# Board on Behavioral, Cognitive, and Sensory Sciences

# HISTORY AND IMPACT

DIVISION OF BEHAVIORAL AND SOCIAL SCIENCES AND EDUCATION

*The National Academies of*
SCIENCES · ENGINEERING · MEDICINE

The National Academy of Sciences (NAS) was established in 1863 by an Act of Congress, signed by President Lincoln, as a private, nongovernmental institution to advise the nation on issues related to science and technology. Members are elected by their peers for outstanding contributions to research.

The NAS stands out among its international counterparts as an early adopter of the social and behavioral sciences. These sciences have been represented since the NAS's early years with the inclusion of ethnology, a branch of anthropology. Former NAS President Wolcott Gibbs, who was a great advocate for the social and behavioral sciences, included psychology in 1911. Since that time, the social and behavioral sciences have continued to evolve within the National Academies of Sciences, Engineering, and Medicine (the National Academies) and are now represented by more than 200 NAS members. The Division of Behavioral and Social Sciences and Education within the National Academies currently oversees a large portfolio of work (e.g., workshops, consensus studies) involving these sciences.

Along with the NAS, the National Academy of Engineering and the National Academy of Medicine work together as the National Academies to provide independent, objective analysis and advice to the nation and to solve complex problems and inform public policy decisions.

# Board on Behavioral, Cognitive, and Sensory Sciences

The Board on Behavioral, Cognitive, and Sensory Sciences (BBCSS) was established in 1997 as the locus of work for the behavioral sciences at the National Academies. Its mission is to support cross-disciplinary inquiry into complex scientific and policy questions, draw attention to the behavioral sciences for national policy initiatives, and provide a vision of where the behavioral sciences are headed.

As an interdisciplinary board, BBCSS oversees studies that range from examining how learning changes the physical structure of the brain to considering how the behavioral and social sciences can enhance the work of intelligence analysts and strengthen national security. BBCSS also develops workshops that explore topics such as pathways to successful aging and possible Alzheimer's prevention, methods for assessing performance potential in groups and individuals, and avenues by which the behavioral sciences can be useful to education. In keeping with BBCSS's interdisciplinary foundation, members represent a range of fields, including psychology, linguistics, otolaryngology, cognitive science, neuroscience, and anthropology.

BBCSS provides a forum for objective, independent, and rigorous deliberation among researchers, the public, the media, Congress, professional associations, and federal agencies. Ensuring that the behavioral sciences have a home in a standing board at the National Academies is a meaningful way to provide visibility for the contributions of these sciences.

In the past 20 years, BBCSS has produced more than 40 publications, including 30 major consensus studies that responded to pressing social needs and explicit requests from the federal government. Many of these reports have had lasting impact by helping decision makers better understand the scientific issues that influence policy questions.

## Chairs of the Board on Behavioral, Cognitive, and Sensory Sciences (1997–2017)

**Anne C. Petersen**; Member, National Academy of Medicine (*Chair*, 1997–2006) University of Michigan

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**Susan T. Fiske**, Member, National Academy of Sciences (*Chair*, 2015–present) Princeton University

## Leadership of the Board on Behavioral, Cognitive, and Sensory Sciences (1997–2017)

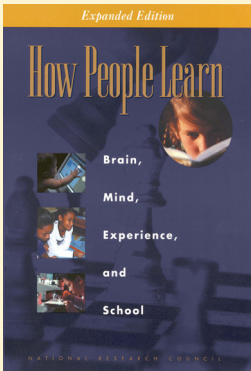**Rodney R. Cocking** (*Director*, 1997–1999)

**Christine R. Hartel** (*Director*, 1999–2007)

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# Selected BBCSS Reports with Lasting Impact

### How People Learn: Brain, Mind, Experience, and School: Expanded Edition (2000)

*How People Learn: Brain, Mind, Experience, and School: Expanded Edition* examines research in areas such as neuroscience and cognitive science to provide insights into how we learn. Furthermore, the report suggests ways to translate this knowledge into practice to improve how we teach and assess learning.

