Modernizing Mathematics Education for Grades 9-14

Committee

Robert E. Floden

Chair

Robert E. Floden is university distinguished professor emeritus and dean emeritus of the College of Education, Michigan State University. Floden's funded research includes studies of practice and policy for the mathematical preparation of teachers, including that for teaching high school algebra. His numerous publications include chapters in the Handbook of Research on Teaching, the Handbook of Research on Teacher Education, and the Handbook of Research on Mathematics Teaching and Learning. He has taught graduate and undergraduate courses in quantitative and qualitative research methods, teacher education, education policy, mathematics education, and educational psychology. Floden was a middle school math teacher for a year between his undergraduate and graduate schooling. His honors include election as a member of the National Academy of Education, as a Fellow of the American Educational Research Association, as a Fellow of the Philosophy of Education Society and as a Fellow of the American Psychological Association, Division 15. He served as chair and report co-editor for the NAS Consensus Study Committee on Understanding the Changing Structure of the K–12 Teacher Workforce. Floden received an A.B. with honors in philosophy from Princeton University and an M.S. in statistics and Ph.D. in philosophy of education from Stanford University.

Scott Adamson

Member

Scott Adamson is a professor of mathematics at Chandler–Gilbert Community College, where he teaches undergraduate mathematics and works with students preparing for STEM and teacher education pathways. Prior to joining the college faculty, he taught high school mathematics for ten years. His professional work focuses on helping students develop mathematical reasoning, conceptual understanding, and persistence in problem solving as they make sense of significant mathematical ideas. He is particularly interested in improving the teaching and learning of calculus and algebra through active learning, meaningful mathematical tasks, and classroom environments that position students as sense-makers. He is the author of several mathematics textbooks and is co-authoring a forthcoming book, “Decluttering Mathematics: 5 Fundamental Understandings to Unleash Student Thinking”, scheduled for publication in Fall 2026. Adamson is an award-winning educator and an active member of the American Mathematical Association of Two-Year Colleges (AMATYC) and the National Council of Teachers of Mathematics (NCTM). He holds a B.S. in Mathematics Education and an M.A.T. in Mathematics Education from Northern Arizona University, and a Ph.D. in Curriculum and Instruction with an emphasis in Mathematics Education from Arizona State University. In 2026 he was a coauthor on the article Modernizing the Calculus Curriculum: the Product Rule about conceptual understanding of mathematics in community college students; he also authored two blog posts that call for modernizing the mathematics curriculum.

James A. M. Álvarez

Member

James A. M. Álvarez is a professor of mathematics and associate dean for P-20 Education Initiatives in the College of Natural Sciences at The University of Texas at Austin. From 2022-2024, he served as a program director at the National Science Foundation in the Division of Undergraduate of Education. Álvarez’s research and professional interests are in mathematics education with a focus on mathematical preparation of teachers, mathematical problem solving, and increasing success rates in gateway mathematics courses. He has a long history as a key contributor to the development and enhancement of mathematics standards and assessments for students and teachers, including contributions as a writer of the Commissioner’s Draft of the Texas Mathematics Standards and serving on the College Board’s Advanced Placement Calculus Test Development Committee (2007-2010). He has served on the Board of Directors of the MAA from 2019 to 2021 and Chair of the Special Interest Group of the MAA on Mathematical Knowledge for Teaching from 2022 to 2023. Álvarez holds a B.S. in Mathematics and Physics from East Texas A&M University and a Ph.D. in Mathematics from The University of Texas at Austin. He was a signatory on a 2025 open letter about the need to modernize mathematics education.

