

Innovations in K-20 STEM Education Conference

Session Descriptions

May 17, 2013

Session 1

National Landscape of STEM Education and Impact in Tennessee

This session will explore the changing landscape of STEM education in the US, the driving factors behind the increased focus on STEM, and the implications for Tennessee. Panelists will begin by making brief remarks, followed by an open discussion with conference participants to outline particular opportunities and challenges that West Tennessee faces in advancing STEM education.



David Burns

Director of STEM
Innovation Networks
Battelle Memorial
Institute

Burns brings private and public sector knowledge and experience to his position at Battelle. Before entering the education arena, Burns spent 15 years in the hospitality business, developing multi-million dollar restaurant designs and executing a wide variety of business plans. Prior to that, he worked with the Disney Corporation, specifically on the EPCOT (Experimental Community of Tomorrow) project.

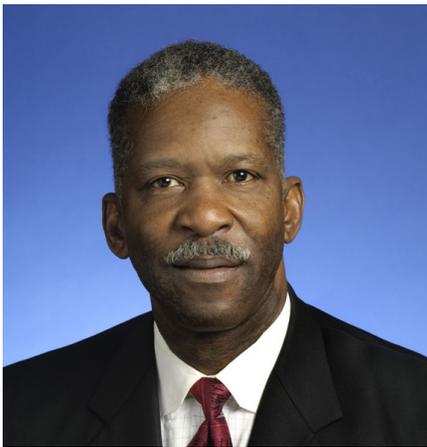
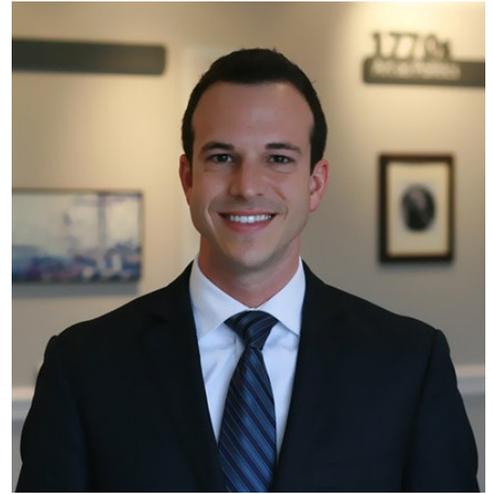
Before coming to Battelle in October of 2008, Burns led state policy teams in middle and high school transformation at the Ohio Department of Education, pioneering state policy initiatives such as STEM schools, STEM networks, credit flexibility and stackable certificates. As Chief of Staff for Cincinnati Public Schools, Burns was instrumental in the high school restructuring project, which resulted in a dramatic increase of graduation rates for the state's third largest urban district. He holds BA degrees in English and education and an MA degree in education/administration.

Since joining Battelle, Burns has focused on the start-up and implementation of ten statewide STEM schools in Ohio, ensuring creativity and innovation in school design and connecting those schools through a network design. This model was recognized as a blueprint for implementing effective STEM education practices and is currently being implemented in Tennessee and North Carolina. Most recently, Burns has lead the Battelle team in the creation and launch of STEMx – a national STEM network dedicated to transforming STEM education and workforce development in the states, by the states. STEMx currently consists of 16 member states and reaches more than 6 million STEM students across the country.

Wes Hall

Director of Client Engagement, Battelle/
Tennessee STEM Innovation Network

Wesley Hall serves as the Director of Client Engagement for the Tennessee STEM Innovation Network, overseeing operations and working to connect stakeholders across the state. Before joining the Network, he managed the Tennessee Higher Education Commission's STEM Race to the Top initiatives, focusing on replication of the UTeach model and the administration of STEM professional development grants. Wesley earned his Bachelor's degree and Master's in Public Administration from the University of Tennessee, Knoxville.



Reginald Tate

Tennessee State Senator, District 33 representative

State Senator Reginald Tate was born September 14, 1954, Memphis, TN. He is a graduate of Hamilton High School, bachelors of Arts degree in Architectural Engineering Technology from the University of Memphis. In 2006 Senator Tate was elected to the State Senate representing District 33.

