

Enhancing the Reach and Contributions of Informal STEM Learning

Committee

Leslie Herrenkohl

Chair

Leslie Herrenkohl is the Annemarie Sullivan Palincsar Endowed Professor of the Learning Sciences and Director of the Eileen Lappin Weiser Center for the Learning Sciences at the University of Michigan. Before joining the University of Michigan in 2018, she worked for 22 years at the University of Washington. Herrenkohl's research focuses on human learning and pedagogical practice inside and outside of school, particularly in community-engaged science learning contexts. She brings a holistic, critical sociocultural approach to examining how people learn concepts, develop practices, and transform their participation in activities that matter to them. She currently serves on the editorial board for *Cognition & Instruction* and previously served on the advisory panel for the National Academies practitioner guide *Surrounded by Science* (2010) designed to support professionals working in informal science education, and on the consensus study panel that produced the report, *English Learners in STEM Subjects: Transforming Classrooms, Schools, and Lives* (2018). She received her Ph.D. in developmental psychology from Clark University.

June Ahn

Member

June Ahn is Professor of Learning Sciences and Research-Practice Partnerships, and a Senior Associate Dean at the University of California, Irvine (UCI) School of Education, where he directs the Design & Partnership Lab (daplab). He is also the founder of UCI's Organizing Collaboration for Educational Advancement Network (OCEAN), which develops research-practice partnerships (RPPs) between UCI scholars and community organizations, and is a faculty member of UCI's Connected Learning Lab. His research sits at the intersection of participatory design methods, human-computer interaction, learning sciences, and community partnerships, and in the daplab, his team designs innovative technologies and systems that promote change efforts in STEM education. He conducts research on what is possible with new media and learning technologies ranging from social media tools for young learners to share science, alternate reality games for scientific inquiry, data visualization systems for K-12 teachers to improve their instruction, and AI-based assessments of students' funds of knowledge. All of his work involves collaborations with community organizations, afterschool programs, and schools, with solutions that are co-designed. Prior to UCI, he was an Associate Professor at New York University in the Digital Media Design for Learning and Games for Learning programs, an Associate Professor in the College of Information Studies and the College of Education at University of Maryland, College Park (UMD), and the Director of the Human-Computer Interaction Lab at UMD. Ahn is a previous recipient of the Chancellor's Faculty Award for Undergraduate Mentorship at UCI. He received his Ph.D. in urban education policy from the University of Southern California.

Thomas Akiva

Member

Thomas Akiva is Professor of Youth Development and Chair of the Department of Health and Human Development at the University of Pittsburgh School of Education. His research focuses on understanding and improving out-of-school learning program experiences for children and youth, creating equitable ecosystems for learning and development, and strengthening youth development program practices, particularly through supporting the practitioners who work directly with young people. Using mixed methods and participatory approaches, he collaborates within research-practice partnerships to connect scholarship with practical application and his applied research examines youth-adult relationships, arts education, continuous improvement, and equity in educational and developmental systems. In 2022, he co-edited *It Takes an Ecosystem: Understanding the People, Places, and Possibilities of Learning and Development Across Settings*. Previously, Akiva served on the National Academies consensus study panel that produced the report, *The Future of Youth Development: Building Systems and Strengthening Programs* (2025). He received his Ph.D. in education and psychology from the University of Michigan.

Vicki L. Chandler

Member

Vicki Chandler is Provost Emerita of Minerva University where she worked for 11.5 years in several roles before retiring in 2024. Prior to joining the faculty at Minerva University, she was the Chief Program Officer for Science at the Gordon and Betty Moore Foundation, overseeing the informal science program portfolio. Chandler was also a professor for a span of 26 years at the University of Arizona and the University of Oregon. She has previously participated in a number of activities of the National Academies, including serving as a board member for the Board on Life Sciences and the Board on Science Education, as the chair of the committee that reviewed the Marian Koshland Science Museum (now LabX), and as a committee member for several consensus studies. Chandler has also served on education advisory boards for the Howard Hughes Medical Institute. She is an elected member of the National Academy of Sciences (NAS), a Fellow of the American Association for the Advancement of Science, and the previous recipient of the Presidential Young Investigator Award and the NIH Director's Pioneer Award. She received her Ph.D. in biochemistry from the University of California, San Francisco.

