

United States Federal Agency Response to the National Academies Workshop on Graduate Training in the Social and Behavioral Sciences

ABSTRACT

With support from federal agency members of the United States National Science and Technology Council's Social and Behavioral Science subcommittee (SBS), the National Academies of Sciences, Engineering, and Medicine (NASEM) held a workshop in June, 2017 (NASEM, 2017) on Graduate Training in the Social and Behavioral Sciences to identify how SBS graduate education could be adapted to changing workforce needs. Key points from this workshop included greater training in interdisciplinary team science, communicating science, and quantitative skills as well as increasing diversity of SBS trainees and graduates. In response to this workshop, the SBS subcommittee describes the relevance of the key points from the workshop on the social and behavioral science workforce needs in the United States (US) federal government and the efforts of the various federal agencies to augment graduate training to address important research, practice, policy, and administrative needs of the government.

KEYWORDS

Training, Behavioral Sciences, Social Sciences, Government, Policy

28 **BACKGROUND**

29
30 Research from the social and behavioral sciences is transforming how people live.
31 Today, the social and behavioral sciences bring an expanding set of sophisticated
32 methodologies and datasets together with an increasingly diverse scientific workforce to
33 examine problems essential to human societies. From neurons to nations, research
34 advances are helping us understand ourselves, one another, and our interactions with
35 the constructed and natural environments in which we live.

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37 As the social and behavioral science enterprise has grown in its complexity and impact,
38 the world we study has undergone many changes. Evolving technologies, cultures, and
39 their associated effects on economies and governments have led to changes in the
40 kinds of opportunities available for individuals who pursue advanced training in the
41 social and behavioral sciences. Decades ago, it was common for graduate students in
42 many academic fields to expect subsequent employment in tenure-track jobs at
43 research universities. Today, expectations are different. Growth in the number of PhDs
44 awarded, combined with a slowing growth of tenure-track positions, has contributed to
45 these changes. At the same time, rising numbers of social and behavioral scientists
46 have skillsets that are of interest to government, industry, and nonprofits around the
47 world.

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49 In response to this changing landscape, the US National Science and Technology
50 Council's Social and Behavioral Science subcommittee (SBS) sought to promote a
51 broad conversation about whether and how graduate training in the social and
52 behavioral sciences should change. SBS consists of representatives with backgrounds
53 or interests in the social and behavioral sciences working in a wide variety of US
54 Federal government agencies.¹ Members of the subcommittee observed that critical
55 aspects of the focus and content of graduate training in the social and behavioral
56 sciences have remained largely unchanged over several decades. They wanted to learn
57 more about whether and how changes could benefit social and behavioral research
58 and its impact on society – changes that reflect the growing diversity of workplaces in
59 which social and behavioral scientists are employed and the skills required in these
60 newer positions. The subcommittee was particularly concerned about the
61 correspondence between graduate training and the demands of private and public
62 sector positions for which social and behavioral scientists are increasingly sought.

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64 To address these concerns, the SBS, through its representatives from the National
65 Science Foundation (NSF) and National Institutes of Health (NIH), funded a workshop
66 to identify how SBS graduate education could be adapted to these changing workforce
67 needs. The National Academies of Sciences, Engineering, and Medicine (NASEM) held
68 this workshop in June, 2017 [1].

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¹ The authors were members of the SBS subcommittee at the time that the workshop that was proposed or are members of the committee's current form. SBS ceased to be part of the NSTC in 2018 but member organizations continue to send social and behavioral science representatives to meet on a regular basis.

70 The two-day workshop included a review of the data from the Survey of Doctorate
71 Recipients [2] and panels discussing experiences working outside academia, the
72 increasing demand for data analytic skills, and visions for the future of SBS graduate
73 education. Among the takeaways from the workshop were the need for: 1) additional
74 training and experience in interdisciplinary and team science, 2) training and
75 experiences in communicating science, not only with the public but also across
76 disciplines, 3) greater diversity among SBS trainees and graduates, 4) increased
77 training in data analytics and quantitative skills, and 5) legitimizing and better preparing
78 students for careers other than in academia.