Senator Tate serves as Vice Chairman of the Education Committee and is a member on the Commerce, Labor and Agriculture Committee, State and Local Government, Fiscal Review Committee, Select Oversight Committee on Business Taxes, CoverTn Advisory Committee and the Tennessee Education Lottery Corporation.

Senator Tate served 6 (six) years as a member of the Shelby County Democratic Party Executive Committee representing House District 85 and Senate District 33. He is a board member of Cocaine, Alcohol and Awareness Program (CAPP). Senator Tate is also the chairman of the Shelby County Delegation.

Senator Tate is President and CEO of Accent by Design. He is married to LaShun Tate and is the father of four. He is a member of First Baptist Church Broad Street.

Innovations in K-12 STEM Teaching and Learning

This session will highlight innovative practices in pre-K-20 STEM Education based on the efforts of the T-STEM for Education Texas initiative. Strategies for engaging students in STEM learning along with effective teaching strategies for increasing students' interest in, and understanding of, STEM concepts and applications in the real world will be outlined. Methods of comprehensive assessment of student success in achieving STEM learning goals will also be discussed, along with promoting innovative teaching and learning practices in the classroom. In addition, this session will explore the nature of mutually beneficial relationships between K-12 systems and institutions of higher education that promote high-quality STEM teaching and learning.



Reo Pruiett

Program Officer, T-STEM, Educate Texas

Dr. Reo Pruiett has over 25 years of experience in education. Her career began teaching high school Earth/Space Science, Physical Science, Biology, Chemistry and Mathematics. As her career progressed, Dr. Pruiett's roles as both high school vice principal and middle school principal created opportunities for her to directly mold and shape student and teacher achievements while she gained local school administrative leadership experience. Both schools were academically successful under her leadership.

While obtaining her Doctorate's Degree from Union University with an emphasis on Curriculum and Instruction, Dr. Pruiett worked in central office administration as an exemplary teacher and leader, new teacher supervisor, and science supervisor. Upon completion of her Doctorate's Degree she subsequently was chosen as Director of Secondary Education, which enabled her to work with all high school and middle school principals to promote rigorous academic achievement for all students.

Dr. Pruiett continues her career committed to exemplary education while she currently holds position as Program Officer, T-STEM for Educate Texas where she is liaison for T-STEM with schools, districts, and higher education partnerships.

Dr. Pruiett's array of career opportunities and affiliations outside of the school district have been abundant and have assisted promotion of her mission-driven leadership focusing on student achievement. She serves on multiple academic committees at district, regional, state and national levels. Being a visionary, professional academic leader and teacher committed to improving both teaching and the quality of learning for all students, she strives to achieve this commitment by providing high quality education for students as well as instructional leadership for all educators. Student achievement is paramount to Dr. Pruiett and her career indicates that she is committed to educating students to become thinkers and leaders in today's society.

How Can CTE Programs Enhance STEM Education?

Career and Technical Education (CTE) and traditional STEM education are often seen as separate entities. However, there are many ways in which CTE programs can enhance and promote STEM education. This session will explore opportunities for improving STEM teaching and learning and enhancing STEM career pathways through CTE programs, as well as any current or pending changes in state policy or practice that will effectuate these opportunities.

