

U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON SCIENCE AND TECHNOLOGY
SUBCOMMITTEE ON RESEARCH AND SCIENCE EDUCATION

Joint hearing with

COMMITTEE ON ARMED SERVICES
SUBCOMMITTEE ON TERRORISM, UNCONVENTIONAL THREATS AND
CAPABILITIES

HEARING CHARTER¹

Role of the Social and Behavioral Sciences in National Security

Thursday, April 24, 2008
9:00 a.m. – 11:00 a.m.
2118 Rayburn House Office Building

1. Purpose

The purpose of the hearing is provide our Subcommittees' Members with a broad overview as to why understanding the human terrain is critical to the achievement of success in national security operations and to examine the role of basic and applied research in the social and behavioral sciences in meeting our national security needs. In addition to receiving testimony on the state of current research and needs for the future, the Subcommittees will also explore opportunities for partnership between the Department of Defense and the National Science Foundation in supporting this research.

2. Scheduled Witnesses

- Dr. André van Tilborg, Deputy Under Secretary of Defense (Science and Technology).
- Colonel Martin Schweitzer, Commander 4th Brigade Combat Team, 82nd Airborne Division.
- Dr. Mark Weiss, Division Director for Behavioral and Cognitive Sciences, National Science Foundation.
- Dr. David Segal, Professor of Sociology and Director of the Center for Research on Military Organization, University of Maryland.

¹ This document was prepared by Science and Technology Committee staff in consultation with the Armed Services staff.

3. Overarching Questions

- How can research in the social and behavioral sciences help the nation achieve its national security goals? In particular, what can research tell us about empowering the individual soldier or combat unit to adapt and maneuver in foreign cultures and stressful situations; making the most out of technology; leadership; teamwork; communication structures and practices; and other aspects of the human terrain?
- What current and emerging areas of basic and applied research in the social and behavioral sciences could significantly improve the effectiveness of national security at all levels: personnel, training, leadership and organization? What new tools, technologies and interdisciplinary collaborations are helping researchers continue to break new ground?
- Is the level of federal support for this research adequate? Are there promising research opportunities that are not being adequately addressed? If so, to what extent should the Department of Defense be responsible for additional investments in social and behavioral sciences?
- To what extent are the services and the military complex as a whole incorporating research findings from the social and behavioral sciences into training, programs and policies for the current conflicts in Iraq and Afghanistan?
- How can the Department of Defense best take advantage of the National Science Foundation's expertise and ties to the social and behavioral science research community? What can the National Science Foundation learn from the Department of Defense about basic research needs in the social and behavioral sciences? How effective has data sharing been to date?
- Is there a process by which the various agencies investing in social and behavioral science are able to coordinate and leverage efforts across government?

4. Overview

Today's military forces are increasingly involved in low-intensity conflicts² around the world. Many believe that these complex missions, which range from counterinsurgency to security and stability operations, are best served by a security force that understands and appreciates the individual, tribal, cultural, ethnic, religious, social, economic, and other aspects of the human terrain. Traditional U.S. warfighting methods that were designed to dominate over state adversaries, such as the former Soviet Union, through technological superiority, are less likely to enable success in operations where the enemy hides within the general population. As a result, the Department of Defense (DOD) is reshaping its approach to technology, training and doctrine to adapt to the current irregular warfare environment.

² Low intensity conflict is a political-military confrontation between contending states or groups below conventional war and above the routine, peaceful competition among states. It frequently involves protracted struggles of competing principles and ideologies. Low intensity conflict ranges from subversion to the use of armed force. It is waged by a combination of means, employing political, economic, cultural, informational, and military instruments. Low intensity conflicts are often localized, generally in the Third World, but contain regional and global security implications.

Today's witnesses will discuss research and development efforts to support human, social, and cultural behavioral understanding and modeling. Such research is funded out of a number of federal agencies, including the National Science Foundation (NSF) and DOD³. As well, today's military witness, COL Schweitzer, will highlight an example of the practical application of this research in an operational setting. COL Schweitzer has recently returned from Afghanistan, where he led a Human Terrain Team (HTT), which places civilian and uniformed scientists on the ground in Iraq and Afghanistan in order to provide soldiers with better knowledge of the culture in which they are operating.

In January 2008, the National Academy of Sciences (NAS) published a report on *Human Behavior in Military Contexts*. The NAS Committee on Opportunities in Basic Research in the Behavioral and Social Sciences for the U.S. Military was charged by the Army Research Institute for the Behavioral and Social Sciences (ARI) to explore research opportunities in behavioral and social sciences in order to assist ARI in developing a long-term research agenda in these areas. Because of limited funds and because the committee membership did not represent all social science disciplines, they focused primarily on the behavioral sciences. Within those constraints the committee identified six areas of research on the basis of their relevance, potential impact, and timeliness for national security needs: intercultural competence, including second-language learning; teams in complex environments; technology-based training; nonverbal behavior; emotion; and behavioral neurophysiology. These areas of research are already being supported to some degree by NSF and DOD, as discussed in more detail below. Witnesses in today's hearing will provide a broader list of relevant social and behavioral science research areas that the NAS committee did not have the opportunity to review.

