

Equity in PreK-12 STEM Education

Committee

Eileen R. Parsons

Chair

EILEEN R. CARLTON PARSONS (Chair) is a tenured professor at the University of North Carolina at Chapel Hill (UNC), where she served as Faculty Chair of the School of Education and has been heavily involved in faculty governance. She has served as an elected member on various influential University committees (e.g., University's Appointment, Promotion, and Tenure (PT) Committee, Chancellor's Advisory Committee) and has been appointed by the University leadership to key search committees (e.g., Graduate School Dean, Vice Provost of Enrollment). In addition, she has been involved in strategic planning task forces and plan implementation teams (e.g., UNC Academic Support Program for Student-Athletes, University-wide PT Recommendations Implementation).

She is an American Council on Education Fellow, science policy fellow for the American Association for the Advancement of Science, and Ford Foundation Postdoctoral Scholar. She has received several prestigious grants funded by the American Educational Research Association, Spencer Foundation, and National Science Foundation to fund her research focused on cultural inclusiveness and equity in grades 6- STEM undergraduate education. Her scholarship is widely published in highly ranked venues in science education and other disciplines. Additionally, she has served as associate editor, editor of a special issue, section editor, and on the editorial boards of the top research journals in science education.

She served on the National Academies of Science, Engineering, and Medicine Committee that wrote the consensus report on science investigations and engineering design experiences in grades 6-12. Over the years, she has actively engaged several professional organizations and assisted in developing and implementing strategic initiatives that altered or established new organization-wide directions. She is currently the Immediate Past President of NARST, the premier national and international organization for science education research.

Parsons received her Ph.D. and M.S. degrees from Cornell University, Ithaca NY and her B.S. degree from UNC. Early in her career, she taught high school chemistry, physical science, and trigonometry.

Megan E. Bang

Member

MEGAN E. BANG is Professor of Learning Sciences and Psychology at Northwestern University, and Senior Vice President at the Spencer Foundation.

She studies dynamics of culture, identity, learning, and development broadly with a specific focus on the complexities of navigating multiple meaning systems in creating and implementing more effective and just learning environments in science, technology, engineering, arts, and mathematics education. She focuses on reasoning and decision-making about complex socio-ecological systems and their intersections with culture, power, and historicity. She conducts research in both schools and informal settings across the life course.

Dr. Bang is an elected member of the National Association of Education and she currently serves on the Board of Science Education at the National Academy of Sciences. She is a recipient of the American Education Research Association Mid-Career Contribution Award, the Division K, Teaching and Teacher Education, Early Career Award and the Bobby Wright Award for Early Career Contributions to Research in Indigenous Education.

She earned her Ph.D. from Northwestern University and completed postdoctoral training at the Cheche Konnan Center at TERC. Dr. Bang has contributed to past consensus studies and was a committee member on "Learning Through Citizen Science."

Courtney A. Bell

Member

COURTNEY A. BELL serves as the Director of the Wisconsin Center for Education Research (WCER) and Professor of Learning Sciences at the University of Wisconsin – Madison. She previously was a high school science teacher, a teacher educator, and most recently spent more than a decade as a research scientist at Educational Testing Service. Courtney is passionate about understanding and improving teaching for historically underserved children. She recently served as a PI on the OECD-organized Global Teaching InSights study, leading the development of observation systems to measure teaching quality in eight economies. Courtney's inter-disciplinary, collaborative work, which spans issues of parental choice, international comparisons of teaching, teaching quality, teacher learning, and the measurement of teaching, is situated at the intersections of research, policy, and practice. Courtney was a Spencer Foundation Dissertation Fellow, won the AERA Division L Dissertation of the year award, and was awarded research excellence awards from both the University of Connecticut and ETS. She also co-edited the 5th Edition of the American Educational Research Association's Handbook of Research on Teaching. Courtney earned her Ph.D. at Michigan State University in Curriculum, Teaching and Educational Policy and a BA in Chemistry at Dartmouth College.

Marta Civil

Member

MARTA CIVIL is a Professor and the Roy F. Graesser Chair in the Department of Mathematics at The University of Arizona. She is also a University Distinguished Outreach Professor. Her research focuses on cultural, social, and language aspects in the teaching and learning of mathematics; participation in the mathematics classroom; connections between in-school and out-of-school mathematics; and parental engagement in mathematics. Her research seeks to learn from the communities to develop culturally sustaining learning environments in mathematics education. She received the TODOS Iris M. Carl Equity and Leadership Award in 2013 and the NCTM Lifetime Achievement Award in 2021. She is an ex officio member of the U.S. National Commission on Mathematics Instruction. She is an elected member at large of ICMI Executive Committee (2021-24). She was a member of the committee on supporting English learners in STEM subjects (NAS), 2017 – 2019. She received her Ph.D. in Education (mathematics education) in 1990 from the University of Illinois at Urbana-Champaign.

