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Division of Behavioral and Social Sciences and Education

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Panelist Biographies

WILLIAM B. BONVILLIAN, J.D., is a Lecturer at the Massachusetts Institute of Technology, in MIT's Political Science and Science Technology and Society Departments, teaching courses on science and technology policy. He is a Senior Director, for Special Projects, at MIT's Office of Open Learning conducting research projects on workforce education and innovation policy. Previously, he was Director of MIT's Washington, D.C. Office between 2006 and 2017, supporting MIT's role on national science and technology policy. He was an advisor to MIT's Production in the Innovation Economy study published in 2013, and participated for MIT in President Obama's industry-university Advanced Manufacturing Partnership and its major reports of 2011 and 2014. Prior to MIT, he served for over fifteen years as a senior policy advisor in the U.S. Senate working on innovation issues. Earlier, he served as a Deputy Assistant Secretary in the U.S. Department of Transportation working on infrastructure and deregulation policies.

His recent research focuses on industrial policy, workforce education, and advanced manufacturing. He is the coauthor of five books: *Workforce Education, a New Roadmap* (with Sanjay E. Sarma - MIT Press 2021); *The DARPA Model for Transformative Technologie*s (with Richard VanAtta and Patrick Windham - Open Book Publishers 2020); *Advanced Manufacturing - The New American Innovation Policies* (with Peter L. Singer - MIT Press 2018); *Technological Innovation in Legacy Sectors* (with Charles Weiss - Oxford University Press 2015); and *Structuring an Energy Technology Revolution* (with Charles Weiss - MIT Press 2009). He is the author of over forty journal articles and reports.

He has lectured and given speeches before numerous organizations and universities on science, technology and innovation questions. He has testified before Congressional committees as well as the UK Parliament's Committee on Science and Technology. He serves on the National Academies of Sciences' Board on Materials and Manufacturing and its standing committee for the Science Policy Forum, and has served on eight other Academies' committees. He chaired the American Association for the Advancement of Science (AAAS) standing Committee on Science, Engineering and Public Policy (COSEPP) for four years, is on the GAO's Polaris Council on Science and Technology, is a Member of the Babbage Policy Forum at Cambridge University, and is on the board of the Information Technology and Innovation Foundation. He has degrees from Columbia, Yale and Columbia Law School. He was the recipient of the IEEE Distinguished Public Service Award in 2007 and was elected a Fellow by the AAAS in 2011.

TERRANCE BURGESS, Ph.D., is an Assistant Professor of science education in the Department of Teacher Education at Michigan State University. He holds a B.A. degree in Geological Sciences and a M.A. degree in Education from the University of North Carolina at Chapel Hill. He also holds a Ph.D. in Teaching and Curriculum with a specialization in Science Education from Syracuse University. Broadly, his research focuses on how increasing equitable

science learning opportunities for elementary youth of color influences their multiple identities within urban schools and communities. More specifically, his work utilizes qualitative methodologies to center the voices of youth of color as they engage in science learning to make sense of how they come to view themselves as scientists while contending with their other identities. Additional areas of his research explore how teachers' positionalities and their implementation of standards-driven curricula tend to youth's multiple identities. Prior to joining the faculty at Michigan State University, Terrance was a secondary science teacher in Durham, NC.

DANIEL EDELSON, Ph.D., is executive director of BSCS, a nonprofit dedicated to transforming science education through research-driven innovation. He brings significant experience as a curriculum developer, educational researcher, and advocate for educational reform to this role. Prior to joining BSCS in 2015, Dr. Edelson was vice president for education at the National Geographic Society, where he led National Geographic's educational outreach and reform efforts. From 1993-2007, Dr. Edelson served on the faculties of Northwestern University's Program in the Learning Sciences and Department of Computer Science, where he conducted research on curriculum design, professional development, and applications of technology.