5. Agency Roles

National Science Foundation

The main support for basic research in the social and behavioral sciences comes from the Social, Behavioral and Economic Sciences (SBE) Directorate at NSF. Overall, NSF accounts for 60 percent of federal support for basic research in anthropology, social psychology and the social sciences at U.S. colleges and universities. In some fields, including archaeology, political science, linguistics, and non-medical aspects of anthropology, psychology, and sociology, NSF is the predominant or exclusive source of federal basic research support.

³ According to research funding statistics compiled by NSF, a total of \$1.18 billion was obligated to basic and applied research in all social sciences for fiscal year (FY) 2006 across the Federal government, including more than \$200 million for economics (exact figure for economics support in FY 2006 not yet available). Psychology was counted separately, and was funded at a total of \$1.93 billion in FY 2006, of which \$1.76 billion was funded by the National Institutes of Health and \$110 million was funded by DOD and Veterans Affairs. The primary interests of those three agencies are the clinical aspects of psychology.

The FY 2008 budget for SBE is \$215 million, making it the second smallest of NSF's research directorates. In addition to funding basic research in the social, behavioral and economic sciences, NSF's SBE Directorate funds the collection and analysis of data on science and engineering research, education and workforce trends (including the data presented here), resulting in the biannual "Science & Engineering (S&E) Indicators." This activity accounts for \$30 million in FY 2008, or 14 percent of the SBE Directorate budget. In total, the directorate supports approximately 2,900 senior researchers, 1,670 graduate students, 1,430 undergraduate students and 680 postdoctoral researchers and other professionals at U.S. universities and research institutions.

The following are examples of sociological, political, behavioral, cognitive and anthropological research supported by NSF, including those areas of research identified by the NAS report as having relevance to national security needs:

- Nonverbal communication and cross-cultural understanding of nonverbal expression, the applications of which range from securing our own borders to in-the-field negotiations with local Afghan or Iraqi tribal leaders.
- Decision making and risk assessment, which can help provide additional decision-making tools and understanding to everyone from soldiers in the field to high-level commanders and policy makers.
- Human behavior under stress, which can help to understand and address the consequences of combat tours of duty or extended deployments.
- Science of Learning- various applications, for example, how computer-aided learning devices (such as combat simulators) can be optimized to help people learn better.

While most of the research currently funded by NSF in the social and behavioral sciences is not driven by any one application, the line between basic and applied research in these fields is fuzzy. For example, a sociologist interested in the successes and failures of teamwork in a small business environment might make fundamental discoveries applicable to other environments, including the military. As a result, much of the academic research currently funded by NSF may ultimately find application in national security (or other fields), even when the research was focused on non-military populations.

One of the challenges in bringing relevant academic research to the attention of policy makers in DOD is the historical lack of collaboration between DOD and NSF in identifying the current research and opportunities that are of interest to both agencies. Based on staff conversations with NSF officials, there is some indication that officials from both agencies are beginning to bridge that gap.

Department of Defense

The DOD seeks to extend or leverage the state-of-science for human behavior, social, and culture research stemming from the NSF and academia. The DOD research and development (R&D) objective in the area of socio-cultural behavior is to develop valid science-based approaches to enable a broad range of military activities such as operations planning, information operations, analysis, experimentation, and training. According to the Department, a significant part of their effort will create quantitative models and shaping tools that provide assessments, forecasts, options for courses of action, and decision support for understanding and reasoning about the human terrain within operational environments.

The DOD FY 2008 R&D budget for behavioral and social science is approximately \$35 million, which is less than the FY 2007 amount of \$37.6 million⁴. Behavioral and social science efforts are conducted through various programs within the Army, Navy, Air Force, the Joint Forces Command, and the Office of the Secretary of Defense. The focus areas include, but are not limited to:

- developing models, techniques and procedures for data collection, management and dissemination;
- computational models for intelligence and simulation systems, including -
 - validated models to support human terrain understanding,
 - software for new and existing training systems, and
 - validated models that support area-of-operation specific exercises; and
- theory and military science of societies, cultures, and associated human social dynamics and behavior.

Partnerships with Academia

On April 14, 2008, Secretary Gates addressed a gathering of presidents from leading research universities in Washington, D.C. for a meeting of the Association of American Universities. In his speech⁵, the Secretary outlined plans for a new initiative at DOD, called the Minerva Initiative, in which consortia of universities funded by DOD would undertake research in areas of the social and behavioral sciences relevant to DOD needs, but entirely open and unclassified. Some have viewed this initiative as noteworthy, as the relationship between DOD and the university community within the area of social sciences has been strained at times and hampered by mutual suspicion. By all accounts, Secretary Gates, a former university president, has personally made it a priority for the Pentagon to improve its relationship with the university research community. Likewise, the universities themselves are increasingly seeking to tie their scholarship to societal needs, including national security.

⁴ Numbers reflect investments in the Department's recently created Human, Social and Cultural Behavior Modeling Program only. Due to the nascent character of the effort, the Department lacks clear delineation of what other programs should be included within the scope of a broader behavioral and social science umbrella, which the Department estimates to be around \$150 million or about one percent of their S&T budget.

⁵ <http://www.defenselink.mil/speeches/speech.aspx?speechid=1228>