Evaluation Framework for Successful K-12 STEM Education: A Consensus Study

Committee Biosketches

ADAM GAMORAN (*Chair*) is the John D. MacArthur Professor of Sociology and Educational Policy Studies and Director of the Wisconsin Center for Education Research at the University of Wisconsin-Madison. His research focuses on inequality in education and school reform. His most recent edited works are *Standards-based reform and the poverty gap: Lessons for No Child Left Behind* (Brookings Institution Press, 2007) and, with Yossi Shavit and Richard Arum, *Stratification in higher education: A comparative study* (Stanford University Press, 2007). Current studies include two large-scale randomized trials: one, supported by the National Science Foundation, focuses on the impact of professional development to improve teaching and learning in elementary science in the Los Angeles Unified School District; the second, supported by the National Institute for Child Health and Human Development, examines the impact of a parent involvement program to promote family-school social capital and student success in school districts in San Antonio and Phoenix. With support from the U.S. Department of Education's Institute of Education Sciences, he also directs an interdisciplinary training program that prepares social science doctoral students to conduct rigorous research on pressing problems of education policy and practice. Gamoran is a member of the National Academy of Education, and he has served on a variety of national committees, including the NRC's Board on International Comparative Studies of Education. He chaired the NRC's Committee on a Highly Successful Schools or Programs for K-12 Education. Currently he chairs the congressionally-mandated Independent Advisory Panel of the National Assessment of Career and Technical Education for the U.S. Department of Education.

RENA DORPH is director of The Research Group at the Lawrence Hall of Science, Berkeley, California. Dr. Dorph provides leadership and support for the Lawrence Hall of Science community as well as for organizations that contract with the Research Group. She has worked in the field of educational research and evaluation for over 15 years. Prior to joining the Lawrence Hall of Science, Dr. Dorph served as director for research, policy, and technology in the teacher education and professional development unit of the University of California Office of the President; as an educational consultant for California schools, districts, and county offices of education; as the lead researcher and coordinator for the SB1274 School Restructuring Study based at the University of California, Berkeley; and for the National Center for Restructuring Education, Schools, and Teaching at Columbia University/Teachers College in New York City. Dr. Dorph's research focuses on the relationship between learning experiences and outcomes, paying consistent attention to issues of equity and impact. She received her master's degree in the sociology of education from Teachers College at Columbia University and her doctorate from the University of California, Berkeley in educational policy, organization, measurement, and evaluation.

MARK DYNARSKI is a researcher with Pemberton Research, LLC. He is also associated with the Chesapeake Research Associates. He was the former vice president and director of the Center for Improving Research Evidence (CIRE) at Mathematica from 1988 to 2010. His research interests focus on evidence based policy, educational policy, school dropout programs, 21st

century after-school programs, and educational technology. His expertise is in econometrics and evaluation methodology, including the design, implementation and analysis of evaluations of education programs using random assignment and quasi-experimental design. Dr. Dynarski previously served on the NRC Commitee on Workshop Series for the U.S. Department of Education's Equity and Excellence Commission and Committee on Evaluation of the Impact of Teacher Certification by the National Board for Professional Teaching Standards. He is currently a member of Committee on Workshop on Key National Education Indicators. Dr. Dynarski received his Ph.D. in economics from Johns Hopkins University.

DAVID J. FRANCIS is Hugh Roy and Lillie Cranz Cullen distinguished professor and chair of the Department of Psychology at the University of Houston, where he also serves as director of the Texas Institute for Measurement, Evaluation, and Statistics. Dr. Francis has authored or co-authored over 120 peer-reviewed articles and book chapters and is a Fellow of Division 5 (Measurement, Evaluation, and Statistics) of the American Psychological Association. He currently serves on the Independent Review Panel for the National Assessment of Title I, and the Institute of Education Sciences Reading and Writing Peer Review Panel. He previously served as an official advisor to the U.S. Department of Education on assessment and accountability during negotiated rule making for No Child Left Behind, as a member of the National Technical Advisory Group of the What Works Clearing House, and as a member of the National Literacy Panel for Language Minority Youth and Children. He is a co-developer of the Texas Primary Reading Inventory and Tejas Lee early reading assessments. He is a current member of the NRC's Board on Testing and Assessment. He was a member of Roundtable on Education Systems and Accountability and Committee to Respond to the Department of Education Race to the Top Proposal. Dr. Francis earned his Ph.D. in clinical neuropsychology at the University of Houston.

