

Successful Out-of-School STEM Learning

Committee

Eric J. Jolly

Chair

ERIC JOLLY is president of the Science Museum of Minnesota. Before coming to the Science Museum, he served as senior scientist and vice president at the Education Development Center in Newton, Massachusetts. He was a member of the NRC's Board on Mathematical Sciences. He has published numerous articles, books, and curricula, and lectured around the world on the importance of science learning in contemporary societies and the importance of participation in Science, Technology, Engineering, and Math (STEM) education. In October 2012, Jolly was appointed by President Barack Obama to the National Museum and Library Services Board (NMLSB). Dr. Jolly works with a number of groups promoting STEM education, including the American Association for the Advancement of Science, the National Action Council for Minorities in Engineering, the National Council for Teachers of Mathematics, and the National Science Teachers Association. He is also active in many youth, family, and community organizations, including Youth Alive!, The Innovation Center, American Youth Policy Forum, the American Museum of Natural History, the Open Society Institutes' youth media programs, and the Healthy Families 2010 project of the American Association for the Advancement of Science. Dr. Jolly also serves on numerous national advisory boards, including the Smithsonian National Museum of the American Indian, Committee on Opportunities in Science for the American Association for the Advancement of Science, and the Cornell Laboratory of Ornithology. He is a member of numerous honor societies, including Sigma Xi, Phi Eta Sigma, Mortarboard, and Golden Key, and is also a life member of the Society for Advancement of Chicanos and Native Americans in Science. Dr. Jolly has a Ph.D. in psychology from the University of Oklahoma, and studied physics and psychology as an undergraduate.

Bronwyn Bevan

Member

BRONWYN BEVAN is associate director of the Exploratorium's Center for Learning and Teaching. Dr. Bevan's work includes institutional research, art as a way of knowing, youth programs, strategic program development, and field-wide collaborations that advance informal science education. She is the director of the Exploratorium's NSF-funded Center for Informal Learning and Schools and serves as principal investigator or co-principal investigator on several projects including the NSF Academies for Young Scientists Research & Evaluation Center; the Museums Afterschool: Principles, Data, and Design project; and the Relating Research to Practice website. Her publications and work in both research and professional development focus on strengthening partnerships between cultural institutions and other educational organizations, and building understanding about the ways different settings shape opportunities for learning. She is the editor of the Science Learning in Everyday Life section of the journal Science Education. Dr. Bevan earned her Ed.D. from the Graduate Center of the City University of New York.

Jane E. Buikstra

Member

JANE BUIKSTRA (NAS), is Regent's professor of bioarchaeology in the School of Human Evolution and Social Change, and director of the Center for Bioarchaeological Research at the Arizona State University. Dr. Buikstra is a member of the National Academy of Sciences. She is credited with forming the discipline of bioarchaeology, the international field that applies biological anthropological methods to the study of archaeology. She is president of the board of directors of the Center for American Archeology, an institution known for its informal education programs for and about Native Americans. She has been a research associate at a number of museums including the National Museum of Natural History. Her international research encompasses bioarchaeology, paleopathology, forensic anthropology and paleodemography. Among current research projects she is investigating the evolutionary history of ancient tuberculosis in the Americas based on archaeologically-recovered pathogen DNA. Among recent honors, Dr. Buikstra was awarded the T. Dale Stewart Award by the American Academy of Forensic Sciences, and the Charles R. Darwin Lifetime Achievement Award from the American Association of Physical Anthropologists. In 2011, she also received the Eve Cockburn Award for Service from the Paleopathology Association. She is the president of the Center for American Archaeology and has served as past president of the American Association of Physical Anthropologists, the American Anthropological Association and the Paleopathology Association. Professor Buikstra is also the inaugural editor-in-chief of the International Journal of Paleopathology. She has published more than 20 books and 150 articles and has mentored more than 40 doctoral students. Her recent work includes the 2012 book *The History of Paleopathology: Pioneers and Prospects*, which she co-edited with Charlotte Roberts.