Since its release, *How People Learn* has been downloaded in every country in the world and continues to be one of the National Academies' best-selling reports despite the fact that much of the research it summarizes is decades old.

Due to this report's continuing popularity, BBCSS appointed a committee to prepare a follow-up report to review the large body of research on learning across the lifespan that has been conducted since the late 1990s. The new report will be released in 2018.

SPONSOR: U.S. Department of Education

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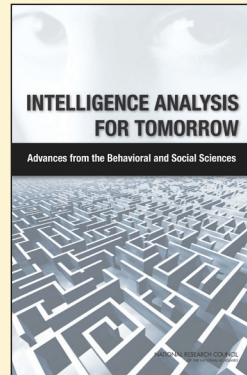
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**James. W. Pellegrino** (*Cochair*), Peabody College of Education and Human Development, Vanderbilt University

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### Intelligence Analysis for Tomorrow: Advances from the Behavioral and Social Sciences (2011)

Requested by the Office of the Director of National Intelligence, *Intelligence Analysis for Tomorrow: Advances from the Behavioral and Social Sciences* synthesizes and assesses research from the social and behavioral sciences (SBS) and offers evidence-based recommendations for making intelligence analysis more accurate and timely.

The report concludes that at a relatively low cost, the Intelligence Community (IC) can build on current organizational structures and available SBS knowledge to strengthen the scientific foundations of the IC's analytical methods. Areas of work that could be improved by leveraging knowledge from the SBS sciences include recruiting, training, and motivating analysts; mastering and deploying suitable analytic methods; organizing the day-to-day work of intelligence analysts; and communicating with policy makers and other IC stakeholders.

*Intelligence Analysis for Tomorrow* ranks as one of the National Academies' most downloaded reports in the categories of Behavioral and Social Sciences and Conflict and Security Issues.

SPONSOR: Office of the Director of National Intelligence

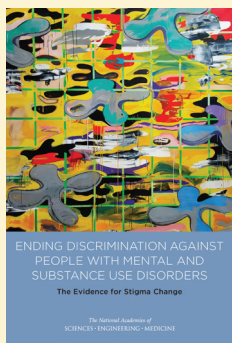#### Board On Behavioral, Cognitive, And Sensory Sciences

**Philip E. Rubin** (*BBCSS Chair*), Haskins Laboratories and Yale University

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#### Committee On Behavioral And Social Science Research To Improve Intelligence Analysis For National Sercurity

**Baruch Fischhoff** (*Chair*), Department of Social and Decision Sciences and Department of Engineering and Public Policy, Carnegie Mellon University

**Cherie Chauvin**, *Study Director*

### Ending Discrimination Against People with Mental and Substance Use Disorders: The Evidence for Stigma Change (2016)

*Ending Discrimination Against People with Mental and Substance Use Disorders: The Evidence for Stigma Change* explores the stigma and discrimination faced by individuals with mental or substance use disorders and recommends effective strategies for reducing stigma. The report serves as a valuable resource for community-based organizations, as well as local, state, and federal government agencies. As the result of its findings and recommendations, the Substance Abuse and Mental Health Services Administration is working to design evidence-based, stigma-reduction messaging for use across a variety of communication platforms.

SPONSOR: U.S. Department of Health and Human Services

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### Enhancing the Effectiveness of Team Science (2015)

Collaborative science teams have become increasingly prevalent in recent decades. *Enhancing the Effectiveness of Team Science*, a consensus study requested by the National Science Foundation, reviews the latest research on the science of team science to provide guidance on assembling science teams and public policy recommendations for research agencies, universities, and policy makers. The report explains institutional structures and policies that can support science teams, identifies needed education and professional development for these teams, and outlines areas where further research is needed to support these teams in reaching their goals.

