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The Role of Authentic STEM Learning Experiences in Developing Interest and Competencies for Technology and Computing
Open Agenda – Meeting 2

Keck Center, Room 106
500 Fifth Street NW, Washington, DC
September 16, 2019

- 10:45 am **Welcome and Overview of the Study**
Barbara Means, Study Chair
- Presenters will be asked to respond specifically to questions included in our Statement of Task. Guiding consideration: What are the implications for our report? What is the strength of the evidence?*
- 10:50 pm **Panel Presentations: Robotics Competitions and Engineering Programs: Reaching Diverse Populations**
Moderated by Leah Jamieson (committee member)
Alan Melchior, Brandeis University
AnnMarie Thomas, University of St. Thomas (virtual)
- 11:30 pm Questions and Discussion with Panelist Presenters
- 12:00 pm **Lunch and Informal Discussion**
- 1:00 pm **Panel Presentations: Hobbies, STEM Outcomes, and Implications for Computing and Technology**
Moderated by Victor Lee (committee member)
Gail Jones, North Carolina State University
Flávio Azevedo, University of Texas at Austin
- 1:40 pm Questions and Discussion with Panelist Presenters
- 2:15 pm **Adjourn Open Session**

To Participate Virtually:

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International numbers available: <https://zoom.us/u/acQhtECnBa>

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Presenter Bios

FLÁVIO AZEVEDO is an Assistant Professor in the Department of Curriculum and Instruction at the University of Texas at Austin. His research is grounded in the learning and cognitive sciences and it is organized into three intersecting strands—the nature of STEM interests and interest-driven participation, learning out of schools, and foundations of cognition and learning in STEM disciplines. Broadly, the construct of interests refers to the diverse ways people engage any given activity, so that pedagogies for interest development can be powerful pedagogies of inclusion. Dr. Azevedo's three research strands are thus conceived to shed light on interest-driven learning across timescales and settings of STEM practice, in- and out-of-schools, as well as the socio-cultural and political contexts of such practices, as means to broadening participation in STEM and to intervening on mechanisms that (re)produce educational and social inequities. This work has appeared in publications such as the *Journal of the Learning Sciences*, *Cognition and Instruction*, *Science Education*, and the *Journal of Mathematical Behavior*.

GAIL JONES is a Professor of science education. Her teaching focuses on science teacher preparation and her research examines teaching and learning science. Dr. Jones' research focuses on learning science in a variety of sociocultural contexts. Her research examines how a number of subgroups learn, including: gender, minorities, and students with visual impairments. Recently Dr. Jones has conducted a series of studies that examine nanoscale science education. She directs the Nanoscale Science Education Research Group that is investigating how people learn scale and scaling, the role of haptics (touch) in learning, and effective strategies for learning nanoscale science. Dr. Jones also investigates virtual reality interfaces for learning science.

ALAN MELCHIOR is the Associate Director and a Senior Fellow at the Center for Youth and Communities. He brings over thirty years of experience managing a wide variety of policy, evaluation, and technical assistance and training initiatives in the fields of youth, workforce, and community development. He has served as the lead evaluation partner for the *FIRST* robotics programs since 2002 and has conducted more than a dozen studies of *FIRST*'s national after-school robotics programs. He currently co-directs the multi-year longitudinal impact study of *FIRST* programs that is tracking over 1200 participants and comparison students over a five+ year period to assess the program's impacts on STEM-related attitudes and educational and career choices. Other STEM-related work includes evaluation of an initiative aimed at integrating STEM into public libraries; evaluation of a national program aimed at engaging young women in computer science; and work with several national environmental education organizations. Other major areas of work include more than 20 years evaluating service-learning and civic engagement programs; studies of programs promoting postsecondary access and success for low income, first-generation college-goers; and evaluations of youth development programs for out-of-school youth. Projects in those areas include the national evaluations of the *Serve-America* and *Learn and Serve America* programs for the Corporation for National and Community Service (CNCS); evaluation of the Bill & Melinda Gates Foundation's *Postsecondary Success Initiative* and YouthBuild USA's SIF-funded *Pathways to Postsecondary Initiative*, two multi-site efforts improve access to and success in postsecondary education for opportunity youth; and evaluations of YouthBuild USA's national AmeriCorps initiatives.

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ANNMARIE THOMAS is a Professor in the School of Engineering and the Opus College of Business at the University of St. Thomas. She is the founder and director of the Playful Learning Lab, which explores ways to encourage children, of all ages, to embrace playful learning. She and her students created Squishy Circuits. She is the author of *Making Makers: Kids, Tools, and the Future of Innovation*. She served as the founding Executive Director of the Maker Education Initiative. AnnMarie is the co-founder of the University of St. Thomas Center for Engineering Education, which offers engineering courses for P-12 educators and conducts research on engineering at the pre-collegiate level. AnnMarie earned Ph.D. and M.S. degrees in Mechanical Engineering from Caltech, an S.B. in Ocean Engineering (with a minor in Music) from MIT, and a professional certificate in Sustainable Design from the Minneapolis College of Art and Design.