

Written Testimony of the American Psychological Association

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United States House of Representatives Committee on Appropriations
Subcommittee on Commerce, Justice, Science, and Related Agencies
The Honorable Frank R. Wolf, Chairman

Fiscal Year 2013 Appropriations for the National Science Foundation, National Aeronautics and Space Administration, and Department of Justice

The American Psychological Association (APA), a scientific and professional organization of more than 154,000 psychologists and affiliates, is pleased to submit testimony for the record. Because our behavioral scientists play vital roles within the **National Science Foundation (NSF)**, **National Aeronautics and Space Administration (NASA)**, and **Department of Justice (DOJ)**, APA will address the proposed FY13 research budgets for each of these agencies. We also thank the Chairman and this Subcommittee for your unwavering commitment to NSF in particular during the FY12 appropriations process.

- **APA recommends that the Subcommittee support the President's FY13 request of \$7.37 billion for NSF.**
- **APA recommends that the Subcommittee support the President's FY13 request of \$17.7 billion for NASA, which includes a 4.4% increase for the Human Research Program, a 1.3% increase for the Aviation Safety Program, and level funding for the Integrated Systems Research Program compared to FY12.**
- **APA recommends that the Subcommittee include adequate funding for DOJ's Juvenile Justice and Delinquency Prevention Act (JJDP) programs, including \$80 million for the Title II State Formula Grants Program, \$65 million for the Title V Delinquency Prevention Program, and \$30 million for the Juvenile Accountability Block Grant.**

National Science Foundation

Core Psychological Research at NSF

NSF is the only federal agency whose primary mission is to support basic research and education in math, engineering and science – including the *behavioral and social sciences*. NSF's investment in basic research across these disciplines has allowed for extraordinary scientific and technological progress, ensuring continued economic growth, improvements in the design, implementation and evaluation of public education, strengthened national security, and the generation of cutting edge new knowledge.

APA supports the Administration request of \$7.37 billion for NSF in FY13. This is consistent with Administration and Congressional plans to invest substantially in federal science agencies with the capacity to stimulate global competitiveness and innovation.

Within the overall NSF budget, APA supports a strong investment in psychological research throughout the research and education directorates foundation-wide, in order to address critical national challenges with an understanding of human behavior at their core. The America COMPETES Act specifically noted the importance of funding the social sciences and this must be reflected in an increase for NSF's behavioral and social science research portfolio comparable to proposed increases for other sciences at NSF.

Although psychologists receive funding from diverse programs within NSF, most core psychological research is supported by the **Social, Behavioral and Economic Sciences Directorate (SBE)**, with its focus on the variables that determine human behavior across all ages, affect interactions among individuals and groups, and decide how social and economic systems develop and change. In addition to core behavioral research in cognitive neuroscience, human cognition and perception, learning and development, and social psychology, SBE will continue to invest funds to participate in NSF's Cross Directorate programs such as SEES, CIF21, the Comprehensive National Cybersecurity Initiative, and INSPIRE to enhance interdisciplinary research and training.

The **Biological Sciences Directorate** at NSF also provides support for research psychologists who ask questions about the very principles and mechanisms that govern life at the level of the genome and cell, or at the level of a whole individual, family or species. In previous testimony, APA has expressed concern about diminishing support for key behavioral research programs within this Directorate, most notably those focused on learning and cognition. NSF recognizes the importance of learning and cognition to many branches of science already, and supports Foundation-wide initiatives and individual research projects that seek to understand the neural or genetic mechanisms by which learning occurs, use learning as an assay for the effects of environmental change on a biological system, construct and evaluate artificial learning systems, conceptualize the role of learning in biodiversity and evolution and apply learning principles to education and workforce challenges.

However, we hope that NSF's focus on transformational science will continue to recognize that behavior links everything from molecular biology to ecology, because in a sense, behavior is the ultimate genetic phenotype. Animals behave to eat, defend and reproduce, so an understanding of how the molecular processes within and beyond the central nervous system lead to behavior and how behavior serves an adaptive function seems essential to integrating biology across levels. Within the field of animal behavior and cognition there are clear demonstrations that this integration is occurring. For example, individual differences in gene expression can now be linked to individual differences in memory, attention, decision making, individual adaptation and fitness. The opportunity for understanding individual differences is unprecedented.

