Supporting English Learners in STEM Subjects

Committee

David J. Francis

Chair

DAVID FRANCIS is the Hugh Roy and Lillie Cranz Cullen Distinguished University Chair of Quantitative Methods and former Chairman of the Department of Psychology (2002-2014) at the University of Houston, where he also serves as Director of the Texas Institute for Measurement, Evaluation, and Statistics (TIMES), and as Co-Director of the Center for Advanced Computing and Data Systems (CACDS). He is a Fellow of Division 5 (Measurement, Evaluation, and Statistics) of the American Psychological Association, an Inaugural Fellow of the American Educational Research Association, and a Fellow of the Association for Psychological Science. He is currently Chair of the National Research Council's (NRC) Board on Testing and Assessment, and has served on several NRC consensus panels, including the panel on Developmental Outcomes and Assessment of Young Children, and most recently on the panel to review NAEP Achievement Levels. Since early 2000, his research has focused on English Language Learners, including directing an IES funded National Research and Development Center along with several large, federally funded individual and program projects. He was a recipient of the 2006 Albert J. Harris Award from the International Reading Association, and has received the University of Houston's Teaching Excellence Award (1989), Excellence in Research and Scholarship Award (2007), and the Esther Farfel Award (2008), which recognizes career accomplishments in research, teaching, and service, and is the highest award given to faculty members at the University of Houston. Dr. Francis received his Ph.D. in Clinical-Neuropsychology from the University of Houston with a specialization in Quantitative Methods.

Alison Bailey

Member

ALISON BAILEY is Professor of Human Development and Psychology at the University of California, Los Angeles, working on issues germane to children's linguistic, social, and educational development. Her areas of research include first and second language acquisition, early literacy development, and academic language pedagogy and assessment with school-age English learners. She has most recently published in Teachers College Record, Educational Researcher, Journal of Mathematical Behavior, Review of Research in Education, Language Testing, Language Assessment Quarterly, TESOL Quarterly, and Educational Policy. Dr. Bailey is Principal Investigator of the Dynamic Language Learning Progressions project funded by the multi-state ASSETS Consortium (U.S. Dept. of Education) and the Wisconsin Center for Education Research. Her most recent book is Children's Multilingual Development and Education: Fostering linguistic resources in home and school contexts with Anna Osipova (Cambridge University Press). Dr. Bailey is a Faculty Research Partner at the National Center for Research on Evaluation, Standards, and Student Testing (CRESST), serves on the advisory boards of a number of states and consortia developing next generation English language assessments including the English Language Proficiency Assessments for California (ELPAC) Technical Advisory Group, and is a member of the NAEP Standing Committee on Reading and the National Council on Measurement in Education President's Task Force on Classroom Assessment. Dr. Bailey received her Ed.D. in Human Development and Psychology at Harvard University.

Hyman Bass

Member

HYMAN BASS (NAS) is Samuel Eilenberg Distinguished University Professor of Mathematics and Mathematics Education at the University of Michigan. He taught in the Columbia University mathematics department, which he once chaired, before moving to the University Michigan in 1999. His mathematical work is mainly in commutative homological algebra, algebraic K-theory, and geometric group theory. He has held visiting appointments in many countries, extensively in India and in France, where he collaborated with N. Bourbaki. In the 1990s, he was enlisted by Deborah Ball to study mathematics in elementary classrooms, in part to develop a practice-based theory of the mathematical knowledge demanded by the work of teaching. Currently, he is also interested in mathematical practices (and their relation to science practices), specifically in how the problem-solving/theory-building duality in the way mathematicians work could have a meaningful expression in school mathematics. He is also exploring ways to make mathematics instruction at all levels more equitable and inclusive. Dr. Bass is a member of the National Academy of Sciences, the American Academy of Arts and Sciences, the Third World Academy of Sciences, and the National Academy of Education. He is past president of the American Mathematical Society and of the International Commission on Mathematical Instruction. He received the U. S. National Medal of Science in 2007. Dr. Bass has a Ph.D. in mathematics from the University of Chicago.