Dianne Chong

Member

Dianne Chong is the former Vice President of The Boeing Company's Engineering, Operations & Technology organization where she led materials and manufacturing research and development and production program integration for over 28 years. She is an elected member of the National Academy of Engineering (NAE), and has consistently participated in a number of activities of the National Academies, including serving as a member of the NAE Council and the Pathways into Engineering Steering Committee, as a member of the Governing Board of the National Research Council, as a member of advisory committees for the Division of Behavioral and Social Sciences and Education, the Board on Science, Technology, and Economic Policy, the Defense Materials, Manufacturing, Infrastructure Committee, and the National Materials Advisory Board, as co-chair of EngineerGirl and the Practices for Engineering Education and Research (PEER) Program, and as a member of numerous consensus study and workshop panels. She has also served on the advisory committee for the National Science Foundation's Directorate for Engineering. Chong is past president of ABET (formerly the Accreditation Board for Engineering and Technology, Inc.) and served on its Inclusion, Diversity, and Equity Advisory Council, is past president and Fellow of the SME (formerly the Society for Manufacturing Engineers) and serves on the SME Education Foundation Board, and is the first female president and an elected Fellow of ASM International (formerly the American Society for Metals). Other career awards include the Alumna Achievement Award from the University of Illinois, induction into the inaugural class of the Women in Manufacturing Hall of Fame, and election into the Washington State Academy of Science. Chong is also a member of the Minerals, Metals & Materials Society (TMS), the American Institute of Aeronautics and Astronautics (AAIA), the ASM International, the Society of Women Engineers (SWE), Beta Gamma Sigma, and Tau Beta Pi. She received her Ph.D. in metallurgical engineering from the University of Illinois.

Heidi D. Cian

Member

Heidi Cian is the Research Team Lead at the Maine Mathematics and Science Alliance, where she leads applied research that bridges research, practice, and policy in informal STEM education. She develops and studies professional learning initiatives that advance identity development, career-connected STEM learning, and long-term partnerships with rural schools, community organizations, and families. Her scholarship focuses on how informal and community-based learning environments shape identity, belonging, and participation in STEM, and how research and measurement approaches can evolve to reflect relational, culturally grounded, and context-responsive forms of learning. Cian serves as an Associate Editor for the Journal of Science Teacher Education and the Journal of Research in Science Teaching, and is a recently appointed Strand Co-Coordinator (Strand 6: Science Learning in Informal Contexts) for the National Association for Research in Science Teaching. She is also a current member of the National Academies Collaborative for Advancing Science Teaching and Learning in K-12 (CASTL-K12). Cian received her Ph.D. in science curriculum and instruction from Clemson University.

Kirsten Ellenbogen

Member

Kirsten Ellenbogen is President and Chief Executive Officer of Great Lakes Science Center in Cleveland, Ohio. A defining hallmark of Ellenbogen's tenure as Great Lakes Science Center is her commitment to building strong community partnerships. Her research is focused on the intersection of rhetoric, science communication, and informal science education and her energetic leadership on field-advancing initiatives include the Museum Learning Collaborative, the Center for Informal Learning and Schools, the Nanoscale Informal Science Education Network, and serving as co-principal investigator of the Center for Advancement of Informal Science Education. She serves as a board officer for numerous local and national boards and is the current chair of the Cleveland Water Alliance board of directors, secretary of the board of the North Coast Waterfront Development Corporation, and member of board of the Rock and Roll Hall of Fame and Museum, and the Committee of Visitors for the Washkewicz College of Engineering. Ellenbogen is also a current member of the National Academies Board on Science Education, and has previously served in a number of other National Academies activities including as co-chair of the Standing Committee on Advancing Science Communication, as chair of the Planning Committee for the Convocation on the Status of Informal Science Education, and as a member of the consensus study panel that produced the report, Learning Science in Informal Environments: People, Places & Pursuits (2009). She received her Ph.D. in science education from Vanderbilt University.