Lisa Ashe

Member

Lisa Ashe is a secondary mathematics consultant with the North Carolina Department of Public Instruction and a past president of the Association of State Supervisors of Mathematics (ASSM). She has previously served as a high school mathematics teacher, a school-based math instructional facilitator and a PK-12 District Curriculum Specialist. Additionally, Ashe is a current member of the National Assessment Governing Board (NAGB) serving in the Curriculum Specialist role. She has served on several other national boards and committees, such as the Professional Development Services Committee for the National Council of Teachers of Mathematics and on the Executive Committee for the Benjamin Banneker Association. Her research interest is in the development of partnerships that propel and advance mathematical teaching and learning. She is passionate about providing opportunities to high quality educational experiences for all students. Ashe also has experience facilitating professional learning at the local, state, and national level on high quality instructional practices. Lisa holds a B.S. in Mathematics, an M.Ed. in Curriculum and Supervision, and an Ed.D. in Educational Leadership. She is serving as a member and curriculum specialist with the National Assessment Governing Board for the term September 2023 - September 2027. In 2024 and 2026 she authored perspective articles for EducationNC about the National Assessment for Educational Progress.

Kadian M. Callahan

Member

Kadian M. Callahan is associate dean for student success and community engagement and professor of mathematics education in the College of Science and Mathematics (CSM) at Kennesaw State University (KSU). Her research involves examining strategies to improve teaching and learning in undergraduate science and mathematics courses and programs and analyzing STEM institutional change efforts to transform teaching, learning, and the student experience. She has twenty years of experience providing professional development to K-12 teachers, and has led faculty development workshops for science and mathematics faculty teaching introductory science and mathematics courses for over ten years. Callahan has led mathematics departmental change efforts and serves as a change partner for institutions seeking to improve introductory mathematics. At the national level, Callahan is co-leader for the Accelerating Systemic Change Network (ASCN), mentors emerging leaders for the Association of American Colleges & Universities (AAC&U) Project Kaleidoscope's STEM Leadership Institute, and serves on the Project EMBER leadership team for Transforming Post-Secondary Education in Mathematics (TPSE). Callahan holds a Ph.D. in Curriculum and Instruction, Mathematics from University of Maryland, College Park. She was a signatory on a 2025 open letter about the need to modernize mathematics education and serves on the leadership team for the project Eliminating Mathematics Barriers through Evidence-based Reform.

Michael Dorff

Member

Michael J. Dorff is a professor of mathematics at Brigham Young University (BYU). He was executive director of Transforming Post-Secondary Education in Mathematics (TPSE Math) (2021-2024), president of the Mathematical Association of America (MAA) (2019-2021), co-founder and co-director of PIC Math (Preparation for Industrial Careers in the Mathematical Sciences) (2013-2024), and founder and director of the Center for Undergraduate Research in Mathematics (CURM) (2007-2017). His research area in mathematics is geometric function theory, and he has expertise in preparing students for careers in BIG (business, industry, and government) and in undergraduate research. He is a Fellow of the American Mathematical Society (AMS), a CUR Fellow (Council on Undergraduate Research), and a Fulbright Scholar. He was awarded the MAA Gung and Hu Award for Distinguished Service to Mathematics (2024), BYU University Professor (2023), BYU Lawrence K. Egbert Teaching and Learning Faculty Fellowship (2015), MAA Deborah and Franklin Tepper Haimo Award for Distinguished College or University Teaching of Mathematics (2010), and BYU Karl G. Maeser Excellence in Teaching Award (2010). He was a high school mathematics teacher (1986-1990). He earned his Ph.D. in Mathematics from the University of Kentucky. He serves as a member of the NASEM Mathematical Sciences Education Board.

Ann Edwards

Member

Ann Edwards is the senior director of mathematics, science, and engineering at WestEd, where she leads a team of researchers, developers, and technical assistance providers working to improve math and science outcomes at the PreK–12, postsecondary, and adult basic education levels. She was previously senior associate, director of learning and teaching at the Carnegie Foundation for the Advancement of Teaching and an assistant professor at the University of Maryland, College Park, in the Center for Mathematics Education. Her professional experience includes secondary and collegiate mathematics teaching as well as research, curriculum development, teacher education, and professional development spanning elementary to postsecondary levels. Her projects have been funded by IES, NSF, the Office of Elementary and Secondary Education, the Gates Foundation, and other private philanthropies and agencies. She led the revision of the NAEP Mathematics Framework and supported revisions of the California Mathematics Framework and is currently the Director of the Carnegie Math Pathways, a network of educators, researchers, designers, students, and content experts committed to increasing student success in college developmental and gateway mathematics and overall college and career outcomes. Edwards received a B.A. in applied mathematics from Harvard University; and an M.A. and Ph.D. from the University of California, Berkeley in education in mathematics, science and technology. She was a co-author of a 2024 convening report on Future Directions in Mathematics Education that examined research, policy, and practice in mathematics education and a signatory on a 2025 open letter about the need to modernize mathematics education.