Cory Buxton

Member

CORY BUXTON is the UGA Athletic Association Professor of Education in the Department of Educational Theory and Practice (Middle Grades Education) at the University of Georgia. He was previously a faculty member at the University of New Orleans and the University of Miami. Before becoming a teacher educator and educational researcher, Dr. Buxton was a Peace Corps volunteer in Guatemala and a middle school and high school science and ESOL teacher in New Orleans and Colorado. His research promotes more equitable science learning opportunities for all students and especially for emergent bilingual learners. His most recent work focuses on creating spaces where students, parents, teachers, and researchers can engage together as co-learners while strengthening their academic relationships, their knowledge of science and engineering practices, and their ownership of the language of science. His research has been funded by the National Science Foundation, the U.S. Department of Education, and several private foundations. Dr. Buxton received his Ph.D. in Science Education at the University of Colorado at Boulder.

Kathryn Chval

Member

KATHRYN CHVAL is the Joanne H. Hook Dean's Chair in Educational Renewal, the Dean of the College of Education, and Professor of Mathematics Education at the University of Missouri. Prior to joining the University of Missouri in 2003, Kathryn was the Acting Section Head for the Teacher Professional Continuum Program in the Division of Elementary, Secondary and Informal Science at the National Science Foundation (NSF). Kathryn worked at the University of Illinois at Chicago from 1989-2001 after leaving her position as a third grade teacher. She has directed or co-directed research teams that received nearly $21 million in funding and was funded continuously by the NSF from 1995 to 2016. Additionally, she is the recipient of the prestigious NSF Early Career Award and the Association of Mathematics Teacher Educators (AMTE) Early Career Award. Her research focuses on effective preparation models and support structures for teachers, effective elementary mathematics teaching for English language learners, and curriculum standards and policies. Dr. Chval earned her Ph.D. at the University of Illinois at Chicago.

Marta Civil

Member

MARTA CIVIL is a Professor of Mathematics Education and the Roy F. Graesser Endowed Chair in the Department of Mathematics at the University of Arizona. Her research focuses on cultural, social, and language aspects in the teaching and learning of mathematics, linking in-school and out-of-school mathematics, and parental engagement in mathematics. Dr. Civil led several NSF-funded initiatives involving children, teachers, and parents, including Girls in the SYSTEM (Sustaining Youth in Science, Technology, Engineering and Mathematics), a gender equity project aimed at engaging low-income, culturally diverse children ages 8-13 in hands-on mathematics and science explorations in informal and after- school settings; MAPPS (Math and Parent Partnerships in the Southwest), which had as a goal to promote Latina/o parental involvement in mathematics through the development of leadership teams who learned about mathematics and in turn facilitated workshops for parents within their school district; and CEMELA (Center for the Mathematics Education of Latinos/as), an interdisciplinary, multi-university consortium focused on research and practice on the connections between the teaching and learning of mathematics and the cultural, social, and linguistic contexts of Latina/o students. She teaches primarily mathematics and mathematics education courses for preservice and practicing teachers and graduate courses on research in mathematics education. Dr. Civil received her Ph.D. in Mathematics Education from the University of Illinois at Urbana-Champaign.

Christine M. Cunningham

Member

CHRISTINE CUNNINGHAM is a vice president at the Museum of Science, Boston where she works to make engineering and science more relevant, accessible, and understandable, especially for underserved and underrepresented populations. As the Founding Director of Engineering is Elementary (EiE), she has developed engineering curricula for preschool through middle-school students and professional development for their teachers. To date, EiE has reached more than 13 million children and 150,000 teachers. Dr. Cunningham has previously served as director of the Tufts University Center for Engineering Educational Outreach, where her work focused on integrating engineering with science, technology, and math in professional development for K-12 teachers. She also directed the Women's Experiences in College Engineering (WECE) project, the first national, longitudinal, large-scale study of the factors that support young women pursuing engineering degrees. Dr. Cunningham is a Fellow of the American Society for Engineering Education and has been recognized with the K-12 and Pre-College Division Lifetime Achievement Award. She also was awarded the 2014 International Society for Design and Development in Education Prize and the 2015 IEEE Pre-University Educator Award. Dr. Cunningham received her Ph.D. in science education, curriculum, and instruction from Cornell University.