Cecilia Garibay

Member

Cecilia Garibay is President of Garibay Group and is a leading voice in the study and development of equity-focused research and evaluation practices in museum and other informal learning settings. She specializes in culturally responsive, transformative methodologies, and has led numerous evaluations in the field of informal learning, serving as co-PI on various national initiatives in informal STEM learning spaces. Her research also focuses on organizational change in designed informal learning spaces to support shifts in the systems and practices that can preclude engagement, and she has developed frameworks tools for practitioners to support broadening participation. Previously, she was co-PI for the Center for the Advancement of Informal Science Education (CAISE), a panelist and author for National Science Foundations' publication Framework for Evaluating Impacts of Informal Science Education Projects (2008), and a member of the National Academies consensus study panel that produced the report, Learning Science in Informal Environments: People, Places & Pursuits (2009). Garibay is also a past board member of the Visitor Studies Association. She received her Ph.D. in psychology from Saybrook University.

Marijke Hecht

Member

Marijke Hecht is Assistant Professor of Environmental Education in the School of Environment and Natural Resources at The Ohio State University. Her research focuses on urban communities where she works collaboratively with educators and youth to understand and develop pathways for people to learn about and care for the natural world. Using design-based research, she explores questions of how experiences across home, school, and informal spaces (e.g., parks, museums) support environmental interest and identity development throughout the lifespan, questions of environmental literacy about complex ecological issues, and the structure and function of learning ecosystems. Prior to her work in academia, Hecht taught middle and high school mathematics and science in New York City Public Schools and spearheaded two major urban environmental restoration projects in Pittsburgh, PA - advocating for the Nine Mile Run aquatic ecosystem restoration, one of the largest urban stream improvements in the U.S., and managing the design and construction of the award-winning Frick Environmental Center, a public education hub, welcome facility and park gateway. She received her Ph.D. in Learning Sciences and Policy from the University of Pittsburgh.

Molly L. Kelton

Member

Molly Kelton is an Associate Professor of Mathematics Education in the Department of Teaching and Learning at Washington State University. Her primary research expertise is in informal STEM learning, including mathematics learning in art and science museums, video-based methodologies for studying STEM learning in informal settings, design-based research on arts-integrated STEM learning in museums and community-based organizations, interdisciplinary and multi-institutional partnerships, and professional development for informal STEM educators. She has contributed to research and design of several nationally recognized mathematics exhibitions, including Math Moves!, Design Zone, and Taping Shape. She has held leadership roles on several large, collaborative partnerships in informal STEM learning, including the Informal Mathematics Collaborative, which is a partnership among university mathematics educators, art and science museums, and community organizations serving under-represented youth, and HEAL (Health Equity through Arts-Based Learning). Kelton received her Ph.D. in mathematics and science education from the University of California, San Diego.

Mwenda KudumuBiggs

Member

Mwenda KudumuBiggs is the Vice President of Community Service and Engagement at the Fleet Science Center in San Diego, CA. A museum professional with 30 years' experience designing informal STEM programs and exhibits, KudumuBiggs was the Founding Director of the University of Cape Coast, Science and Technology Center; the Coordinator of Public Programs at the Museum of Life and Science; the Science Manager for the Children's Museum of Manhattan; the Outreach Coordinator for the California Academy of Sciences; and a Science Educator for the Lawrence Hall of Science. Her research interests explore culturally relevant practices in informal STEM contexts, inspired by the need for all voices to rejoin the science conversation and a commitment to the presence of all people in STEM futures. KudumuBiggs is the previous recipient of a National Science Foundation Racial Equity Grant, the Jhumki Basu Scholar Award, and the Agnes and Garfield Stiff Award. She earned her Ph.D. in Teaching and Learning in STEM from North Carolina State University.

Bruce V. Lewenstein

Member

Bruce Lewenstein is Professor of Science Communication and University Ombuds at Cornell University. Trained as a historian of science, he works across the field of public communication of science and technology, including informal science education, citizen science, and communication training for scientists. He is the former chair of the Department of Science & Technology Studies at Cornell University and former editor of the journal *Public Understanding of Science*. Lewenstein has also participated in a number of activities of the National Academies, including serving as co-chair of the consensus study panel that produced the report, *Learning Science in Informal Environments: People, Places & Pursuits* (2009), and as a member of the consensus study panels that produced the reports, *Effective Chemistry Communication in Informal Environments* (2016) and *Learning Through Citizen Science: Enhancing Opportunities by Design* (2018). He has also served as chair of the sections on societal implications of science and engineering, and on general interest in science and engineering, for the American Association for the Advancement of Science (AAAS). Lewenstein is the first Presidential Fellow at the Chemical Heritage Foundation (now the Science History Institute), an elected Fellow of AAAS, and the inaugural winner of the PCST Award for advancement of science communication as a professional field. He received his Ph.D. in history and sociology of science from the University of Pennsylvania.