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80 **FEDERAL PERSPECTIVE**

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82 Among the alternative career pathways for which SBS graduates can be better
83 prepared are positions in government. There are a wide array of SBS positions within
84 the federal government, and the diverse skill sets necessary to perform in these
85 positions is consistent with the findings from the report. Some positions predominantly
86 involve largely research tasks and require similar skills as traditional academic research
87 positions. These research positions range from more lab-based or clinical research at
88 agencies such as NIH intramural, Department of Defense, and Veterans Administration
89 to the various survey efforts of the federal government, including at the Centers for
90 Disease Control, Department of Labor, and Commerce Department.

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92 SBS positions in the federal government, however, extend far beyond traditional
93 research duties and responsibilities. Numerous positions, such as at the the
94 Environmental Protection Agency, National Oceanic and Atmospheric Agency, and the
95 United States Geological Survey involve the application of social and behavioral
96 sciences research to practice and policy. With the heightened interest in administrative
97 government data sets, particularly in light of the Evidence-Based Policymaking Act of
98 2017 [3], social and behavioral scientists will be called upon increasingly not only to
99 apply SBS research generated elsewhere, but to analyze their own administrative data
100 sets to evaluate policies and regulations.

101

102 Social and behavioral scientists also are employed in a range of administrative and
103 leadership areas, particularly in the administration and oversight of research supported
104 by various agencies such as the NIH, NSF, Department of Education, and National
105 Institute of Justice. A surge in demand for program evaluation and performance
106 measurement strategies across federal government have brought the unique skills of
107 social scientists and behavioral researchers to greater prominence within several
108 agencies and departments.

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110 These SBS positions within the government reflect many of the graduate training needs
111 identified in the NASEM workshop report. First, the increasing emphasis on the use of
112 large data sets, and administrative data sets in particular, highlights the value of strong
113 data management and analytic skills within the government. Second, for some
114 agencies, social and behavioral scientists are a small but critical component of diverse
115 transdisciplinary teams. For example, at NOAA, social and behavioral scientists

116 address issues of disaster preparedness and improving the effectiveness of warnings
117 and evacuation notices. To be effective, these social and behavioral scientists must
118 know how to work with teams from disciplines substantially different from their own and
119 with different terminologies and scientific cultures. They must be able to communicate
120 their science clearly and effectively to colleagues from other disciplines, policymakers,
121 and the general public. Third, government functions best with a diverse workforce that
122 reflects the makeup of the nation; therefore, a focus on diversity in graduate SBS
123 programs provides an important pipeline to ensure diversity in the government
124 workforce.

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126 There are additional skills needed in government positions that were addressed more
127 indirectly in the NASEM report. The workshop panel on private sector positions noted
128 the workplace culture differences between academia and the private sector and the
129 adjustments needed to adapt to the pace and organizational systems in the private
130 sector. There is also an adjustment from academia to government workplace cultures.
131 Perhaps most salient is the difference between the freedom of academia versus the
132 constraints and lines of authority in government. A critical skill in government positions
133 is knowing by what authority one is able to take action. Government employees must
134 be well-versed in the policies, regulations, procedures, and processes that are
135 applicable to their duties, and have the judgment to determine when any given action
136 requires prior approval or notification.

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138 In addition to understanding the workplace culture of government agencies and how it
139 differs from the academic setting where SBS graduates have trained, it is also useful to
140 have interests in policy, both science policy and public policy, and in the application of
141 social and behavioral science principles to policy development and implementation.
142 Within the General Services Administration, the Office of Evaluation Sciences, for
143 example, applies social and behavioral science to the procedures and processes
144 involved in implementing government policies, and rigorously evaluates various
145 strategies to improve these procedures and processes [4]. Related to these policy
146 skills, interest and ability to serve as a supervisor or administrator are useful for career
147 advancement. Managing people is inherently a social and behavioral task, and social
148 and behavioral scientists in the government are often called up to serve in these
149 managerial and supervisory roles as a result of this background and skill set.

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151 To provide experiences for SBS graduates in government positions, various agencies of
152 the federal government offer predoctoral and post-doctoral training experiences. Many
153 agencies accept AAAS Science and Technology Fellows [5]. This program provides
154 opportunities for post-doctoral scientists and engineers to learn about federal
155 policymaking and apply their knowledge to address societal issues. This is an excellent
156 two-year, paid training opportunity that SBS graduates should seriously consider if they
157 are interested in policy and government positions. In addition to the AAAS program,
158 there are a number of training experiences and opportunities offered by the various
159 agencies of the federal government. Table 1 lists some of the training opportunities that
160 the SBS subcommittee compiled from their various agencies.

