

Taking Stock of Science Standards Implementation: A Summit

Committee

Maya M. Garcia

Chair

Maya M. Garcia joined the Colorado Department of Education as the Science Content Specialist in 2019, where she leads the implementation efforts for the newly adopted 2020 Colorado Academic Standards for Science and supports CDE's STEM education portfolio. Maya began her career in science education as a middle school science teacher and science department chair, in the District of Columbia, where she taught for over eight years. In 2010, Maya travelled to South Africa as a Fulbright Distinguished Teacher, where she studied how community collaborations could be best leveraged to broaden access to rich and engaging STEM learning experiences in under resourced communities. In 2013, Maya joined the District of Columbia Office of the State Superintendent of Education (OSSE), where she led the District's adoption and implementation efforts around the Next Generation Science Standards (NGSS), Common Core Mathematics, and developed the District's plan for advancing Pre-K- 12 STEM education. Maya also led OSSE's partnership with the Carnegie Academy for Science Education (CASE) to launch the DC STEM Network, a STEM Learning Ecosystem. In addition to her experience in the classroom and state-level work, Maya has also worked at the national level. Maya has served on various national committees and boards, most recently, Maya joined the National Academies Board on Science Education (BOSE). She also serves as a Board Member for the Council of State Science Supervisors and serves as the Board's liaison to the organization's Equity and Access Committee and is co-chair of the Climate Change Education Committee. This organization serves to coordinate and support efforts of the state science supervisors of all states and territories as they work to advance equitable science education for all K-12 students. Maya Garcia also served as a member of the NRC Science Education Board Committee on Out of School STEM Learning, and currently serves as a Co-PI on the NSF funded DRK-12 project "The Advancing Coherent and Equitable Systems of Science Education Project." Maya holds a bachelor's degree in Neuroscience and Behavior from Mount Holyoke College and a Master's in Science Teaching from American University, where she served as adjunct faculty in the School of Education, and is currently pursuing her Doctorate of Education in Leadership for Educational Equity at the University of Colorado, Denver.

Aneesha Badrinarayan

Member

Aneesha Badrinarayan serves as the Senior Advisor for Whole Child Education at the Learning Policy Institute, where her work focuses on supporting the implementation of equitable, high-quality performance assessment systems in states and districts. Prior to her role at LPI, Aneesha served as Director for Special Initiatives at Achieve, where she led lines of work related to the implementation of the Next Generation Science Standards and other innovative pathways efforts. Her portfolio includes leading the reconceptualization of "alignment" in the era of new state standards; developing criteria for innovative large-scale and classroom assessments; providing professional learning and strategic guidance for state leaders; and conducting analyses of state, local, and expert efforts to design and implement performance assessments and systems of assessment in science. Aneesha entered education policy after a decade of experience in informal education and neuroscience research. Aneesha earned a M.S. in neuroscience at the University of Michigan (2011), where she served as a research fellow for the National Institute of Mental Health studying the role of dopaminergic signaling in aversive motivation, and a B.A. in biology from Cornell University (2009).

James A. Blake

Member

Dr. James Blake is the Director of Strategic Initiatives and Focus Programs for Lincoln Public Schools (LPS) and the retiring president of the National Science Education Leadership Association (NSELA). Dr. Blake was previously the K-12 Science Curriculum Specialist for LPS and state science supervisor for Nebraska. His areas of expertise include working with community partners to develop new focus programs, and supporting existing Science and Arts and Humanities focus programs as principal. He earned his Masters of Science (2002), Masters of Secondary Teaching (2003), and Doctor of Education in Educational Administration (2017) at the University of Nebraska - Lincoln. Dr. Blake previously worked with the National Academy of Science January 9-10, 2019, at the workshop, "Realizing the Vision: NGSS District Implementation". As president-elect of NSELA, he presented at the workshop alongside other large national support organizations interested in helping districts implement NGSS and the Framework: BOSE, Achieve, NSTA, NARST, CSSS, and AAAS.

Ravit G. Duncan

Member

Ravit Golan Duncan is a professor of learning sciences with a focus on science education, with a joint appointment in the Graduate School of Education and the School of Environmental and Biological Sciences at Rutgers University. Dr. Duncan also coordinates and teaches in the Biological Sciences Teacher Education Program. She received her Ph.D. in Learning Sciences from Northwestern University, and has a M.S. degree in Biological Sciences from the University of Illinois at Chicago. Dr. Duncan conducts research in two main areas: design and study of inquiry-based learning environments that engage students with scientific practices and their epistemological underpinnings; and learning progressions in science education, specifically in genetics. She was the recipient of three early career awards from the National Academy of Education/Spencer Foundation, the National Science Foundation, and the Knowles Science Teaching Foundation. Dr. Duncan was invited to present to the Board on Science Education in 2010 and 2017 to inform efforts on the NRC reports: *A Framework for K-12 Science Education* and *Engaging Middle and High School Students in Science and Engineering: New Approaches to Investigation and Design* respectively. She also participated in the reviews of the Framework for K-12 Science Education before its publication. Dr. Duncan co-edited the National Science Teachers Association (NSTA) book *Disciplinary Core Ideas: Reshaping Teaching and Learning*, and has facilitated several NSTA professional development workshops and webinars about the NGSS core ideas and scientific practices.