*Enhancing the Effectiveness of Team Science* is one of the most downloaded reports in the categories of Education, Policy for Science and Technology, and Behavioral and Social Sciences, and is a valuable resource for research administrators, team science leaders, science faculty, and graduate and postdoctoral students

SPONSOR: National Science Foundation

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**Susan T. Fiske** (*IBBCSS Chair*) (NAS), Department of Psychology and Woodrow Wilson School of Public and International Affairs, Princeton University
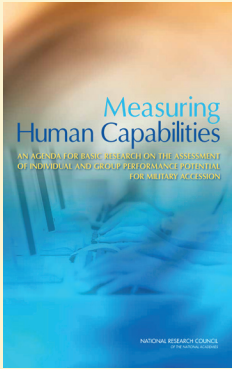
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#### COMMITTEE ON THE SCIENCE OF TEAM SCIENCE

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The reports featured here highlight the breadth and depth of BBCSS's portfolio of work affecting policy and practice. For a complete listing of all BBCSS reports, please visit the BBCSS website at **www.nationalacademies.org/BBCSS.**

## Measuring Human Capabilities: An Agenda for Basic Research on the Assessment of Individual and Group Performance Potential for Military Accession (2015)

Every year the U.S. Army must select from an applicant pool of hundreds of thousands to meet its annual enlistment targets. A critical component of the selection process is the series of formal assessments administered to applicants to determine their performance potential. Selecting the right people from the start is becoming increasingly important, especially given the growing number of applicants and high costs associated with attrition.

The report examines promising theoretical, technological, and statistical advances that provide scientifically valid new approaches and measurement capabilities to assess human capability. Initially requested by the Army Research Institute for the Behavioral and Social Sciences (ARI), the report is also relevant to professionals interested in the foundational science behind academic testing, team dynamics, job selection, cognitive ability, and human resources management.

The report has been highly influential in shaping ARI's basic and applied research program in personnel testing, according to the leadership at ARI. They are funding research on the assessment of spatial abilities and the propensity to use cognitive heuristics and biases in response to the report's recommendations. ARI also plans to institute a basic research program to address the recommendations related to psychometrics and testing methods.

SPONSOR: Army Research Institute, U.S. Department of the Army

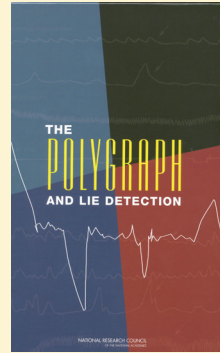### Board On Behavioral, Cognitive, And Sensory Sciences

**Susan T. Fiske** (*BBCSS Chair*), Department of Psychology and Woodrow Wilson School of Public and International Affairs, Princeton University

**Barbara A. Wanchisen**, *BBCSS Director*

### Committee On Measuring Human Capabilities: Performance Potential Of Individuals And Collectives

**Paul R. Sackett** (*Chair*), Department of Psychology, University of Minnesota, Minneapolis

**Cherie Chauvin**, *Study Director*

## The Polygraph and Lie Detection (2003)

Requested by the U.S. Department of Energy (DOE), *The Polygraph and Lie Detection* reviews evidence about the validity of the polygraph and considers its use in employment screening, criminal investigation, and counter-intelligence. One of the report's conclusions is that the polygraph's accuracy in identifying actual or potential security violators is insufficient to justify its use as an employment screening tool. Because of this, the committee strongly recommended an expanded research effort to find alternative methods to detect and deter major security threats and to improve techniques for security screening. In response to this recommendation, DOE greatly reduced the use of polygraph screening tests for employees. However, the polygraph is still used in other government screening programs. While this might seem like a mixed result, this report informed the conversation and raised awareness of the issue and is still cited in relevant discussions.

SPONSOR: U.S. Department of Energy

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**Christine R. Hartel**, *BBCSS Director*

### Committee To Review The Scientific Evidence On The Polygraph

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Our sponsors are an important and integral part of all of the BBCSS activities. Sponsors participate in determining the trajectory of how the behavioral sciences can be leveraged to be of the greatest benefit to the public, policy makers, and the scientific enterprise. They also participate in developing the vision for where behavioral sciences are headed on issues by supporting research agendas for the community. BBCSS meetings and activities have been sponsored by the following organizations.

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**National Institutes of Health** (National Institute on Aging)

**National Aeronautics and Space Administration**

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