161

162 Federal agencies also support some of the key data analytic and methodology needs of
 163 SBS graduate training through various training programs and awards. For example, the
 164 NIH Office of Behavioral and Social Sciences Research supports training institutes to
 165 provide SBS graduates with some of the advanced methodology and analytic skills
 166 highlighted in the NASEM workshop report that their graduate programs may not have
 167 provided [6]. The Institute for Education Sciences in the Department of Education [7]
 168 funds training workshops intended for junior faculty and advanced graduate students in
 169 various quantitative and mixed methods approaches.

170

171 Table 1

172 Example Federal Government Training Experiences by Agency

Agency	Training Opportunities	Where to Apply
NIH	Intramural Research Training Awards (IRTAs)	https://www.training.nih.gov/programs/postdoc_irp
DOEd, CDC, DHS, DOD, EPA, FDA, NIH, NSF, USDA, others	Oak Ridge Institute for Science and Technology	https://orise.orau.gov/
NOAA, others	Sea Grant Knauss Fellowships	https://seagrant.noaa.gov/Knauss
EPA	Student Internships	https://www.epa.gov/careers/student-internships
EPA	People, Prosperity and the Planet (P3) Student Design Competition	https://www.epa.gov/P3
DOEd	Research Training in Educational Sciences	https://ies.ed.gov/ncser/research/researchTraining.asp
DOEd	Research Training in Special Education	https://ies.ed.gov/ncser/research/trainingPrograms.asp
NEA	Graduate Research Interns	https://www.arts.gov/about/jobs/internships

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174 The National Cancer Institute has supported team science efforts and the application of
 175 the science of teams to transdisciplinary science [8]. The National Science Foundation's
 176 Social, Behavioral and Economic Science Directorate (SBE) funds similar inquiries
 177 through its Science of Science and Innovation Policy (SciSIP) programs [9]. SBE is
 178 also a focal participant in NSF's Big Ideas initiative [10], a set of programs that provide
 179 opportunities for social and behavioral scientists to work with other scientists as well as

180 partners in government and industry to address some of science and society's greatest
181 challenges.

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183 To promote diversity of the scientific workforce, federal agencies offer a range of
184 diversity training opportunities. Among its efforts to support workforce diversity, the NIH
185 provides diversity supplements to students, postdoctorates, and eligible investigators
186 from groups that have been shown to be underrepresented in health-related research
187 [11]. NSF's INCLUDES program [12] funds individual investigators and research
188 organizations to develop, implement, and evaluate various means for broadening
189 opportunity pipelines and reinforcing mentoring and associated development practices.

190
191 Federal agencies play a significant role in training the SBS workforce, both for the
192 general advancement of the field and for ensuring that well-trained graduates have the
193 skills needed to succeed in government positions. The points from the NASEM
194 workshop on graduate training in the social and behavioral sciences are consistent with
195 the skills needs of federal SBS positions, and several federal agencies support a
196 number of initiatives to advance many of the training points in this workshop report.

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198 These federal training initiatives supplement but cannot replace core university-based
199 graduate training in the social and behavioral sciences. Graduate programs must
200 continue to evaluate their current curricula and modify their programs to train students in
201 the skills needed in an ever-evolving social and behavioral sciences workplace. Calls
202 for modifying and transforming training in the social and behavioral sciences are not
203 new [e.g., 13,14], yet, as noted by the NASEM workshop report, graduate programs
204 have remained largely unchanged. Graduate programs in the social and behavioral
205 sciences and the various federal agencies that support training programs and hire these
206 graduates need to combine forces and partner to align better graduate training
207 programs with the skill sets needed for these graduates to succeed and advance these
208 sciences.

209
210 Conclusion

211 There are many topics for which social and behavioral science expertise is more
212 important than ever. Social and behavioral scientists are called upon increasingly to
213 apply their skills in an expansive set of venues that includes universities but expands far
214 beyond them. With continued communication and a willingness to learn from one
215 another, federal agencies have tremendous opportunities to make the social and
216 behavioral sciences' next era one of great innovation and of great value to people
217 everywhere.

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219
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221
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223 training in the social sciences.

224 **COMPETING INTERESTS**

225 Authors have declared that no competing interests exist.

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