

Science Literacy and Public Perception of Science

Committee

Catherine E. Snow

Chair

CATHERINE SNOW (Chair) is Patricia Albjerg Graham Professor of Education at Harvard Graduate School of Education. She is an expert on language and literacy development in children, focusing on how oral language skills are acquired and how they relate to literacy outcomes. Snow has chaired two national panels: the National Academy of Sciences committee that prepared the report "Preventing Reading Difficulties in Young Children," and the Rand Reading Study Group that prepared "Reading for Understanding: Toward an R&D Program in Reading Comprehension." Her research activities include a longitudinal study of language and literacy skills among low-income children who have been followed for 15 years since age three; following the language development of young children participating in the Early Head Start intervention; studying the vocabulary development of first- and second-language learners; and considering aspects of transfer from first to second language in the domains of language and literacy. Her book, *Preparing Our Teachers: Opportunities for Better Reading Instruction*, is one of several efforts she is involved in to develop consensus among teacher-educators about what pre- and in-service elementary teachers need to know about language and literacy. Snow has also written about bilingualism and its relation to language policy issues such as bilingual education in the United States and in developing nations, and about testing policy. She is currently involved in efforts to improve middle-school literacy outcomes, in partnership with other Boston area researchers and the Boston Public Schools. She received a B.A. from Oberlin College, with the highest honors in psychology, Phi Beta Kappa, a M.A. and Ph. D. in Psychology from McGill University, Montreal, Quebec.

Nick Allum

Member

NICK ALLUM is Professor of Sociology at the University of Essex. His research encompasses survey methodology, public understanding of science, social and political trust and risk perception. Dr. Allum teaches statistical methods and directs the MSc in Survey Methods at Essex. He currently serves as the general secretary for the European Survey Research Association, and, in 2010, served on the National Science Foundation's expert panel on Science Literacy Indicators, which contributed to the National Science Board chapters on public attitudes and knowledge about science and technology. Dr. Allum also worked as a statistical consultant for the Pew Research Center, as well as performing survey design work for the United Kingdom's Department of Media Culture and Sport. Dr. Allum received his B.A. in political Economy from the University of East London, his M.Sc. in social research methods from the London School of Economics, and his Ph.D. in social psychology at the London School of Economics.

John C. Besley

Member

JOHN BESLEY is an associate professor and Ellis N. Brand Chair in the Department of Advertising and Public Relations at the College of Communication Arts and Sciences at Michigan State University. He studies how views about decision-makers and decision processes affect perceptions of science and technology (S&T) with potential health or environmental impacts. This focus includes consideration of both mediated exposure through newspapers, television programs and web content, as well as face-to-face public engagement exercises (e.g., public meetings). His work emphasizes the need to look at both citizens' perceptions of decision-makers and decision-makers' perceptions of the public. More generally, Dr. Besley explores the relationships between media use, public engagement and health and environmental risk perceptions. His research has touched on public perceptions of nanotechnology, biotechnology, and energy technologies (particularly nuclear and hydrogen and fuel cell technologies). He has also been involved in research into journalistic norms related to coverage of public engagement and research to better understand the impact of science and risk communication training. In addition to his regular research, Dr. Besley is the lead author for the 2014 and the 2016 (ongoing) National Science Board chapters on public attitudes and knowledge about science and technology. This biennial report is submitted to the White House and Congress and represents the definitive statement on Americans' views about S&T. He received a B.A. of journalism and an M. A. in public administration (Innovation, Science and Environment Policy) from Carleton University, Ottawa, ON, and a Ph.D. in communications from Cornell University.

