Chair, Directorate for Computer & Information Science & Engineering AC).

Summary:

This was the second meeting of the SBE AC in 2019. It was attended by NSF staff and interested members of the public. The agenda included the following items: an SBE Directorate update; presentation of the BCS Committee of Visitors (COV) Report and the BCS response; a presentation of the NASEM report, *Reproducibility and Replicability in Science*; an SBE Distinguished Lecture by Dr. Jennifer Lerner; break-out discussions on SBE research relevant to national security and collaborations with the

Directorate for Computer & Information Science & Engineering (CISE); SBE Division leadership visions; research presentations by newer AC members; and updates of CEOSE and AC-ERE activities.

Welcome, Introductions, Review of Draft Summary from Spring 2019 SBE AC meeting, and Preview of Agenda

(Dr. Karen Cook, SBE AC Chair)

Dr. Cook welcomed everyone and introduced two new AC members: Drs. Rayvon Fouché and Willie Pearson. Following around-the-table introductions, the AC voted to accept the summary of the spring 2019 AC meeting and Dr. Cook previewed the current meeting [agenda](#).

SBE Update

(Dr. Arthur Lupia, Assistant Director, SBE)

Dr. Lupia updated the AC on SBE's recent activities, including the Directorate's FY 2019 enacted budget and its role in NSF's 10 Big Ideas. SBE co-leads The Future of Work at the Human-Technology Frontier, Navigating the New Arctic; and Understanding the Rules of Life. Predicting Phenotype, and actively participates in several other Big Ideas. Dr. Lupia also described SBE's strategic objectives to increase the public value of the activities that the Directorate supports and make the value more apparent to a wider range of stakeholders. To do so, SBE is using a three-pronged strategy: 1) improve communications; 2) reposition the portfolio of programs to make the value of SBE-supported research more apparent; and 3) increase SBE partnerships inside and outside of government.

Division of Behavioral and Cognitive Sciences (BCS) Committee of Visitors (COV) Report and BCS Response

(Dr. Nilanjana Dasgupta, University of Massachusetts at Amherst, COV Chair; Dr. Marc Sebrechts, DD, BCS)

Dr. Dasgupta presented the findings of the BCS COV that met in the summer of 2019. The COV was tasked with assessing the quality and effectiveness of the BCS programs' merit review processes, overall management, and portfolio balance. The COV was also charged with addressing some "big picture" topics: emerging scientific areas, open science needs, and communication with the scientific community and the public.

Key findings from the COV report include the following:

- 1) The Division's management of programs, the review processes, and stewardship of funds are effective and professional.
- 2) BCS contributes substantially to cross-directorate activities but these contributions could be highlighted more by the Division.
- 3) Recommendations for improvement include:
 - a) increasing clarity in panel summaries and feedback provided to principal investigators to assist in future proposal submissions;
 - b) expanding guidance to panelists to enable greater consistency in written reviews;
 - c) building more robust outreach efforts to new investigators and underrepresented groups;
 - d) collecting more detailed demographic information on panelist and investigators; and

- e) revisiting NSF’s definition of the broader impacts review criterion to address feedback from various scientific communities.

Dr. Sebrechts presented the BCS response to the COV report, which included the following key points: BCS will work to improve feedback to panelists and investigators to assist in their proposal preparation, review, and presentation of broader impacts. In addition, the Division will explore using NCSES data to ensure appropriate funding across fields and programs and strengthen outreach to and engagement with underrepresented groups. In addition, BCS will carefully review the COV’s list of emerging research topics and means to improve communications with the scientific community and general public.

The AC voted to accept the BCS COV report and BCS response.

National Academies of Science, Engineering, and Medicine report, *Reproducibility and Replicability in Science*

(Drs. Jennifer Heimberg, NASEM Study Director; David Allison, Indiana University, NASEM Committee member; Tim Wilson, University of Virginia, NASEM Committee member; Catherine Eckel, Texas A&M University, and John Gabrieli, MIT, AC member discussants)

Drs. Heimberg, Allison, and Wilson presented the NASEM 2019 consensus study report, [*Reproducibility and Replicability in Science*](#). Dr. Heimberg described the background issues that motivated the study, the Committee’s charge, and the activity’s timeline. Dr. Allison presented key outcomes of the study. The Committee developed definitions of “reproducibility” and “replicability” in science. It defined “Reproducibility” as obtaining consistent results using the same input data, computational steps, methods and code, and conditions of analysis. “Replicability” entails obtaining consistent results across studies aimed at answering the same scientific question, each of which has obtained its own data. The Committee’s recommendations encouraged the development of guidance to researchers on detailing their scientific methodologies; the provision of open, accessible data and infrastructure by organizations and journals; and improving education and outreach to the public and policy makers regarding the scientific enterprise. Dr. Wilson discussed the report’s relevance to the SBE community, including the nuances of replications, decreasing false positives in research findings, and sources of non-replicability.

Drs. Eckel and Gabrieli led a discussion that touched on research examples, exploratory research and creativity vs. scientific rigor, challenges of replicability across the sciences, and understanding behavioral and social factors – such as incentives – that impact research reproducibility and replicability.

NSF Distinguished Lecture in the SBE Sciences: The Sadness Trap: How Experiences of Loss Precipitate Future Loss

(Dr. Jennifer Lerner, Harvard University)

Dr. Lerner presented her research on the effects of emotion on decision-making. She described a series of studies using survey data as well as empirical approaches to demonstrate that sadness plays a causal and uniquely harmful role in financial decision making, in exacerbating use of addictive substances, and in reducing household wealth and health.

Break-out Sessions

SBE AC members divided into break-out groups to discuss two topics and reported out when the AC re-assembled.