SHARON J. LEWIS is the director of research for the Council of the Great City Schools in Washington, D.C. She directs the Council's research program, which contributes to the organization's efforts to improve teaching and learning in the nation's urban schools as well as help develop education policy. She has previously worked as a national education consultant. Earlier, she was assistant superintendent, research, development and coordination, with the Detroit Public Schools, where she retired. She has extensive experience with the NRC, including serving on the Committee on Test Design for K-12 Science Achievement, the Board on International Comparative Studies in Education, and the Committee on a Framework and Long-term Reserach Agenda for International Comparative Education Studies. Ms. Lewis earned an M.A. in educational research from Wayne State University.

BARBARA MEANS is the co-director of the Center for Technology in Learning at SRI International. She directs SRI's study of science learning in California afterschool programs and a national study of how schools are using student data to inform instructional decision making. Dr. Means' research focuses on ways to foster students' learning of advanced skills through the introduction of technology-supported innovations. She led the recently completed comprehensive meta-analysis of research on the effectiveness of online learning for the U.S. Department of Education. Other recent work includes a synthesis of cognitive, curriculum, and intervention research on secondary mathematics learning and an examination of high schools with a science, technology, engineering, mathematics (STEM) focus. Dr. Means served as a member on the NRC's Board on Testing Assessment , on the Committee on Developments in the Science of

Learning, which produced the volume *How People Learn*, and on the Committee on Highly Successful Schools and/or Programs for K-12 STEM Education. Her published works include the edited volumes *Evaluating Educational Technology, Technology* and *Education Reform*, and *Teaching Advanced Skills to At-Risk Students*. Dr. Means co-authored *The Connected School* and *Comparative Studies of How People Think*. Dr. Means earned her A.B. in psychology from Stanford University and her Ph.D. in educational psychology at the University of California, Berkeley.

MEREDITH PHILLIPS is an associate professor of public policy and sociology at University of California, Los Angeles, where she teaches courses on statistics, research methods, and education policy. In 2000, 2002, and 2008 Dr. Phillips received the Public Policy Professor of the Year award for excellence in teaching. She studies the causes and consequences of educational inequality. She is particularly interested in the causes of ethnic and socioeconomic disparities in academic success and how to reduce those disparities. Her current projects include a mixed-method, longitudinal study of how students' experiences at an ethnically diverse, highly-selective university influence their major choices, course-taking patterns, and academic progress; an ethnographic longitudinal study of the role of "oppositional culture" in generating academic disparities among early adolescents; a quantitative study documenting the association between K-12 school quality and neighborhood characteristics; and a quantitative study of the role of parenting practices and children's time use in generating early childhood achievement disparities. These projects have been supported by, among others, the Andrew W. Mellon Foundation, the Russell Sage Foundation, the Spencer Foundation, and the U.S. Department of Education. Dr. Phillips is also co-founder and board president of EdBoost, a charitable, educational non-profit whose mission is to reduce educational inequality by making high-quality supplemental educational services accessible to children from all family backgrounds. She received her Ph.D. from Northwestern University and her A.B. from Brown University.