Dr. Bethany King Wilkes is an Education Consultant in the Career and Technical Education Division of the Tennessee Department of Education. In this role she supports three career clusters: Science, Technology, Engineering, and Mathematics (STEM); Manufacturing; and Information Technology. Prior to joining the Tennessee Department of Education, Bethany served as the Director of School Engagement for Project Lead the Way (PLTW) for the states of Tennessee, Alabama, and Mississippi. She has also worked in higher education as the Coordinator of the Women in Engineering, Architecture, and Technology (WEAT) Program at Oklahoma State University and as the Assistant Director of the Graduate Engineering Program at Christian Brothers University. She has taught courses in Human Development and has guided graduate engineering management students through the thesis process. Her research interests include women and minorities in engineering, epistemological beliefs of engineering students, and human development as applied to education. Bethany won the 2010 Outstanding Graduate Student in Educational Psychology Award (The University of Memphis) and has a chapter featured in the book, *Advancing the STEM Agenda: Quality Improvement Supports STEM* (2012). Prior to working in higher education, she had a progressive engineering career in industry for over seven years. Bethany earned a Ph.D. in educational psychology and research from The University of Memphis, a Master of Engineering Management (M.E.M.) degree from Christian Brothers University, and a B.S. in mechanical engineering from Tennessee State University.

Bethany King Wilkes

Tennessee Department of
Education



Casey Haugner Wrenn

Tennessee Department of Education

Casey Haugner Wrenn currently serves as Executive Director of Student Success for the Career and Technical Education Division of the Tennessee Department of Education (TDOE). Prior to joining the TDOE Wrenn served as a Site Manager for The New Teacher Project, where she managed the Nashville Teaching Fellows program to recruit, select, and train professionals from industry to teach in high need public schools. Wrenn holds a bachelor's degree in English - creative writing from Newcomb College of Tulane University and a master's degree in business administration from the Freeman School of Business at Tulane University. Wrenn is currently pursuing a Master of Education degree.

Excellence in STEM Teacher Preparation

The UTeach program at The University of Texas at Austin began in 1997 as a new way of introducing undergraduate math, science, and computer science majors to secondary teaching. UTeach’s mission is to recruit, prepare, and retain qualified STEM teachers. Since 2007, the UTeach Institute has partnered with 35 universities to implement UTeach programs across 17 states nationwide. To date, the original program, started at The University of Texas at Austin in 1997, has graduated 746 science, technology, engineering, and mathematics (STEM) teachers. Universities in the first cohort of UTeach replication have produced more than 400 graduates since 2011. Graduates of UTeach programs nationwide are projected to teach over 5.5 million secondary students by 2020. Tennessee has four UTeach replication sites located at Middle Tennessee State University, the University of Memphis, the University of Tennessee at Chattanooga, and the University of Tennessee, Knoxville. This session will describe the innovative UTeach approach to preparing the next generation of STEM teachers, and the impact achieved through the replication program.



Kimberly Hughes

Director UTeach

Kimberly Hughes, M.Ed., is Director of the UTeach Institute. She was a member of the original team formed to design the Institute’s approach to program replication and has played an integral role in developing the organization since 2006. Kim’s professional career in education began with high school science teaching. She went on to earn her M.Ed. in curriculum and instruction from the University of Texas at Austin in 1997 and joined the Southwest Educational Development Laboratory (SEDL) in 2001. While at SEDL, she led the design and development of professional development courses and technology support tools for teachers, administrators, school districts, and state departments of education.

Bridging the Gaps: What Does Industry Need from STEM Graduates?

This session will begin a conversation regarding STEM workforce development in West Tennessee by outlining needs of employers, gaps in the current skillset of STEM graduates, and potential strategies to evolve STEM education to meet the STEM workforce demand in West Tennessee.

Kara Allen

College Recruiter, Aegis Sciences Corporation

Kara Allen graduated from Mississippi University for Women with a Bachelor of Science degree in Microbiology. She began her career as an analytical chemist in the Pharmaceutical industry. After 8 years of working as a chemist and being a leader for the American Chemical Society (locally and nationally), Kara realized her true passion was networking and career development. Kara has over 10 years of experience working as a scientific recruiter and healthcare senior talent acquisition consultant, having worked at St. Jude Children's Research Hospital and Vanderbilt University Medical Center. Kara joined Aegis Sciences Corporation, a Nashville-based forensic toxicology laboratory, in 2012 where she now focuses on recruiting new graduates and developing relationships with colleges and universities nationwide.