Dr. Buikstra received her B.A. in anthropology from DePauw University and her M.A. and Ph.D. in anthropology from University of Chicago.

Jacquelynne Eccles

Member

JACQUELYNNE ECCLES is distinguished professor of education at the University of California, Irvine. Dr. Eccles was previously the McKeachie-Pintrich Distinguished University Professor of Psychology and Education at the University of Michigan. She is a member of the NRC Board on Science Education and chaired the Committee on Community-Level Programs for Youth. Professor Eccles's research interests include family and school influences on development; development in high risk settings; development of self-esteem, activity preferences, and task choice; adolescent development; identity formation; transition into adulthood; biosocial influences and development; gender role development; and role of ethnicity in development and socialization. As research professor for the Institute for Social Research, Research Center for Group Dynamics, Professor Eccles' recent work includes investigations of (a) declines in adolescents' motivation, self-concept, and mental health associated with the junior and senior high school transitions; (b) development of self-schema and motivational beliefs during middle childhood years in the context of family and school environments; and (c) impact of family, social class, school, neighborhood, and ethnicity on the development of motivation, self-schemas, mental health, and engagement in both positive and risky activities among a large sample of African-American and Caucasian adolescents. Most recently, Dr. Eccles has been awarded the American Psychological Foundation 2013 Gold Medal for Life Achievement. She received her Ph.D. in developmental psychology from the University of California, Los Angeles.

John Falk

Member

JOHN FALK is Sea Grant Professor of Free-Choice Learning and the founding interim director of the Center for Research on Lifelong STEM Learning at Oregon State University. Dr. Falk is internationally known for his research on how people learn outside of school. He has authored over 100 scholarly articles and chapters in the areas of learning, biology, and education, more than a dozen books, as well as helped to create several nationally important out-of-school educational curricula. His research focuses on the study of learning in free-choice learning settings (with particular focus on museums and eco-tourism venues); understanding the role of situated identity in leisure/tourist decision-making and learning; and investigating how the public utilizes free-choice educational institutions to support their long-term science learning. Dr. Falk is currently leading an effort to understand connected STEM learning of underserved youth within an educational ecosystem of a Portland neighborhood. Dr. Falk was the founder and director of the Institute for Learning Innovation which conducted research and evaluation to promote and enhance the field of free-choice learning, and previously served in educational leadership roles at the Smithsonian Institutions. He has also been an instructor in K-12 and 2- and 4-year institutions. He has and continues to serve on many science education boards, including the editorial board of Curator, the National Education Committee of the U.S. National Park Service, and the Education Committee of the Oregon Museum of Science & Industry. He received his B.A., MA., and Ph.D. from the University of California, Berkeley.

Maya Garcia

Member

MAYA GARCIA is the STEM specialist for the Office of the State Superintendent of Education for the District of Columbia, and was most recently instrumental in the adoption process of the Next Generation Science Standards. She has served nationally on the Committee for Multicultural Equity for the National Science Teachers Association, and has recently completed her tenure as the president of the DC Science Teachers Association. She has worked as a mentor teacher for The Center for Inspired Teaching and the Carnegie Academy of Science Education and has served on the teacher advisory board for several local museums. She was the featured STEM educator in the STEM careers publication for the USA Science and Engineering Festival in 2013. Ms. Garcia is also a member of American Association of University Women. She is the recipient of numerous awards and fellowships, including a Fulbright Distinguished Teaching Award, in which she studied how South African educators use hands-on, field based learning opportunities to teach STEM, and how schools can leverage local resources to support embedded STEM curricula. She secured numerous grants for her school and worked collaboratively with community partners to develop STEM enrichment opportunities for students in marine science, rocketry, environmental science, and engineering. Ms. Garcia received a B.A. in neuroscience and behavior from Mount Holyoke College, MA, and her M.A. degree from American University, in Washington, DC.