Leslie Herrenkohl

Member

LESLIE HERRENKOHL is Co-Director of the 3DL Partnership and Professor in the College of Education at the University of Washington. Her research seeks to understand the contextual and social features of learning environments and their impact on participants' learning and development. She has conducted research on children's school science learning in diverse urban settings across the United States, with many racial, ethnic, and linguistic groups represented. Her work investigates the pedagogical dilemmas that teachers face when engaging elementary and middle school students in scientific inquiry and the practices that the teachers developed to support students' learning around the most challenging aspects of inquiry. Through the 3DL Partnership, collaborations among researchers, local PreK-12 schools, youth organizations, and families serve to provide innovative, community-based solutions to help young learners acquire the skills, competencies, and resilience needed to thrive. Dr. Herrenkohl received her Ph.D. in Developmental Psychology from Clark University.

Megan Hopkins

Member

MEGAN HOPKINS is an Assistant Professor of Education Studies at the University of California, San Diego (UCSD). Before joining UCSD, Dr. Hopkins held faculty appointments at the Pennsylvania State University and University of Illinois at Chicago. Her research explores how to organize schools and school systems for equity, particularly for English learners and immigrant students. Her current work uses mixed methods, including social network analysis, to examine how organizational structures, norms, and beliefs, influence policy implementation and teachers' professional learning in bi/multilingual contexts. Her research has been funded by the U.S. Department of Education's Office of English Language Acquisition, the Spencer Foundation, and the W.T. Grant Foundation. Her scholarship has appeared in several top-tier journals, including American Educational Research Journal, Educational Policy, Educational Researcher, and Journal of Teacher Education, and she is co-editor of the volumes Forbidden Language: English Learners and Restrictive Language Policies (with P. Gándara, Teachers College Press, 2010) and School Integration Matters: Research-Based Strategies to Advance Equity (with E. Frankenberg and L. M. Garces, Teachers College Press, 2016). In 2012, Hopkins received the Dissertation of the Year Award from the Bilingual Education Research Special Interest Group of the American Educational Research Association. In 2016, she was selected as a National Academy of Education/Spencer Foundation Postdoctoral Fellow. She is also a member and fellow of the Working Group on ELL Policy. Dr. Hopkins received her M.Ed. in International Education Policy from Harvard University, and her Ph.D. in Education at the University of California, Los Angeles.

Okhee Lee

Member

OKHEE LEE is a Professor of Childhood Education at New York University Steinhardt and taught in the School of Education at the University of Miami prior to coming to Steinhardt. Her research areas include science education, language and culture, and teacher education. She is currently leading collaborate research to develop instructional materials aligned with the Next Generation Science Standards (NGSS) to support the language development of elementary students including English learners. She was a member of the writing team to develop the NGSS and leader for the NGSS Diversity and Equity Team through Achieve Inc. She was also a member of the Steering Committee for the Understanding Language Initiative at Stanford University. She was a 2009 Fellow of the American Educational Research Association (AERA), received the Distinguished Career Award from the AERA Scholars of Color in Education in 2003, and was awarded a 1993-95 National Academy of Education Spencer Post-doctoral Fellowship. Dr. Lee received her Ph.D. in Educational Psychology from Michigan State University.

Judit Moschkovich

Member

JUDIT MOSCHKOVICH is Professor of Mathematics Education at the University of California at Santa Cruz. Her research uses sociocultural approaches to study mathematical thinking and learning, mathematical discourse, and language issues in mathematics education. In particular, her research has focused on the transition from arithmetic to algebraic thinking, mathematical discourse, and learning/teaching mathematics in classrooms with students who are bilingual, Latino/a, and/or learning English. Dr. Moschkovich was Co-PI for the Center for the Mathematics Education of Latinos/as (CEMELA) and is a founding partner of the Understanding Language initiative. She has served on the Editorial Panel for the Journal for Research in Mathematics Education (1997-2000), the Review Board for the Journal for the Learning Sciences, and as Chair for the AERA SIG-Research in Mathematics Education. She also served as co-editor of a Canadian Journal for Science, Mathematics, and Technology Education Special Issue on Equitable access to participation in mathematical discussions: Looking at students' discourse, experiences, and perspectives and as a member of the Editorial Panel for a Special Issue on Equity of the Journal for Research in Mathematics Education. She currently serves on the Editorial Boards for the Journal of the Learning Sciences, Cognition and Instruction, and the Journal of Mathematical Behavior. Dr. Moschkovich received her Ph.D. from the Department of Education in Mathematics Science and Technology at the University of California, Berkeley.