Dr. Edelson's curriculum development experience includes leading the development of the *OpenSciEd Middle School Science Program* (2022), a comprehensive 3-year program designed for the Next Generation Science Standards and *Investigations in Environmental Science* (2006), a one-year high school environmental science course. He is also author of units in two comprehensive middle school science programs, *Project-Based Inquiry Science (2009)* and *Investigating and Questioning our World through Science and Technology (2011)*. As an educational software developer, he led the development of several environments for visualizing and analyzing geographic data, including *FieldScope (2015), My World GIS (2005)*, and *WorldWatcher (2005)*. As an advocate and researcher, Dr. Edelson has written extensively on the importance of geoscience, geography, and environmental science education, and he has published numerous research papers on instructional materials design, educational technology, motivation, and teacher professional development. Dr. Edelson received his Ph.D. in Computer Science from Northwestern University and his B.S. in Engineering Sciences from Yale University.

MAYA GARCIA, M.A, 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 Board of the Council

of State Science Supervisors, and serves as a liaison for the organization's Equity and Access Committee. This organization serves to coordinate and support efforts of the state science supervisors of all states and territories as they work to advance science education. 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.

ASHLEY HUDERSON, Ph.D., is a STEM policy expert, researcher, entrepreneur, author, and professor. Dr. Huderson has extensive experience as a skilled facilitator, leader, academic trainer, and STEM (Science, Technology, Engineering, Arts and Mathematics) curriculum designer and advocate. She has over 15 years of STEM outreach and advocacy in the community developing informal science programs and mentoring STEM majors.

In her current role, Dr. Huderson works in the Office of the Deputy Secretary of Education as a STEM and CS Equity Policy Fellow. She is working to develop and implement a STEM and CS strategy that advances the Secretary's vision for education in America and supports the strategic goals and priorities of the Department.

Prior to joining the Department of Education, Dr. Huderson served as the Director of Engineering Education and Outreach at the American Society of Mechanical Engineers, where she led the Engineering Education and Outreach department in designing, planning, organizing, overseeing and implementing educational programs and projects that define ASME's role and impact in K-12 STEM Education, Engineering Education and Scholarships.

She has published over 12 peer reviewed articles, including two book chapters on Urban STEM education and counter spaces for minority women in STEM. She has also been the recipient of several awards and honors including the 2019 McD #35 Alum of the Year award, 2020 BEYA Modern-Day Technology Leader award, and the 2020 UNCF WIAC Grace Walker Phillips Leadership Award. She also serves as a member of the AAAS Committee on Science, Engineering and Public Policy (COSEPP).

Dr. Huderson is a native of New Orleans, LA, and completed her undergraduate training at Spelman College (2006), a certificate in Health Policy (2012) and doctoral work at Meharry Medical College (2013). Her post-doctoral work included a fellowship at Georgetown University Lombardi Cancer Center's Office of Health Disparities and Minority Research (2015) and a 2015-2017 American Association for the Advancement of Science, Science and Technology Policy (AAAS S&T) Fellow in the Engineering Education and Centers' division (EEC) at the National Science Foundation. She is currently completing her MBA studies at Georgetown University, with an expected graduation date of May 2023.

MARY MURPHY, Ph.D., is the Herman B. Wells Endowed Professor of Psychological and Brain Sciences and the founder of the Equity Accelerator at Indiana University, a research, practice, and policy organization focused on creating more equitable learning and working environments through social and behavioral science. In the realm of education, her research illuminates the situational cues—like faculty and institutional mindset—that influence students' academic motivation and achievement with an emphasis on understanding when those processes

are similar and different for structurally advantaged and disadvantaged students. She develops, implements, and evaluates social psychological interventions that reduce identity threat and spur students' motivation, persistence, and performance. In the realm of organizations and tech, her research examines barriers and solutions for building gender and racial diversity and inclusion in STEM fields. In particular, she examines the role of organizational mindset in companies' organizational culture, employee engagement and performance, and diversity, equity, and inclusion. Mary is Latina from San Antonio, Texas and earned her B.A. from the University of Texas at Austin and her Ph.D. from Stanford University. She completed a National Science Foundation (NSF) postdoctoral fellowship at Northwestern University. In 2012, she joined the faculty of Indiana University and, in 2013, was named a Rising Star by the Association for Psychological Science. In 2019, she was awarded the Presidential Early Career Award for Scientists and Engineers (PECASE)—the highest honor bestowed on early career scientists by the United States Government. She is the recipient of over $9 million in federal and foundation grants including a $2.2 million NSF CAREER award for her research on strategies to improve diversity in STEM. Her research has been profiled in *The New York Times, Forbes, Harvard Business Review, Scientific American*, and *NPR*, among other outlets. Mary's new book on organizational mindset, *Cultures of Growth*, is set to be published by Simon & Schuster in 2024.