Leslie Goodyear

Member

LESLIE GOODYEAR, is principle research scientist with the Education Development Center. Dr. Goodyear is the senior research associate on the Information Technology Experiences for Students and Teachers (ITEST) Learning Resource Center. She brings more than 15 years of experience evaluating educational projects and programs at local, regional, national, and international levels. She has conducted evaluations and evaluation capacity building in formal and informal educational settings, afterschool, youth civic engagement, HIV prevention, youth development, and human services programs, with a recent focus on STEM educational programs in informal settings. Goodyear is responsible for coordinating evaluation initiatives and leveraging evaluation capacity across the Learning and Teaching Division. Dr. Goodyear is currently overseeing the impact evaluation of an NRC consensus study in communicating chemistry. She is the principal investigator for the program evaluation of the NSF Broadening Participation in Computing–Alliances program. From 2009 to 2011, she took a leave from EDC to serve as a program officer at the National Science Foundation, where she administered grants in the ITEST, Informal Science Education, Promoting Research and Innovation in Methodologies for Evaluation, and CAREER programs, supervised evaluation and research contracts, and developed directorate and division level evaluation policy. Dr. Goodyear is the Ethical Challenges section editor of the American Journal of Evaluation, and lead editor of Qualitative Inquiry in the Practice of Evaluation (forthcoming). In January 2014, she will become the Associate Editor of the American Journal of Evaluation. Goodyear received a B.S. from Macalester College and M.S. and Ph.D. degrees from Cornell University.

Lynn S. Liben

Member

LYNN LIBEN is distinguished professor of psychology at The Pennsylvania State University where she also holds faculty appointments in the College of Health & Human Development and in the College of Education. She is a member of the NRC Board on Science Education and was a member of the Committee on Support for Thinking Spatially: The Incorporation of Geographic Information Science Across the K-12 Curriculum. Her research focuses on spatial cognition, its development, and on how individual differences in spatial cognition are relevant for science education. Illustrative is research examining children's and adults' success in identifying locations and directions on maps, and adults' success in mapping geological data. She has used her research to help design educational programs for television, museums, and classrooms. A second focus of Dr. Liben's research is on gender development, gender stereotypes, and how these influence educational and occupational goals. At the intersection of her interests in spatial and gender development are current projects examining the impact of spatial-skills training on middle-school students' STEM achievement and interests, and the reasons that boys consistently achieve greater success than girls on the National Geographic Bee. Dr. Liben is currently president-elect of the Society for Research in Child Development, former president of the Piaget Society and of the Developmental Psychology Division of APA, and past editor of *Child Development* and the *Journal of Experimental Child Psychology*. She is a fellow of the American Psychological Association, the Eastern Psychological Association, the Association for Psychological Science, and the American Educational Research Association. Dr. Liben earned her B.A. at Cornell University and her Ph.D. at the University of Michigan, both in psychology.

Milbrey W. McLaughlin

Member

MILBREY MCLAUGHLIN is the David Jacks Professor of Education and Public Policy, Emerita, at Stanford University and the founding director of the John W. Gardner Center for Youth and Communities. She also is co-director of the Center for Research on the Context of Teaching, an interdisciplinary research center engaged in analyses of how teaching and learning are shaped by teachers' organizational, institutional, and social cultural contexts. She was a member of the National Research Council committee on Successful STEM in Schools. McLaughlin has focused throughout her career on the various institutional contexts and policies that shape youth outcomes, particularly through schools and community-based institutions. The Gardner Center embodies McLaughlin's interest in identifying and understanding the

cross-institutional issues that shape settings within and through which youth move, and in advancing a youth sector stance to inform policy and practice. She is the author or co-author of many books, articles, and chapters on education policy issues, contexts for teaching and learning, productive environments for youth, and community based organizations. Dr. McLaughlin holds a B.A. in philosophy from Connecticut College and an Ed.M. and Ed.D. in education policy from the Harvard Graduate School of Education.