Kendra R. Pullen

Member

K. RENEE PULLEN is a current member of the National Academies Teacher Advisory Council. She has been an educator in Caddo Parish Public Schools for over 17 years. Currently, she is the K-6 Science Curriculum Instructional Specialist for Caddo Parish. She previously taught both third and fourth grades at Herndon Magnet and Riverside Elementary in Shreveport, and she has been an adjunct professor for Louisiana Technical University (teacher leadership) and LSU-Shreveport (elementary science methods). Ms. Pullen has received numerous awards and honors including Walmart Local Teacher of the Year, Caddo Parish Elementary Teacher of the Year, a Fund for Teachers fellowship to study in Spain, a National Endowment for the Humanities fellowship to study the American skyscraper in Chicago, IL, numerous grants to support STEM instruction, and the Presidential Award for Excellence in Science and Mathematics Teaching in 2008. Ms. Pullen is dedicated to professional service. She has served on several local, state, and national committees and presented at numerous district, state, and national workshops and conferences. In 2011, she participated in the White House Champions of Change Event: Women & Girls in STEM. Ms. Pullen has a B.A. in Elementary Education from Northwestern State University, a M.Ed. in Educational Leadership from Louisiana State University in Shreveport, and she is certified as a Teacher Leader by the State of Louisiana.

Maria Santos

Member

MARÍA SANTOS is the co-chair and Senior Advisor for Leadership at Understanding Language and Director for School and District Services in the Comprehensive School Assistance Program at WestEd. From 2010-2014, she served as Deputy Superintendent for Instruction, Leadership and Equity-in-Action at the Oakland Unified School District and is a 2014 Leaders To Learn From leader by Education Week. Until 2010, she was the Senior Instructional Manager and Superintendent for the Office of English Language Learners (ELLS) at the New York City Department of Education. Before going to New York City, Ms. Santos spent 20 years in the San Francisco Unified School District (SFUSD). As an Associate Superintendent, she supervised the development of major instructional improvement initiatives such as SFUSD's Professional Development Initiative and gained SFUSD the recognition of an Exemplary Site by the U.S. Department of Education's National Award for Professional Development. Ms. Santos received her MS in Educational Administration from San Francisco State University.

Mary Schleppegrell

Member

MARY SCHLEPPEGRELL is Professor of Education at the University of Michigan. A linguist, she uses systemic functional linguistics to explore meaning in language in ways that illuminate issues in education, with a focus on students for whom English is a second or additional language. Dr. Schleppegrell's recent IES-funded research with Annemarie Palincsar explored ways of supporting English learners in the elementary school through use of metalanguage that brings a focus on meaning to discussion about language in the texts students read and write. She has investigated the linguistic challenges of learning in science, engineering, and mathematics classrooms for 20 years, with publications in Environmental Education Research, Research in the Teaching of English, Reading and Writing Quarterly, and For the Learning of Mathematics, as well as in numerous book chapters for researchers and teachers. Her books include The Language of Schooling (Erlbaum, 2004), Developing Advanced Literacy in First and Second Languages (co-edited with Cecilia Colombi, Erlbaum, 2002,) Reading in Secondary Content Areas (with Zhihui Fang, University of Michigan Press, 2008), and Focus on Grammar and Meaning (with Luciana de Oliveira, Oxford University Press, 2015). Dr. Schleppegrell received her Ph.D. in Linguistics from Georgetown University.

Guillermo Solano-Flores

Member

GUILLERMO SOLANO-FLORES is Professor of Education at the Stanford University Graduate School of Education. He specializes in educational assessment and the linguistic and cultural issues that are relevant to both international test comparisons and the testing of cultural and linguistic minorities. His research is based on the use of multidisciplinary approaches that use psychometrics, sociolinguistics, semiotics, and cognitive science in combination. Dr. Solano-Flores has conducted research on the development, translation, localization, and review of science and mathematics tests. He has been principal investigator in several National Science Foundation funded projects that have examined the intersection of psychometrics, semiotics, and linguistics in testing. He is the author of the theory of test translation error, which addresses testing across cultures and languages. Dr. Solano-Flores has investigated the use of generalizability theory—a psychometric theory of measurement error—in the testing of English language learners and indigenous populations. Current research projects examine academic language and testing, formative assessment practices for culturally diverse science classrooms, and the design and use of illustrations in international test comparisons and in the testing of English language learners. Dr. Solano-Flores received his Ph.D. in Education with an emphasis in methodology and measurement form the University of California, Santa Barbara.