Gudiel R. Crosthwaite

Member

GUDIEL R. CROSTHWAITE is currently the superintendent at Lynwood Unified School District (LUSD) in the County of Los Angeles. Dr. Crosthwaite has enjoyed over 25 years in education, including teaching, mentoring and leadership focused on removing educational barriers. In 2013, as the Assistant Superintendent of Educational Services, his leadership team was instrumental in the District's extraordinary gains in achievement, including in graduation rates and enrollment in Advanced Placement (AP) coursework. In 2017, LUSD was one of only three Districts in the nation – and only one in California – to be named 2017 AP District of the Year by the College Board for their AP performance. Dr. Crosthwaite earned his Ph.D. in Education in 2015 from Claremont Graduate University.

Maisie L. Gholson

Member

MAISIE L. GHOLSON currently serves as an assistant professor in the School of Education at the University of Michigan. She is the faculty lead for secondary mathematics teacher education program and the faculty lead for the doctoral program in Educational Studies. She also coordinates the Race and Social Justice Institute within the School of Education. Her expertise relates to the mediating role of race and gender in learning and identity development of mathematics learners. She is currently the principal investigator for a large-scale NSF study tracking the mathematics development of 100-250 Black youth across five years. Dr. Gholson was a Spencer dissertation fellow and the recipient of the Early Career Publication Award for the Research in Mathematics Education in 2018. She received her Ph.D. from the University of Illinois at Chicago and her BSE from Duke University.

Stefanie L. Marshall

Member

STEFANIE L. MARSHALL is an Assistant Professor at the University of Minnesota - Twin Cities. Dr. Marshall, situates her work at the intersection of educational policy, leadership and science education, focusing on the systemic and organizational needs for science education. More specifically, Dr. Marshall's work examines equity in science education through building and sustaining networks, the impact of policies on science, and the role of school administrators in science education. Dr. Marshall is a member of NARST, AERA, and UCEA. Dr. Marshall earned her Ph.D. from Michigan State University in Educational Policy, her MA from the University of Michigan in Educational Studies, and has a B.S. in Biology from Oakland University. Dr. Marshall is the 2020 recipient of the Rising Star Award from the Women's Philanthropic Leadership Circle of the College of Education and Human Development at the University of Minnesota. STEFANIE L. MARSHALL is an Assistant Professor at the University of Minnesota - Twin Cities. Dr. Marshall, situates her work at the intersection of educational policy, leadership and science education, focusing on the systemic and organizational needs for science education. More specifically, Dr. Marshall's work examines equity in science education through building and sustaining networks, the impact of policies on science, and the role of school administrators in science education. Dr. Marshall is a member of NARST, AERA, and UCEA. Dr. Marshall earned her Ph.D. from Michigan State University in Educational Policy, her MA from the University of Michigan in Educational Studies, and has a B.S. in Biology from Oakland University. Dr. Marshall is the 2020 recipient of the Rising Star Award from the Women's Philanthropic Leadership Circle of the College of Education and Human Development at the University of Minnesota.

William R. Penuel

Member

WILLIAM R. PENUEL is a professor of learning sciences and human development in the School of Education and Institute of Cognitive Science at the University of Colorado Boulder. His research focuses on interest-related learning across settings, classroom assessment in science, teacher learning, and promoting the equitable implementation of reforms in STEM education. As Principal Investigator for a U.S. Department of Education knowledge utilization center, the National Center for Research in Policy and Practice, he studies how school, district, and state education leaders use research evidence in decision making. He has been involved in research-practice partnerships at the district and state level focused on supporting implementation of the Next Generation Science Standards through co-design of curriculum and assessment resources that connect to students' interests, identities, and experiences. He is a Fellow of the International Society of the Learning Sciences, American Educational Research Association, the International Society for Design and Development in Education, and the National Education Policy Center. He is also an elected member of the National Academy of Education and member of the Board on Science Education at the National Academy of Sciences, Engineering, and Medicine. He holds an Ed.M. from Harvard University and a Ph.D. from Clark University.