Dominique Brossard

Member

DOMINIQUE BROSSARD is professor and chair in the Department of Life Sciences Communication at the University of Wisconsin-Madison. She is on the steering committee of the UW-Madison Robert & Jean Holtz Center for Science and Technology Studies and an affiliate of the UW-Madison Center for Global Studies and Morgridge Institute for Research. She is also the leader of the Societal Implications of Nanotechnology group in the Nanoscale Science and Engineering Center (NSEC). Her teaching responsibilities include courses in strategic communication theory and research, with a focus on science and risk communication. Her research program concentrates on the intersection of science, media, and policy in the department's Science, Media and the Public (SCIMEP) research group. A fellow of the American Association for the Advancement of Science and a former board member of the International Network of Public Communication of Science and Technology, Brossard is an internationally known expert in public opinion dynamics related to controversial scientific issues. She is particularly interested in understanding the role of values in shaping public attitudes and using cross-cultural analysis to understand these processes. SCIMEP's recent work has focused on scientific discourse in online environments, such as Twitter where SCIMEP lab work is presented. She is a member of the American Academy of Arts and Sciences and the National Academy of Education as well as Doctor, honoris causa at the University of Nijmegen in 2006, University of Oslo in 2008, and University of Toledo in 2010. She received a B.S. in biology and a M.S. in plant biotechnology from Ecole Nationale Supérieure Agronomique de Toulouse (France), and a M.P.S. and Ph.D. in Communication from Cornell University.

Noah Feinstein

Member

NOAH FEINSTEIN is associate professor in the Department of Curriculum and Instruction, School of Education, University-Wisconsin, Madison. He explores the value of science in the social and political lives of non-scientist citizens. He is interested in identifying and investigating social mechanisms through which scientific institutions and practices can make societies more, rather than less, democratic, and he believes that some of those mechanisms are educational in nature. Dr. Feinstein's current projects focus on public engagement with science among parents of recently diagnosed autistic children, the contribution of learning (writ large) to climate change adaptation, the impact of changing scientific practices on scientist outreach, and the need for museums and science centers to forge better connections with their diverse communities. He received his B.A. in biological sciences at Harvard University in Cambridge, M.A. and both his M.S. in biological sciences, neural development, and Ph. D. in science education at Stanford University.

S. James Gates, Jr.

Member

S. JAMES GATES, Jr. (NAS) is a University System of Maryland Regents Professor, John S. Toll Professor of Physics, and the director of the Center for String and Particle Theory at the College Park campus and is in his forty-first consecutive year of teaching physics and/or mathematics at the college level. Dr. Gates serves on the U.S. President's Council of Advisors on Science and Technology (PCAST), and the Maryland Board of Education. Dr. Gates is known for his groundbreaking scientific work in supersymmetry, supergravity, and string theory. In 1984, with M. T. Grisaru, M. Rocek, W. Siegel, Gates co-authored *Superspace*, the first comprehensive book on the topic of supersymmetry which is still considered a standard in the field almost three decades later. Professor Gates has appeared in many video documentary programs including *The Elegant Universe*, *Einstein's Big Idea*, *Fabric of the Cosmos*, *The Hunt for the Higgs*, and *Mankind: The Story of all of US*. He is a Fellow of the American Physics Society, American Association for the Advancement of Science, National Society of Black Physicists, and British Institute of Physics. He is also a member of the Board of Trustees of Society for Science & the Public, the Board of Advisors for the Department of Energy's Fermi National Laboratory, an elected member of the American Academy of Arts and Sciences, and the American Philosophical Society. He is a recipient of the 2011 Medal of Science, the highest recognition given by the U.S. government to scientists with the citation, for his contribution to the mathematics of supersymmetry in particle, field, and string theories and his extraordinary efforts to engage the public on fundamental physics. In 2013, he was elected to the National Academy of Sciences, becoming the first African-American physicist so recognized in its 150-year history. Professor Gates holds two B.S. degrees (mathematics and physics) and a Ph.D. in Physics all from MIT.