Jessica F. Henderson

Member

Jessica Henderson currently serves as the Director of Science for Instruction Partners. She specializes in K-12 science education, specifically focused on building tools and processes for viably building long-lasting school leadership capacity that results in the successful adaptation and implementation of science instructional materials as a key lever for high quality standard implementation. She received her doctorate in Educational Leadership and Policy Studies from the University of Memphis in the Spring of 2020. In her current work, she leads her organization's science research and development agenda to improve equitable access to high quality science opportunities for all students. This agenda currently includes (1) the design, testing, and publication of a science instructional observational tool for diagnosing science instruction in classrooms and informing changes in instructional practice and (2) the formation and launch of a web-based Science Leader Development Series created to improve principals and other school leaders' ability to establish their own vision of excellent science instruction, speak to the conceptual shifts that ground the NGSS and similar science standards, and diagnose instruction while leading change in instructional practice in their own schools. In addition, she also leads Instruction Partners' work as partner on BSCS Science Learning's current US Department of Education funded research grant in TN and KY. The project seeks to provide scalable and sustainable access to STeLLA, a professional learning program shown to improve science teaching and student achievement as teachers seek to navigate more challenging state standards.

Victor D. Sampson, II

Member

Dr. Sampson is an Associate Professor of STEM Education at the University of Texas at Austin. He received a Ph.D. in curriculum and instruction with a specialization in science education from Arizona State University in 2007. Dr. Sampson's research examines how culturally and linguistically diverse groups of students participate in the practices of science, engineering, and mathematics and how to organize the interactions that take place between students, materials, and ideas in ways that promote and support learning. His current work focuses on the ways culturally and linguistically diverse groups of students support, evaluate, and revise ideas when attempting to develop explanations or solutions to a problem, group and individual meaning-making during episodes of argumentation, the development of innovative instructional materials and strategies, and how to support teachers in making classroom instruction more equitable and inclusive. He has published numerous articles, book chapters, and books related to these issues. He has received several awards for his scholarship, including the 2008 National Association for Research in Science Teaching Outstanding Dissertation award and the 2012 National Association for Research in Science Teaching Early Career award. Dr. Sampson teaches both undergraduate and graduate courses in STEM education. His teaching philosophy is rooted in theories of learning that stress the importance of experience, interaction with others, the evaluation of alternative ideas, and metacognition. As a result, his courses tend to engage students in cycles of inquiry, reading, discussion, and a project that requires the application of new ideas and principles to authentic problems.

Samuel D. Shaw

Member

Sam Shaw is the Director of Science Review at EdReports.org. Sam came to EdReports from the South Dakota Department of Education, where he oversaw science education in addition to social studies, fine arts, advanced placement, the South Dakota Virtual School, among other programs, and was also a participant in the SD Governor's Leadership Program. Sam worked statewide with teachers and school leadership to advance education related to college and career readiness (CCR), specifically with regard to NGSS standards implementation. Prior to his role at the Department of Education, Sam was a middle school science teacher. He has also held positions of board director and financial officer with the Council of State Science Supervisors (CSSS) where he was also a collaborator on the Science Professional Learning Standards. Sam earned his B.S. in Biology from South Dakota State University and his Executive Master in Public Administration from the University of South Dakota.

Tricia I. Shelton

Member

Tricia Shelton worked with Kentucky students for 22 years as a middle school and high school science teacher and teacher leader. Tricia is a 2014 NSTA Distinguished Teaching Award winner for her contributions to and demonstrated excellence in science teaching. Tricia served as an EQuIP Trainer for Achieve and a Professional Learning Designer and Facilitator for many organizations before joining the NSTA team. At NSTA, Tricia is the Chief Learning Officer and, in that capacity, works to support educators and students across the county as they work to integrate contemporary research in science education into classroom teaching and learning. Tricia Shelton earned a Masters in Arts in Teaching and a Bachelor's of Science in Biology, Tricia works to support educators and students across the county as they work to integrate contemporary research in science education into classroom teaching and learning.

Amy Stephens

Staff Officer