Vera Michalchik

Member

VERA MICHALCHIK is director of research on informal learning environments in SRI International's Center for Technology in Learning. Trained in educational psychology and anthropology, for 20 years she has been researching the relationships and differences between learning in and out of school, focusing on the social and cultural aspects of learning.

At SRI, Michalchik conducts multi-method studies of new educational programs in the United States and abroad. She leads the evaluation of NSF's Informal Science Education program, researches worldwide education programs funded by the Intel Foundation, and studies interest-driven learning as a member of the MacArthur-funded Connected Learning Research Network and in other youth-centered digital media and making/tinkering programs. Dr. Michalchik also does research on new approaches to teacher professional development, the relationship of research and practice, and communication of cutting-edge science. She was a co-PI on an NSF-funded chemistry visualization research and development project, ChemSense, and has studied other math and science development projects, including SimCalc. From 2006-2009, she served on the NSF-sponsored Committee on Learning Science in Informal Environments at the National Research Council. Michalchik received her B.A. in film studies from the University of California, Berkeley, her Ed.M. in human development from Harvard University, and a Ph.D. in educational psychology from Stanford University.

Nancy Peter

Member

NANCY PETER is the founder and Director of the Out-of-School Time Resource Center (OSTRC). Starting her career in the field of environmental education, Nancy Peter worked as the school programs coordinator for Amherst's Hitchcock Center for the Environment, as director of education at Philadelphia's Academy of Natural Sciences, and as curriculum manager for the Fairmount Park Commission. Her interest in underserved youth and experience with multiple afterschool programs led to her position as Senior Policy Specialist for Youth and Afterschool in Philadelphia's Office of Children's Policy. Prior to working at the OSTRC, Dr. Peter worked in Philadelphia's Best Practices Institute as their afterschool project manager. She is also a certified elementary teacher, secondary science teacher, and instructor in the Pennsylvania Quality Assurance System. Dr. Peter received her B.A. and her Master of Education from the University of Massachusetts and her Ed.D. from the University of Pennsylvania.

Cary I. Sneider

Member

CARY SNEIDER is associate research professor at Portland State University in Portland, Oregon, where he teaches courses in research methodology for teachers in a Master of Science Teaching (MST) degree program. Dr. Sneider also serves as a Consultant on STEM Education for the Noyce Foundation, the Stephen D. Bechtel Jr. Foundation, and on several advisory boards. From 1997 to 2007 Dr. Sneider was Vice President for Educator Programs at the Museum of Science in Boston, where, amongst other things, he led the development of a high school engineering curriculum. He also served as Director of Astronomy and Physics Education at the Lawrence Hall of Science at the University of California. Dr. Sneider served on multiple NRC committees, including a working group for the National Science Education Standards and the technology and engineering lead for the Conceptual Framework for K-12 Science Education. He has worked on national and state-wide science efforts including the Planning Committee for the Science Framework for the 2009 National Assessment of Educational Progress, the revision of the Washington State K-12 Science Standards in 2008-2009, and as Co-Chair of the Planning Committee for the Technology and Engineering Literacy Framework for the 2014 National Assessment of Educational Progress (NAEP). He is currently a member of the National Assessment Governing Board, which sets policy for NAEP in all subject areas.

Jill Walahoski

Member

JILL WALAHOWSKI is an extension educator at the University of Nebraska.

Dr. Walahowski provides state and national leadership to strategic planning and evaluation for extension and youth development programs through her work with the University of

Nebraska-Lincoln. Additionally, she works with a diverse clientele of organizations to improve their outreach through intentional program planning, Logic Model development, and effective and efficient assessment strategies.

Dr. Walahowski has broad experience with training and leadership strategies for organizations that employ young adults/college students. She also facilitates workshops on team-building, effective communication, and interpersonal development. Dr. Walahowski earned her Ph.D. from University of Nebraska at Lincoln.