Estrella Johnson

Member

Estrella Johnson is an associate professor in the mathematics department at Virginia?Tech. From?2020 to?2024 she served as assistant dean for inclusion and diversity in the college of science, and in?2024 she became the founding director of the Center for Advancing Undergraduate Science Education. Johnson’s research examines the pedagogical practices of mathematicians with the aim of fostering high quality, ambitious teaching in undergraduate mathematics classrooms. Her work includes characterizing and analyzing classroom instructional practices; identifying individual, departmental, and institutional factors that shape pedagogical decisions through large scale surveys and qualitative studies; and developing and evaluating instructional supports that promote meaningful instructional change. In?2022, she received the Annie and John Selden Prize for Research in Undergraduate Mathematics Education. This biennial award recognizes a scholar with a distinguished publication record in mathematics education research who has been in the field for fewer than ten years. In the fall of?2025, ?Johnson served on a panel at the National Academies of Sciences, Engineering, and Medicine workshop on The Status of the Field of Discipline Based Education Research. ?Johnson earned a B.S. in Secondary Education with a mathematics licensure, followed by a master’s degree and Ph.D. in Mathematics Education from Portland State University. She then moved directly into a tenure track position at Virginia?Tech after completing her doctorate.

Hollylynne Stohl Lee

Member

Hollylynne S. Lee is a distinguished university professor of mathematics and statistics education in the STEM Education department at NC State University. She is also a faculty fellow at the Friday Institute for Educational Innovation at NC State. Her research interests include teaching and learning of probability, statistics, and data science, especially incorporating and designing technology environments that facilitate students' learning in upper elementary through early college. She situates her work in educational design in order to provide the best learning opportunities for students in K-12, her university students at the undergraduate and graduate levels, and educators around the world that engage with her in online professional development for teaching statistics and data science. For the past 26 years, Lee has taught courses for prospective K-12 mathematics teachers where she brings together cutting edge tools and research with her own experience teaching middle and high school. Her research regularly has her engaging with students and teachers in K-12 school settings to enact lessons on statistics and data science. Lee is a fellow of the American Statistical Association. She served on the National Academies planning committee for the workshop on Foundations of Data Science for Students in Grades K-12 (2022) and the workshop on International Perspectives on the role of computational thinking, data science, and AI in K-12 mathematics education (2025-26). In 2020 she was the recipient of the University of North Carolina's Board of Governor's Award for Excellence in Teaching, and in 2022 earned the national-level Robert Foster Cherry Award for Great Teaching, awarded by Baylor University. Lee currently serves on the National Academies Mathematical Sciences Education Board. Lee holds a Ph.D. in Mathematics Education from the University of Virginia. She is a coauthor of Mathematical Education of Teachers III and College-level Guidelines for Assessment and Instruction in Statistics Education (2026), a blog post entitled Data Investigation Processes: Connected, Iterative, and Cyclic (2025); Discussing data visualizations: A toolkit for supporting students in Statistics Teacher (2024), From public health to personal finance, statistical literacy is essential for careers and everyday life in K-12 Dive, A look into the AP Statistics classroom: Who teaches it and what aspects of statistics do they emphasize? in CHANCE, Investigating data like a data scientist: Key practices and processes in Statistics Education Research Journal, and Digging into data: Illustrating a data investigation process in Statistics Teacher (2022), How students use statistical computing in problem solving in the Journal of Statistics and Data Science Education and Trends in teaching Advanced Placement Statistics: Results from a national survey in the Journal of Statistics and Data Science Education. She has given presentations on data science and statistics in grades K-12. She is PI on an NSF-funded project to support institutional change in mathematics teacher education related to better preparing high school teachers to teach statistics and data science. One of her NSF grants resulted in an online professional learning platform for teachers to learn to teach statistics and data science and she is compensated to do workshops for teachers about that platform. She was a signatory on a 2025 open letter about the need to modernize mathematics education and serves as an advisor and paid consultant for organizations Data Science 4 Everyone and the Concord Consortium, which have developed public-facing documents that promote data science education in grades K-12.