National Aeronautics and Space Administration

Behavioral Research is Critical for Space Exploration and Aviation Safety

Psychological research has played a critical role in the evolution of the Human Research Program within the Human Exploration and Operations Mission Directorate and the Aviation

Safety and Integrated Systems Research Programs of the Aeronautics Research Mission Directorate. These research programs have provided knowledge that has been crucial to mission success and for improving both the safety and efficiency of our current and future aerospace systems. Longer space missions place increasing demands on psychological health and performance in space. Psychological scientists are meeting these challenges head on by extending the information management capacity of individuals through computational systems - systems that can sense when the user is overloaded, or determine what needs to be done next and automatically adapt. Such systems improve human decision-making and allow humans to function in extremely challenging environments, such as space flight. The need for science-based practical principles to enhance systems, interfaces, team dynamics, decision-making, training, and psychological health continues to grow, as does the need for continued investment in such research.

In the NASA Authorization Act of 2010, Congress authorized \$19.96 billion for FY13. The actual allocation for FY13 means a shortfall in the authorized funding by over \$2.25 billion. However, in recognition of constraints on the federal budget, APA supports the President's FY13 request of 17.7 billion which includes a 4.4% increase for the Human Research Program, a 1.25% increase for the Aviation Safety Program, and level funding for the Integrated Systems Research Program compared to FY12.

Human Research Program

The incremental increases in funding within this program are allowing NASA to investigate and mitigate potential problems in behavioral health and performance associated with extended spaceflight. The Behavioral Health and Performance Program will allow for an evaluation of a variety of scenarios critical to mission success such as: the risk of performance errors due to fatigue resulting from sleep loss, circadian desynchronization, extended wakefulness and work overload; the risk of performance decrements due to inadequate cooperation, coordination, communication and psychosocial adaptation within a team; and the risk of adverse behavioral conditions and psychiatric disorders. The Space Human Factors and Habitability Program advances human-centered design of interfaces to enhance crew performance; measures that human-system performance; and fosters the design and evaluation of improved habitation in space. The overall success of these programs will require a broad perspective, multiple convergent research strategies, and a variety of settings, including space itself.

Aviation Safety and Integrated Systems Research Programs

The Aeronautics Research Mission Directorate has long been a cornerstone of NASA. APA applauds NASA AMES Research Center for its historic attention to human factors research in both the Aviation Safety and Integrated Systems Research Programs. Human factors research plays a crucial role in mitigating the adverse consequences of flight operations in an increasingly complex National Airspace System. The implementation of NextGen with new technological requirements in avionics, software, automation, and operations will require unprecedented attention to human-centered design. At the same time the Integrated Systems Research Program has been tasked with developing and

validating high fidelity human-in-the-loop simulations to ensure separation, communication, human systems integration and certification standards for Unmanned Aerial Systems (UAS).

Department of Justice

Juvenile Justice and Delinquency Prevention Act Funding

Federal investments in state juvenile justice efforts are essential for youth and community safety, yet appropriations for JJDPA programs have declined by more than 50 percent to their lowest levels in more than ten years. Funding levels must be sufficient to ensure that states can comply with federal mandates and invest in cost-effective reforms. APA therefore asks that the Subcommittee include the following funding levels for key juvenile justice programs in FY13:

\$80 million for the JJDPA Title II State Formula Grants Program

The JJDPA provides critical federal funding to help states prevent delinquency and comply with federal mandates to protect children from the dangers of placement in adult jails and lockups, keep status offenders and non-delinquent children out of locked custody, and address the disproportionate representation of minority youth in the justice system. An estimated 20 percent of states are now out of compliance with the JJDPA. The requested funding level represents the true minimum costs of the Title II mandates and would help make up for deep cuts (55% over ten years) in funding to the states.

\$65 million for the JJDPA Title V Delinquency Prevention Program with no earmarks

Rigorous research shows that evidence-based prevention programs can reduce youth crime rates by as much as 50% while saving taxpayers money by reducing costs to the justice system. Title V is the only federal program that provides delinquency prevention funding at the local level to reach youth at risk and help keep them out of the justice system.

\$30 million for Juvenile Accountability Block Grant (JABG) Program

JABG is used by states and localities to reduce juvenile offending by providing judges and other juvenile justice officials with developmentally appropriate options to hold youth accountable and prevent them from re-offending. This request is consistent with amounts appropriated by Congress for FY12.

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