Ananda M. Marin

Member

Ananda Marin is an Associate Professor and Vice Chair of Graduate Education in the Department of Education at the University of California, Los Angeles. She also serves as faculty in American Indian Studies. Her primary expertise is in using participatory design research and video-ethnographic traditions to study the cultural nature of learning and development and to co-design learning environments alongside families, teachers, and community-based organizations. Marin's research specifically explores the ways that multigenerational groups of people organize attention and observation to participate in joint activity, collaborate, and improvise in everyday and professional science-related and arts-based contexts. In her work, she also collaborates with educators, practitioners, Indigenous communities, community-based organizations, and small collectives to design educational environments that cultivate community well-being. Marin is the previous recipient of the International Society of the Learning Sciences Early Career Award and the Lena Astin Faculty Mentoring Award from UCLA's Department of Education. She received her Ph.D. in learning sciences from Northwestern University.

Rae Ellen M. Ostman

Member

Rae Ostman is a Research Professor in the School for the Future of Innovation in Society and a Co-director of the Center for Innovation in Informal STEM Learning at Arizona State University. She has held previous appointments at the Science Museum of Minnesota, Royal Ontario Museum, Sciencenter (Ithaca, NY), and the Exploratorium (San Francisco, CA). She is also a member of the leadership group of the National Informal STEM Education Network (NISE Net), and has broad experience in STEAM (science, technology, engineering, arts, and math) education and engagement, including planning, developing, implementing, and studying learning experiences; designing and implementing professional development programs; evaluating projects; and building partnerships within and across organizations. She is a previous recipient of the American Geophysical Union Award for Excellence in Earth and Space Education and the Arizona State University's President's Medal for Social Embeddedness. She earned a Ph.D. in Anthropology from New York University.

Darryl N. Williams

Member

Darryl Williams is the Senior Vice President of Science and Education at the Franklin Institute (Philadelphia, PA) where he oversees the core aspects of the mission at the heart of the Institute's efforts to inspire a passion for learning about science and technology. Before joining the Franklin Institute in 2018, Williams was Dean of Undergraduate Education for Tufts University's School of Engineering and Director of the Tufts Center for STEM Diversity. Prior to Tufts, he spent five years as a rotating Program Director at the National Science Foundation and managed a range of federal programs and research focused on engineering education, STEM teaching and learning, designing formal and informal learning environments, and workforce development. Williams has served in a number of national advisory roles including as a member of the NASA Advisory Council Task Force for STEM Education and a member of the National Academies Board on Science Education. He also participated as a member of the National Academies consensus study panel that produced the report, *Assessing NASA Science Activation 2.0* (2025). Williams earned his Ph.D. in chemical engineering from the University of Maryland, College Park.

Susan A. Yoon

Member

Susan Yoon is Presidential Professor and Associate Dean for Research and Faculty Affairs in the Graduate School of Education at the University of Pennsylvania, where she also serves as Professor of Education in the Learning Sciences. Her interdisciplinary expertise focuses on STEM education across formal and informal environments. She investigates how design, technology, and social dynamics foster epistemic understanding and engagement in science, with research spanning complex systems reasoning, and social network, social capital, and computational supports. Yoon has led a number of federally funded studies to investigate STEM engagement for youth in partnership with out-of-school institutions such as the Philadelphia Zoo, the University City Science Center, and the Franklin Institute. Her work highlights the distinctive affordances of informal settings and advances evidence on how such environments broaden participation in STEM. She is a Fellow of the American Educational Research Association (AERA) and the International Society of the Learning Sciences, and a recipient of the AERA Jan Hawkins Award for Early Career Contributions. She earned her Ph.D. in science education from the University of Toronto and completed postdoctoral training at the Massachusetts Institute of Technology.