Louis M. Gomez

Member

LOUIS GOMEZ holds the MacArthur Chair in Digital Media and Learning in the Graduate School of Education and Information Studies at the University of California Los Angeles. Gomez has served since 2008 as a senior partner at the Carnegie Foundation for the Advancement of Teaching, where he leads the Network Development work. Beginning in 2009, he held the Helen S. Faison Chair in Urban Education at the University of Pittsburgh, where he was also director of the Center for Urban Education and a senior scientist at the Learning Research and Development Center. From 2001 to 2008, he held a number of faculty appointments at Northwestern University, including the Aon Chair in the Learning Sciences at the School of Education and Social Policy. Prior to joining academia, he spent 14 years working in cognitive science and person-computer systems and interactions at Bell Laboratories, Bell Communications Research Inc. and Bellcore. His research interests have encompassed the application of computing and networking technology to teaching and learning, applied cognitive science, human-computer interactions and other areas. Dr. Gomez is a member of the National Academy of Education. He received his B.A. in psychology from the State University of New York at Stony Brook, and a Psy.D. in cognitive psychology from UC Berkeley.

Alexa T. McCray

Member

ALEXA MCCRAY (NAM) is Professor of Medicine at Harvard Medical School and the Department of Medicine, Beth Israel Deaconess Medical Center. She conducts research on knowledge representation and discovery, with a special focus on the significant “Tower of Babel” problems that persist in the curation, dissemination, and exchange of scientific and clinical information in biomedicine and health. Dr. McCray is the former director of the Lister Hill National Center for Biomedical Communications, a research division of the National Library of Medicine at the National Institutes of Health. While at the NIH, she directed the design and development of a number of national information resources, including ClinicalTrials.gov. Before joining the NIH she was on the research staff of IBM’s T.J. Watson Research Center. Dr. McCray joined Harvard Medical School in 2005, where she was founding co-director of the Center for Biomedical Informatics and associate director of the Francis A. Countway Library of Medicine. Dr. McCray was elected to the National Academy of Medicine (formerly IOM) in 2001. She is the incoming co-chair of the National Research Council’s Board on Research Data and Information. She is a fellow of the American Association for the Advancement of Science and a fellow of the American College of Medical Informatics (ACMI). She is the immediate past president of ACMI and is a past member of the board of both the American Medical Informatics Association and the International Medical Informatics Association. She received her B.A. in modern languages from Skidmore College, M.A. in German literature and language from Boston College, M.S. in linguistics from Georgetown University, and Ph.D. in linguistics, with distinction, from Georgetown University.

Janet Ohene-Frempong

Member

JANET OHENE-FREMPONG is president of J O Frempong & Associates, Inc. and a plain language and crosscultural communication consultant with over 25 years of experience in patient/provider communications. Her consulting business provides a range of communication services including consumer research, materials and forms development, program development, presentations, seminars and institution-based coaching in consumer health communications. Formerly Director of the Health Literacy Project at the Health Promotion Council of Southeastern Pennsylvania, she has conducted workshops and provided consultation on plain language and cross-cultural communication for a wide range of health information providers, including health care systems, government agencies, health insurers, pharmaceutical companies, biotechnology companies, medical publishers, health and human service agencies as well as schools of medicine, nursing and allied health. Janet is co-author of Literacy, Health and the Law: An Exploration of the Law and the Plight of Marginal Readers within the Health Care System, a monograph for health system and pharmaceutical industry administrators and risk managers. Additionally, she is the co-author of a chapter entitled "Health Care for African Americans" in Rethinking Ethnicity and Health Care, a discussion of the role of marginal literacy as one of several barriers to optimal care. She has served on a number of national boards and advisories and is a founding member of the Clear Language Group. She received a B.A. in political science from Cornell University and an M.S. in public health nutrition from Columbia University Teachers College.

Jonathan Osborne

Member

JONATHAN OSBORNE holds the Kamalachari Chair in Science Education at the Graduate School of Education, Stanford University. Previously he held the Chair in Science Education at King's College London. He was a co-author of the report Beyond 2000: Science Education for the Future, and an advisor to the UK House of Commons Science and Technology Committee in 2002 for their report on Science Education. He was a member of the National Academy of Sciences Panel that produced the Framework for K-12 Science Education that is the basis for the new Next Generation Science Standards. Currently he is chair of the expert group that produced the framework for the science assessments conducted by the OECD Program for International Student Assessment (PISA) in 2015 and 2018. His research interests are in the role of argumentation in science and improving the teaching of literacy in science. He received a B.Sc. in physics from Bristol University, a Post Graduate Certificate in education from Cambridge University, a Masters in astrophysics from Queen Mary College at the University of London, and a Ph.D. in education from King's College at the University of London.

