

MEETING THE CHALLENGES OF TODAY

Insights from the Social and Behavioral Sciences



ARTIFICIAL INTELLIGENCE

Ethical Development and Application of AI

Artificial Intelligence (AI) is the basis of discussion and debate across all aspects of society, as it remains a relatively uncharted territory among technological advancements. From the perspective of social scientists, AI is a tool with potential, both for good and for ill, so it is essential that people are mindful of how AI is designed and then used. Removing human needs and interests from the development of AI will have negative effects on the usability and accessibility of those programs. Instead, human-centric perspectives on AI systems can generate high-quality and reliable processes while encouraging continuous evaluation and assessment of those systems. (Source: *Human-AI Teaming: State-of-the-Art and Research Needs, 2022, The National Academies Press*)



HEALTH CARE

Diagnosing and Treating PTSD

Social and behavioral science research has informed the development of diagnostic tools and treatments for post-traumatic stress disorder (PTSD). The PTSD Checklist enables researchers and clinicians to monitor how symptoms change in response to treatment, aiding development and optimization of new therapies. Researchers have also helped to develop evidence-based interventions for treating individuals battling both PTSD and substance abuse, which often occur together when traumatized people turn to alcohol or drugs to manage pain. Anti-stigma public education campaigns informed by social and behavioral science research have been proven to reduce stigma related to PTSD and increase patients' willingness to seek treatment. (Source: *Treatment for Posttraumatic Stress Disorder in Military and Veteran Populations: Final Assessment, 2014, The National Academies Press*)



WORKPLACE

Strengthening the Workplace of Tomorrow

As industries face increasing global complexities, the demand for a workforce with diverse, innovative problem-solving skills grows. Social and behavioral science has identified and responded to the challenges

of strengthening the labor sector. Recognizing the social, political, and economic effects of workforce preparation, researchers have bridged the gap between employer needs and the educational institutions preparing future employees. Across fields, employers express a need for adaptability, continuous learning capacity, and social and emotional intelligence. Research has thus helped raise awareness of and establish experiential learning programs that engage communities and prepare students for future career success. (Source: *NSF, Crossing the bridge from network training to development: A guide to move trainees from classroom insights to effective networks*)



EDUCATION

How Education is Impacted Outside the Classroom

Students' ability to succeed academically (in the traditional sense) goes beyond just their instruction in the classroom. Factors related to home life (socioeconomic status, family composition, family history of academic achievement, etc.) as well as external, societal forces (discrimination, school funding, stigmas, etc.) greatly impact an individual's disposition as it relates to education. Identifying these determining elements and measuring their respective effects can inform the implementation of educational equity into current systems, thereby better supporting students according to their individual needs. (Source: *Social Determinants of Learning: Implications for Research, Policy, and Practice. AERA Open, 9*)



INFRASTRUCTURE

Removing Barriers to Housing

Housing plays a crucial role in families securing opportunities for upward mobility. Whether this takes the shape of financial gain through low rent costs, zoning for better schools, or closer proximity to jobs, access to high-opportunity neighborhoods can significantly improve quality of life for certain groups. However, with a lack of effective policy in place, this issue disproportionately affects families of color and increases residential segregation by income. Social science research studies these patterns and produces

evidence-backed solutions, such as providing tailored material and information resources to low-income families to remove traditional housing barriers to upward mobility. (Source: NSF, *Creating Moves to Opportunity: Experimental Evidence on Barriers to Neighborhood Choice*)



DISASTERS

Improving Crisis Resilience

Social and behavioral science researchers have identified and analyzed disparities in disaster preparedness and management. They have recognized gaps in communication of disaster management plans, identification of disaster risk, and access to social resources. In a crisis, citizens are left to rely on community and government response for support and resources, which is often worsened by racial and economic inequalities. Without proper response from these support systems, high-risk populations face greater hazards and longer recovery. Constructive solutions must focus on fostering collaborative and communicative relationships between the public and local government, encouraging civic participation in disaster preparedness, and addressing individuals' social and economic contexts. This body of work has helped federal, state, and local authorities better understand the lived experience of citizens during crisis and to develop more effective policy responses. (Source: NSF, *RAPID: Capital, Coping, and the Displaced: Health, Well-Being, and Resiliency Among Hurricane Harvey Evacuees*)



POPULATION

Demographics Studies

Research on human demographics (such as the decennial census) tells us *who* makes up a population. The results of these studies are then applied to other research purposes to try to explain *how* outside factors affect people differently. In other words, the application of demographics data is endless, for both research and policy purposes. Demographics are used in medicine to identify at-risk populations of disease, in education to measure academic achievement, in business to market to target audiences, in criminology to understand victimizations, and in politics to determine where to campaign. Researchers can develop their own collections of population data for specific purposes, but free-to-access, large-scope,

holistic collections can serve as the foundation for any topic of inquiry. (Source: *Census.gov*)



JUSTICE

Preventing Wrongful Convictions

Psychological research has informed best practices for avoiding biased recordings of interrogations and false confessions made under coercion, which can lead to wrongful convictions. One study showed that when the camera is focused squarely on a suspect—with the interrogator either outside of the frame or only visible from behind—viewers are more likely to believe that any self-incriminating statement is voluntary, even in cases in which the interrogator seems to be coercing the suspect. When the camera is positioned so that both the interrogator and suspect can be seen in profile, the bias toward believing that the suspect is making statements willingly is gone. These findings have been used to develop guidelines for state agencies to ensure juries see accurate representations of interrogation. (Source: NSF, *Video-recorded Interrogations: Beyond Camera Perspective*)



ENVIRONMENT

Environmental Decision-Making

Sometimes, it is easy to recognize a problem, but it is challenging to do anything about it. Issues relating to environmental stewardship are no exception. Generally, people know that pollution is bad and that humans can be wasteful, but they do not know how to change their behavior in a meaningful way. Therefore, to implement effective solutions, decision makers need to know how to convince individuals of the importance of participation and to incentivize real action. Understanding how individuals and corporate entities will react will help guide policy recommendations and other independent interventions with the best likelihood of succeeding. Discoveries made by natural scientists are important but so is the ability to translate the technical into digestible information for the average person. (Source: *Annual Review of Environment and Resources, Volume 45*)