Xihong Lin

Member

Xihong Lin is professor and chair of statistics, and professor and former chair of biostatistics at Harvard University, and the coordinating director of the program in quantitative genomics at Harvard School of Public Health. Lin works on the development and application of statistical, machine learning and AI methods for the analysis of massive and complex genetic, genomic and health data. Lin is an elected member of the National Academy of Sciences and the US National Academy of Medicine. She received the Presidents' Award and the FN David Award from the Committee of Presidents of Statistical Societies (COPSS), the Mortimer Spiegelman Award and the Lowell Reed Lecture Award from the American Public Health Association, the Jerome Sacks Award for Outstanding Cross-Disciplinary Research from the National Institute of Statistical Science, and the Marvin Zelen Leadership in Statistical Science Award. She is an elected fellow of American Association for the Advancement of Science, American Statistical Association, Institute of Mathematical Statistics, and International Statistical Institute. Her research has been funded by several NIH grants, including the NCI MERIT (R37) and Outstanding Investigator (R35) Awards. She received her PhD in biostatistics from the University of Washington. Lin holds a Ph.D. in Biostatistics from the University of Washington.

David Manderscheid

Member

David Manderscheid is a professor of mathematics at the University of Tennessee. He previously served as director of the Division of Mathematical Sciences at the National Science Foundation. He has also served as provost at the University of Tennessee, executive dean of the College of Arts and Sciences at Ohio State University, dean of the College of Arts and Sciences at the University of Nebraska, and chair of the Department of Mathematics at the University of Iowa. Manderscheid's involvement in mathematics education includes serving on the Mathematical Association of America's Curriculum Renewal Across the First Two Years Committee, the Metro Early College High School Governing Board (Columbus, Ohio), and most recently the Project EMBER (Eliminating Mathematics Barriers through Evidence-based Reforms) Advisory Board. He studies representation theory and its applications to number theory. He has received financial support for his work from the National Science Foundation, the National Security Agency, and the U.S. Department of Education. He is a Fellow of the American Association for the Advancement of Science and a member of the inaugural class of Fellows of the American Mathematical Society. Professor Manderscheid earned his B.S. degree from Michigan State University and his Ph.D. degree from Yale University.

Michael D. Steele

Member

Michael D. Steele is a professor and chairperson of the department of educational studies in Teachers College at Ball State University. He is a past president of the Association of Mathematics Teacher Educators, past member of the executive committee of the Conference Board of the Mathematical Sciences, and current director-at-large of the National Council of Teachers of Mathematics. A former middle and high school mathematics and science teacher, Steele's research focuses on the nature of effective mathematics teaching practice and how teachers develop mathematical knowledge for teaching and the capacity for effective practice at the secondary level. He has published several books and journal articles focused on developing mathematics teacher knowledge and supporting teachers in enacting research-based effective mathematics teaching practices. He is the co-author of NCTM's Taking Action: Implementing Effective Mathematics Teaching Practices in Grades 6-8, The 5 Practices in Practice: Successfully Orchestrating Mathematics Discussions in Your High School Classroom, Transform Your Math Class using Asset-Based Teaching for Grades 6-12, and several other research-based professional development resources for secondary mathematics teachers. He has served as a program officer and research security expert with the National Science Foundation in the Division of STEM Education. Steele earned his Ed.D. in Mathematics Education at the University of Pittsburgh. He serves as an uncompensated member of the board of directors of the National Council of Teachers of Mathematics through October 2026 and was on its writing team that produced High School Mathematics Reimagined Revitalized and Relevant. He has made related conference presentations and posts via social media.