WILLIAM H. SCHMIDT is a university distinguished professor at Michigan State University and is currently interim director of the Institute for Research on Mathematics and Science Education. He also serves as co-director of the Education Policy Center, co-director of the U.S. China Center for Research, and holds faculty appointments in the Departments of Statistics and Educational Psychology. Previously, he served as national research coordinator and executive director of the U.S. National Research Center which oversaw U.S. participation in the Third International Mathematics and Science Study (TIMSS). He has published in numerous journals including the *Journal of the American Statistical Association*, *Journal of Educational Statistics*, and the *Journal of Educational Measurement*. He has co-authored seven books including "Why Schools Matter." Dr. Schmidt received the1998 Willard Jacobson Lectureship from The New York Academy of Sciences and is a member of the National Academy of Education. In 2009, he was elected in the first group of fellows in the American Educational Research Association. Dr. Schmidt served on the Steering Committee for Review of the Evaluation Data on the Effectiveness of NSF-Supported Mathematics Curriculum Materials. Dr. Schmidt received his A.B. in mathematics from Concordia College in River Forrest, IL and his Ph.D. from the University of Chicago in psychometrics and applied statistics. He was also awarded an honorary doctorate degree from Concordia University in 1997.

THOMAS SMITH is an associate professor of public policy and education at Vanderbilt University. Dr. Smith has considerable experience in both the federal and international education research community. Between 1991 and 2001, he conducted and managed statistical research activities at the U.S. Department of Education's National Center for Education Statistics (NCES), the Organisation for Economic Cooperation and Development (OECD), and the National Science Foundation (NSF). Much of his work has focused on the development of indicators for education policy making. While at OECD, Dr. Smith was a key player in the revision and implementation of the International Standard Classification of Education (ISCED) and other activities to improve the comparability of education data collected cross nationally by OECD and UNESCO. Dr. Smith's current research agenda focuses on the organization of teaching quality, exploring relationships between educational policy (national, state, district, and school level), school organization, teacher commitment, and the quality of classroom instruction. He earned his Ph.D. from Pennsylvania State University.

RUTH N. LÓPEZ TURLEY is an associate profrressor of sociology and the director of the Houston Education Research Consortium at Rice University. Prior to coming to Rice, she was an assistant and associate professor of sociology at the University of Wisconsin – Madison, where she was a faculty affiliate of the Wisconsin Center for Education Research (WCER), the Interdisciplinary Training Program in Education Sciences (ITP), and the Institute for Research on Poverty (IRP). Dr. Turley's research focuses on educational inequality in the U.S., with the aim of closing socioeconomic gaps in achievement and attainment. Her work includes the study of the transition from high school to college, college expectations, the Hispanic-White college application gap, college proximity, parents' contributions to college costs, living on campus during college, K-12 educational outcomes of immigrant youth, the evidence-based school interventions movement, student mobility, and relations of trust among parents and school personnel (social capital). Her research has been funded by organizations such as the Russell Sage Foundation, the Spencer Foundation, and the National Institute of Child Health and Human Development. Dr. Turley received numerous teaching and mentoring awards at Wisconsin. Dr. Turley serves as a council member (elected) of the Sociology of Education Section of the American Sociological Association and is on the editorial board of the Sociology of Education journal.   Dr. Turley completed her undergraduate work at Stanford University and received her Ph.D. in sociology from Harvard University.

SUZANNE M. WILSON is a university distinguished professor at Michigan State University (MSU), where she currently serves as chair and professor in the Department of Teacher Education. Prior to joining the faculty at MSU, Dr. Wilson was the first director of the Teacher Assessment Project, which developed prototype assessments for the National Board for Professional Teaching Standards. While at MSU, she has collaborated on several large-scale research projects, including the National Center for Research on Teacher Education, the Educational Policy and Practice Study, and the National Partnership for Excellence and Accountability in Teaching. She has written on teacher knowledge, curriculum reform, educational policy, and teacher learning. She is currently co-principal investigator on *Entering the guild: The effects of teacher professional community and professional development on new teachers and their students*. Her interests include exploring various measures of teaching and teachers' understanding that might be used for teacher education and education research, as well as a study of the contemporary and jurisdictional battles over who should control teacher

education and licensure. Dr. Wilson is a current member of the NRC's Board on Science Education, and has previously served on the NRC's Committee on Teacher Preparation Programs in the U.S. and the Center for Education's advisory board. Dr. Wilson has a B.A. in history and American studies from Brown University and an M.S. in statistics and a Ph.D. in educational psychology from Stanford University.