Thomas M. Philip

Member

THOMAS M. PHILIP is a professor in the Graduate School of Education at UC Berkeley, where he also serves as the Faculty Director of teacher education. Dr. Philip's research focuses on how teachers make sense of power and hierarchy in classrooms, schools, and society. He is interested in how teachers act on their sense of agency as they navigate and ultimately transform classrooms and institutions toward more equitable, just, and democratic practices and outcomes. His recent scholarship explores the possibilities and tensions that emerge with the use of artificial intelligence, data analytics, and digital learning technologies in the classroom, particularly discourses about the promises of these tools with respect to the significance or dispensability of teacher pedagogy.

Dr. Philip's research has been recognized by the AERA Division K Midcareer Award; the Spencer Midcareer Grant; the AERA Division G Early Career Award; the AERA Division C Jan Hawkins Award for Early Career Contributions to Humanistic Research and Scholarship in Learning Technologies; the National Association for Multicultural Education's Research Award; and, the National Academy of Education/Spencer Postdoctoral Fellowship.

Dr. Philip received a B.S. in Electrical Engineering and Computer Science and a Ph.D. in Cognition and Development, both from UC Berkeley.

Catherine Riegler-Crumb

Member

CATHERINE RIEGLE-CRUMB is Professor of STEM Education in the Department of Curriculum and Instruction, and the Department of Sociology (by courtesy), and a Faculty Research Associate at the Population Research Center at the University of Texas at Austin. Her research agenda focuses on the social construction of gender and racial inequality in science, technological, mathematics, and engineering (STEM) fields, examining how inequality is created through both institutional structures and everyday individual interactions, which converge to (re)create the privilege of White and male students. In doing so, her work also considers variation across local contexts to understand how inequality can be deconstructed. Her research focus spans educational trajectories from middle school to high school and college, as well as the transition to the labor force. Dr. Riegler-Crumb has expertise in quantitative data analyses; her research utilizes secondary analyses of national datasets, as well as original survey design and data collection in schools, districts, and communities. She has received external funding from the National Science Foundation (NSF) and the Spencer Foundation, among other sources. Her work speaks to multiple audiences across several disciplines, and has been published in top-tier journals in education, sociology, and psychology. Dr. Riegler-Crumb earned her Ph.D. and M.A. in Sociology from the University of Chicago; and a B.A. in Sociology from Texas A&M University.

Jean J. Ryoo

Member

JEAN J. RYOO is Director of Research of the UCLA Computer Science Equity Project. She previously served as a senior researcher at the San Francisco Exploratorium in collaboration with the Tinkering Studio. Her work focuses on equity issues in STEM and Computer Science education through qualitative examinations of student learning and educator pedagogy in both public schools and out-of-school contexts. Dr. Ryoo works in research-practice partnerships—focused on elevating youth voices as well as educator and administrator perspectives—that explore topics regarding youth identity, agency, and engagement in relation to culturally responsive and sustaining STEM/computing education. Dr. Ryoo is the recipient of the AERA Jan Hawkins Early Career Award and her work is currently funded by the National Science Foundation, Bill & Melinda Gates Foundation, and Google CS-ER Grants. She received a Ph.D. in Urban Schooling from the University of California, Los Angeles; a Masters of Education in Teaching from the University of Hawai'i at Manoa; and a Bachelor's degree from Harvard University.

Shawn P. Sheehan

Member

SHAWN P. SHEEHAN is the Director of Governmental Affairs for Lewisville Independent School District in Lewisville, Texas. He has taught math to emergent bilingual students and students with disabilities in Texas and Oklahoma. A strong advocate for public education, Shawn has been featured on CBS This Morning, NPR, The Economist, and more. In his current role, Shawn supports his school district by tracking education policy, drafting and implementing the district's legislative priorities, and working closely with governmental entities and elected officials. Shawn was selected as the 2016 Oklahoma Teacher of the Year and one of four finalists for National Teacher of the Year. In 2018, Shawn worked in a congressional office on Capitol Hill as an Albert Einstein Distinguished Educator Fellow. He received a M.E. in Special Education from the University of Oklahoma and a B.A. in Journalism and Mass Communication from Arizona State University.

Carrie Tzou

Member

CARRIE TZOU is a professor of science education in the School of Educational Studies at the University of Washington Bothell. She also serves as the director of the Goodlad Institute for Educational Renewal. Her primary research expertise is utilizing sociocultural theories of learning to design and study equity-centered science learning environments for learners and their families PreK-12, both in schools and in community-based settings.

She is a member of several professional organizations, including the National Association for Research in Science Teaching, the International Society of the Learning Sciences, and the American Educational Research Association. She received the Chancellor's award for Distinguished Research, Scholarship, and Creative Practice at UWB in 2020.