TIFFANY NEILL, Ph.D., is a research scientist at the University of Washington, Institute for Science + Math Education.

Dr. Neill began her career as a middle and high school teacher in Vinita Oklahoma, where she taught in both traditional and non-traditional settings. She later assumed a position as an instructional specialist at the K20 Center for Community and Educational Renewal at the University of Oklahoma where she developed a state-wide program known as K20alt designed to support alternative education teachers around the state with innovative and effective approaches to instruction for at-promise students. In 2012, she joined the Oklahoma State Department of Education (OSDE) as the Director of Science Education. Dr. Neill served in the role for 5 years before becoming the Executive Director of Curriculum and Instruction and later the Deputy Superintendent of Curriculum and Instruction at OSDE.

Dr. Neill has been a national leader in STEM education for over 10 years. Recently she served as a committee member for the National Academies of Science reports, *A Call to Action for Science Education: Building Opportunity for the Future* and *Enhancing Science and Engineering in Prekindergarten through Fifth Grade*. She has also served on the President's STEM Advisory Panel and currently, she is serving on the National Assessment Governing Board's development panel to update the NAEP Science Assessment Framework. Dr. Neill proudly served as the president of the Council of State Science Supervisors from 2017-2019 and as a co-principal investigator for ACESSE, an NSF funded grant designed to advance coherence and equitable systems of science education.

Dr. Neill earned a bachelor's degree in biology from Northeastern State University in Tahlequah, Oklahoma and a master's in science education and Doctor of Philosophy in education from the University of Oklahoma.

JAMIE RUMAGE, M.S., serves as the Science Education Specialist at the Oregon Department of Education (ODE). In her role, she strives to elevate educational equity by supporting a statewide science education system that intentionally broadens the participation and engagement for each and every student. She develops science policy, practices, and procedures that build

affirming K-12 science classrooms that harness students' culture, linguistic diversity, interests, identity, and knowledge. She continues to coordinate these efforts through the implementation of the Next Generation Science Standards (NGSS) to advance high quality science education. She is currently the President of the Council of State Science Supervisors (CSSS), a professional organization whose members have direct accountability to the state territorial agencies given the constitutional authority for education. Within the CSSS, she co-led the development of the CSSS Position Statement on Equity and Access to Science Education and Climate Change Education. She holds a B.S. in environmental education from Western Illinois University and a M.S. in science education from Oregon State University.

TRAVIS YORK, Ph.D., is the Director of Inclusive STEMM Ecosystems for Equity & Diversity (ISEED) at the American Association for the Advancement of Science (AAAS). Dr. York's research and work focus on catalyzing and sustaining systemic change and transformation to achieve inclusive and equitable STEMM talent development. Within AAAS, Dr. York provides leadership to a talented team who collaborates to create systemic change through more than 20 grant-funded projects and initiatives spanning all STEMM fields and the entire educational pathway including the STEMM Opportunity Alliance - recently launched at the White House Summit on STEMM Equity & Excellence, AAAS's SEA Change Initiative, L'Oreal USA For Women in Science Fellowships, and HBCU Making & Innovation Showcase. Dr. York serves as Principal Investigator of the AAAS Scholarships in STEM Resources & Evaluation Center (S-STEM REC), AAAS Noyce/ARISE (Advancing Research and Innovation in the STEM Education of Preservice Teachers in High-Need School Districts), the AAAS Improving Undergraduate STEM Education (IUSE) initiatives, and the Catalyzing a Data Infrastructure to Support LGBTQ Inclusion in STEM. Dr. York has authored numerous peer-reviewed articles and book chapters, is active within several professional associations, and serves on the editorial review board of the Journal of Diversity in Higher Education.