Opportunities for SBE/CISE Collaboration (with members of the CISE AC)

CISE AC members Drs. Rob Rutenbar (University of Pittsburgh) and Elizabeth Mynatt (Georgia Institute of Technology) and SBE AC member Dr. Willie Pearson reported for the group. Dr. Rutenbar discussed the importance of data tools to CISE and SBE sciences; and using computational observatories, machine learning, and artificial intelligence developments from the CISE research to address social science questions and data. Dr. Mynatt spoke about the use of tools and techniques from computer sciences that can help increase understanding of humans' decisions, biases, and individual actions, and emphasized the need for SBE/CISE collaborative programs that cross scales. Dr. Pearson talked about research topics that would benefit from SBE and CISE collaborations, such as the understanding workforce, education, health, and health delivery systems disparities. The AC discussion following the report focused on the impacts (good and bad) that technology is having on society. AC members suggested NSF invest in data infrastructure to enable large scale collaboration, partnerships, training, and education to produce researchers conversant in SBE and CISE sciences.

SBE Sciences and National Security

Dr. Catherine Eckel (Texas A&M University, SBE AC member) reported on the break-out group's discussion, which began with a presentation of the 2020 NASEM consensus study report, [Evaluation of the Minerva Research Initiative](#), presented by Dr. Karen Cook (Stanford University and SBE AC Chair). Dr. David Montgomery (Department of Defense; Director of the Minerva Program) provided additional background about the program and Dr. Jennifer Lerner (Harvard University) talked about her experience as the U.S. Navy's first Decision Scientist. The discussion surfaced a number of barriers to the conduct of SBE research relevant to national security: obtaining security clearance for academic researchers; obstacles to moving funds across agencies; the military's lack of familiarity with potential contributions of SBE research to issues of national security, and conversely, the SBE community's lack of familiarity with the opportunities for SBE research relevant to national security. Activities NSF could pursue with the Department of Defense (DoD) to bolster SBE research relevant to national security include: building bridges through speaker exchanges; embedding academic scientists in DoD; training the next generation of military leaders in information sciences; and considering the military as a workplace for the NSF Convergence Accelerators. The group also suggested joint research on the following topics: migration and stasis; technology and sociality; governmentality and civility.

SBE Division Leadership –Visions

(Drs. Marc Sebrechts, DD, BCS; Daniel Goroff, DD, SES; Vipin Arora, DDD, NCSES)

Dr. Sebrechts opened the session by presenting the vision for areas of programmatic emphasis for BCS going forward, including supporting the highest quality BCS research; advancing convergence research across programs and directorates; and developing partnerships that support those efforts.

Dr. Goroff shared the SES vision with the SBE AC. He presented the impacts of the recent repositioning on SES programs; the criticality of SES staff and processes; and the importance of expanding partnerships to study issues of national importance.

Dr. Arora provided the NCSES vision of becoming the premier statistical agency in the country, through its efforts to improve the policy relevance of its data and surveys; robust data protection and privacy controls; and development of preeminent publications and data products.

New SBE AC member research presentations

(Drs. Dominique Brossard, University of Wisconsin; Sandra Graham, University of California, Los Angeles; Dr. Rocío Titiunik, Princeton University)

Dr. Graham discussed the demographic composition of the K-12 student population and current trends. She then presented her research that investigates the impacts of demographics and diversity on education.

Dr. Titiunik provided an overview of her work in applied statistics and applications relevant to the social sciences. She also gave an overview of recent work using non-experimental research designs to better understand elections and incumbency.

Dr. Brossard presented on her research in the field of science communication that draws from the disciplines of social psychology, political science, and economics. Her research focuses on the intersection among science, media, and policy, advancing our understanding of how different populations feel about the different type of sciences.

Meeting with NSF Leadership

(Dr. F. Fleming Crim, Chief Operating Officer, NSF)

Dr. Crim updated the SBE AC about plans for NSF's upcoming 70th Anniversary celebrations and the ongoing Fiscal Year 2020 budget discussions. He and the AC members discussed current and future SBE and NSF activities; the BCS COV report; the mid-scale infrastructure needs of the SBE sciences; the role of SBE research in enhancing the robustness and reliability of research; current and future collaborations between SBE and CISE; and the importance of the social sciences to the national security enterprise.

CEOSE Update

(Dr. Lydia Villa-Komaroff, SBE AC member and CEOSE Liaison)

Dr. Villa-Komaroff provided a brief report on CEOSE, a committee established in 1980 that is mandated to provide a report to Congress on the state of expanded opportunities in science and engineering every two years. Recent CEOSE activities include planning the next report to Congress, a likely exploration of issues related to access to STEM for individuals with disabilities and expanding the role of leadership in expanding opportunities in STEM.

AC-ERE Update

(Dr. Ann Bostrom, SBE AC member and AC-ERE Liaison)

Dr. Bostrom provided an overview on the AC-ERE, a cross-directorate AC that focuses on environmental research and education activities across the NSF. She described the two recent AC-ERE symposia: 1) Environmental Education: How People Come to Understand Complexity in Socio-Environmental

Systems; and 2) Co-Production of Knowledge: Opportunities and Challenges. She also described the activities of the AC-ERE Subcommittee on Environment and Human Security.

Wrap-up, Assignments, Planning for Next SBE AC Meeting

(Dr. Karen Cook, SBE AC Chair; Dr. Arthur Lupia, AD, SBE)

Drs. Cook and Lupia recapped the AC meeting followed by a discussion of potential agenda items and topics for future meetings and offered concluding remarks.

The meeting was adjourned at 12:55 pm.

.....
This meeting summary was approved by the SBE AC at its June 4, 2020 meeting.