She received her M.S. in science education from Vanderbilt University and her Ph.D. in Learning Sciences from Northwestern University. She then trained as a post-doctoral scholar with the LIFE Center at the University of Washington Seattle.

She previously served on the NRC committee for the PreK-5 science and engineering report.

Sepehr Vakil

Member

SEPEHR VAKIL is an assistant professor of Learning Sciences in the School of Education and Social Policy at Northwestern University. Previously he was Assistant Professor of STEM Education and the Associate Director of Equity & Inclusion in the Center for STEM Education at the University of Texas at Austin. He has expertise broadly on issues of equity, race, and identity in STEM areas, with a disciplinary focus in computer science and engineering education. His work draws on a range of methods including qualitative, ethnographic, design, as well as archival and historical methods. He received his Ph.D. in the Education in Mathematics, Science, and Technology program at UC Berkeley, and his B.S and M.S in Electrical Engineering from UCLA.

Shirin Vossoughi

Member

SHIRIN VOSSOUGHİ is an associate professor of Learning Sciences in Northwestern University's School of Education and Social Policy. She was previously a postdoctoral fellow at Stanford University and the Exploratorium, and an NAEd/Spencer postdoctoral fellow. Vossoughi's research centers on equitable learning environments that support young people to develop, question and expand disciplinary knowledges. She is particularly concerned with the forms of pedagogical mediation, ethical and intellectual relations, and developmental trajectories that take shape within these settings. Her research has looked closely at student and teacher learning in the context of making/STEAM settings, and efforts to co-design transdisciplinary learning across teachers, researchers, students, and families. Vossoughi has received numerous early career awards, including the AERA Division C Jan Hawkins Award for Early Career Contributions to Humanistic Research and Scholarship in Learning Technologies and the International Society of the Learning Sciences Early Career Award. She also recently received the Outstanding Paper of the Year Award from the Journal of the Learning Sciences, and several teaching and mentorship awards at Northwestern. Vossoughi completed her Ph.D. at UCLA, with a focus on social research methodology, literacy, and the study of human learning. She has previously authored a white paper on making/tinkering for the NRC.

Christopher Wright

Member

CHRISTOPHER WRIGHT is an Assistant Professor of STEM Education in the Department of Teaching, Learning, and Curriculum in the School of Education at Drexel University. Dr. Wright's research focuses on reimagining, designing, and studying STEM learning environments that affirm, cultivate, and build upon the cultural, intellectual, and linguistic resources that students bring to engaging in engineering, science, and making. Understanding that learning in K-12 engineering and science contexts inevitably takes place at powered boundaries of culture, race, class, and language, his research focuses on individuals from communities that have been historically excluded in engineering and science. He is a recipient of several National Science Foundation awards including the prestigious NSF CAREER award and the 2019 Presidential Early Career Award for Scientists and Engineers (PECASE), the highest honor bestowed by the United States government on outstanding scientists and engineers beginning their independent careers. Dr. Wright earned a Bachelor of Architecture from Hampton University and a Ph.D. in STEM Education from Tufts University.

Kenne Dibner

Staff Officer

KENNE DIBNER (Study Director) is a senior program officer with the Board on Science Education at the National Academies. She has served as study director for Reopening K-12 Schools During the COVID-19 Pandemic: Prioritizing Health, Equity, and Communities and Science Literacy: Concepts, Contexts, and Consequences, as well as a recently completed assessment of NASA's Science Mission Directorate's education portfolio. Prior to this position, she worked as a research associate at Policy Studies Associates, Inc., where she conducted evaluations of education policies and programs for government agencies, foundations, and school districts, and as a research consultant with the Center on Education Policy. She has a B.A. in English literature from Skidmore College and a Ph.D. in education policy from Michigan State University.

Heidi Schweingruber

Staff Officer

HEIDI SCHWEINGRUBER is the director of the Board on Science Education at the National Academies of Science, Engineering, and Medicine. She has served as study director or co-study director for a wide range of studies, including those on revising national standards for K-12 science education, learning and teaching science in grades K-8, and mathematics learning in early childhood. She also coauthored two award-winning books for practitioners that translate findings of Academies' reports for a broader audience, on using research in K-8 science classrooms and on information science education. Prior to joining the Academies, she worked as a senior research associate at the Institute of Education Sciences in the U.S. Department of Education. She also previously served on the faculty of Rice University and as the director of research for the Rice University School Mathematics Project, an outreach program in K-12 mathematics education. She has a Ph.D. in psychology (developmental) and anthropology and a certificate in culture and cognition, both from the University of Michigan.