Eugenie C. Scott

Member

EUGENIE C. SCOTT (NAS) is the founding Executive Director of the National Center for Science Education (NCSE). Dr. Scott, a former university professor, served as the executive director of NCSE from 1987 to 2014; she now serves on NCSE's Advisory Council. She has been both a researcher and an activist in the creationism/evolution controversy for over twenty-five years, and can address many components of this controversy, including educational, legal, scientific, religious, and social issues. She has received national recognition for her NCSE activities, including awards from scientific societies, educational societies, skeptics groups, and humanist groups. She holds nine honorary degrees, from McGill, Rutgers, Mt. Holyoke, the University of New Mexico, Ohio State, the University of Wisconsin-Milwaukee, Colorado College, the University of Missouri-Columbia, and Chapman University. With Jon Miller and Shinji Okamoto, Scott is the author of *Public Acceptance of Evolution*. Additionally, Scott coedited *Not in Our Classrooms: Why Intelligent Design Is Wrong for Our Schools*. She received her B.S. and M.S. in Physical Anthropology from the University of Wisconsin-Milwaukee and her Ph.D. in Physical Anthropology from the University of Missouri.

Earnestine Willis

Member

EARNESTINE WILLIS is a Kellner Professor in Pediatrics; Director of the Center for the Advancement of Underserved Children in the Department of Pediatrics and her secondary appointment is in the Institute of Health & Society (IHS) at the Medical College of Wisconsin (MCW). Before coming to MCW, she spent 15 years directing a Federally Qualified Look-A-Like Health Center at the University of Chicago. In addition, from 2000 to 2003, she was the Chair of the State of Wisconsin Tobacco Control and Prevention Board and led the State of Wisconsin in the development of its tobacco prevention program. Under Dr. Willis' leadership at MCW, she initiated the Community Pediatric Training Initiative (CPTI), now an American Academy of Pediatrics national model to train pediatric residents in community-based programs and child advocacy. She has a longstanding track record of advocating for children and has taken on various leadership roles to document the social and health needs of children in underserved neighborhoods and designed effective interventions to address health disparities for low-income families. Recently in 2012, she was recognized for her exemplary community efforts by being awarded an Honorary Doctoral (Ph.D.) from Cardinal Stritch University; recipient of the Community Impact Award by the Medical Society of Milwaukee County as well as many more honors and awards. Dr. Willis has an established track record in maternal and child health and has practiced in urban communities facing health disparities for more than three decades across several large cities. She has led numerous successful initiatives including school-based health services; adverse birth outcomes through a community-based life course perspective; early literacy promotion; oral health improvement; child advocacy; emergency preparedness; and supporting lactation in the workplace for women returning to work. Currently, she is the Principal Investigator for the Community Health Improvement for Milwaukee's Children (CHIMC) project, which is funded by NIMHD/NIH. Dr. Willis received a B.S. from Tougaloo College, an M.D. from Harvard Medical School, and an M.P.H. from Harvard School of Public Health.

Kenne Dibner

Staff Officer

Kenne Dibner, Ph.D., is a program officer with the Board on Science Education. Prior to this position, Kenne worked as a research associate at Policy Studies Associates, Inc. (PSA), where she conducted evaluations of education policies and programs for government agencies, foundations, and school districts. Most recently, Kenne concluded an evaluation of a partnership with the Department of Education, the National Park Service and the Bureau of Indian Education to provide citizen science programming to tribal youth. Prior to working at PSA, she worked as a research consultant with the Center on Education Policy and served as a legal intern for the U.S. House of Representatives' Committee on Education and the Workforce. Kenne holds a Ph.D. in Education Policy from Michigan State University, where she completed her dissertation on the role of military recruiting in public high schools.