Katherine Stevenson

Member

Katherine Stevenson is professor of mathematics and chair of the department of mathematics at California State University, Northridge (CSUN), where she has served on the faculty since 2002. She previously directed CSUN's Developmental Mathematics Program for nine years and has held cross-college leadership as interim chair in Manufacturing Systems Engineering and Management. Her primary expertise spans mathematics education and institutional improvement at scale, including evidence-based redesign of entry-level mathematics pathways, data-driven equity initiatives, and sustainable models for instructional support. Stevenson also leads statewide and national discussions on K–12/postsecondary alignment as President of the CSU Math Council, co-author of the ICAS Statement on Competencies in Mathematics Expected of Entering College Students, and former Chair of the AMS Committee on Education. Her honors include the CSUN Distinguished Teaching Award and the College of Science & Mathematics Teaching Award. Stevenson earned a Ph.D. in Mathematics from the University of Pennsylvania. From 2023-2025 she served on workgroups focused on mathematics needed for admission and entrance to postsecondary education in California.

Candace Walkington

Member

Candace Walkington is the Annette and Harold Simmons Centennial Chair and professor in the department of teaching and learning at Southern Methodist University. Her expertise lies at the intersection of mathematics education, technology for teaching and learning, and the learning sciences. Her research examines situated and embodied approaches to mathematics instruction in the context of technological innovations like artificial intelligence, extended reality, simulations, and intelligent tutoring systems. She previously received an NAEd Spencer Postdoctoral Fellowship and was awarded the Presidential Early Career Award for Scientists and Engineers (PECASE) by the White House. She holds a bachelor's and master's degree in mathematics and was a community college mathematics professor before getting her Ph.D. in STEM Education from the University of Texas at Austin. She authored a 2025 paper When Am I (N)ever Going to Use This? How Algebraic Functions Are Used in STEM-Related Careers in the Journal of Research on Mathematics Education and a 2021 article The way Texas teaches math just doesn't add up in the Austin American-Statesman about how mathematics is currently taught and the need for change.

Jonathan A. Wray

Member

Jonathan A. Wray is a mathematics education leader with a passion for equity, instructional improvement, and teacher leadership. Over the course of his career, he has served as a grades 2–5 teacher, gifted and talented mathematics teacher, district-level mathematics resource teacher, secondary instructional facilitator, and adjunct instructor at multiple colleges and universities across Maryland. Wray has held numerous leadership roles at the state and national levels. He served as an elected member of the National Council of Teachers of Mathematics (NCTM) Board of Directors and as president of both the Maryland Council of Teachers of Mathematics and the Association of Maryland Mathematics Teacher Educators. He also managed the Elementary Mathematics Specialists and Teacher Leaders Project, supporting the development of teacher leadership across Maryland. An accomplished author, Wray is co-author of The Formative 5, The Formative 5 in Action, and Everything You Need for Math Coaching: Tools, Plans, and a Process That Works, along with other widely used texts and articles. In recognition of his impact on the field, Wray received the 2020 Ross Taylor/Glenn Gilbert National Leadership Award. Wray earned his M.S.Ed. in Technology for Educators at Johns Hopkins University.

Cathery Yeh

Member

Cathery Yeh is an associate professor in STEM education at the University of Texas at Austin. Her research examines how race, class, gender, and language shape constructions of ability in mathematics classrooms. Supported by the National Science Foundation, the National Academies, the Spencer Foundation, the National Endowment for the Humanities, and other agencies, Yeh has led Universal Design for Learning (UDL) implementation globally across K–20 settings, including urban, rural, self-contained special education, dual-language, and higher education environments. Her work is collaborative and community engaged. Central to her approach is positioning students, educators, and families as experts, co-designers, collaborators, and leaders in the research process. Her scholarship draws on participatory and design-based methodologies and integrates qualitative and mixed-methods analyses. Yeh received the 2024 Research to Practice Publication Award from the National Council of Teachers of Mathematics (NCTM), the 2023 Early Career Publication Award from the American Educational Research Association's SIG for Research in Mathematics Education (SIG-RME), and the 2022 Early Career Award from the Association of Mathematics Teacher Educators (AMTE). She served on the NCTM Board of Directors (2021–2024) and as a task force member and author for the Catalyzing Change series (2020). Yeh earned her Ph.D. in Mathematics Education at the University of California, Irvine.