Steven J. Bares

President and Executive Director
Memphis Bioworks Foundation

In 2001 Steven J. Bares became President and Executive Director of the Memphis Bioworks Foundation. Prior to this position, Dr. Bares served in a series of Executive roles at International Paper (IP), the world's largest forest products company, specializing in P/L management and new product development. Before joining IP, Dr. Bares was President and co-founder of Sparcom Corporation, a company specializing in handheld computer applications and wireless communications products. Prior to this position, he was a Program Manager for Hewlett-Packard's Laser and Inkjet Printer Group and part of the initial business team that developed the inkjet printer.

Dr. Bares is an active part of forming and developing the entrepreneurial community in Memphis, with a 50,000 square foot incubator, a high-tech accelerator and mentoring support for new companies. In 2007, Dr. Bares formed a wholly owned subsidiary of Bioworks, Innova Inc., an early-stage venture fund focused on technology, clean tech and bioscience companies in Tennessee. Dr. Bares is co-founder and board chairman of the Memphis Academy of Science and Engineering, a middle/high school for Memphis inner city children. Dr. Bares holds a Ph.D. in Physical Chemistry, a Masters of Business Administration (MBA) and a B.Sc. in Chemistry and has authored nine patents. Dr. Bares is involved in community service and serves on numerous boards.

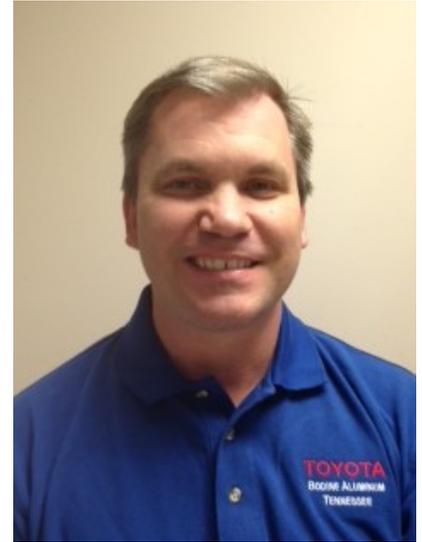


Jason Bates

Administration Manager, Toyota Bodine Aluminum

Jason Bates is the Manager of Administration for Toyota's Bodine Aluminum located in Jackson TN, which supplies aluminum die cast engine blocks for the company's North American powertrain production. For the last 7 years he has overseen human resources, training and development, and safety for the operation. Prior to Toyota, Jason spent 9 years with International Paper Company in the southeast United States in a variety of HR roles and responsibilities. He believes strongly that technology is the future of manufacturing in the United States and is working with Madison County education and industry in encouraging high school graduates to consider manufacturing as a viable and rewarding career choice.

Mr. Bates holds a BA in Political Science from Brigham Young University; a MA in International Development and Master of Organizational Behavior from the Marriott School of Management at Brigham Young University. He serves on the following boards in Jackson: American Red Cross, RIFA, The Jackson Symphony, and Jackson State Community College's Industrial Technology Advisory Committee.



Carolyn Turman

Chief Learning Officer,
MLGW University

Carolyn has over 25 years of experience in human capital development. She has held positions in Training and Development, Organizational Development and Human Resources; currently serves as Chief Learning Officer of MLGW University where she is responsible for leadership development, employee development, technical training, employment and promotional testing, organizational development, educational support programs and safety.

Carolyn designed, developed and implemented Memphis Light, Gas and Water's first Executive Development Program, designed and coordinated the first succession planning and talent management process, and was instrumental in transforming the learning organization into an award winning Corporate University, winning the International Quality and Productivity Center's "Best New Corporate University" award in 2007, the Corporate University "Leader of the Year" award in 2009, and was a finalist for the 2010 award for a "First Class Job Building the Next Generation of Leaders". In 2011, she received the Global HR "Strategic Leadership Award" in Mumbai, India and in 2012; MLGW University received an ASTD "Best Award". Carolyn has presented at numerous national and international conferences.

Prior to coming to MLGW she was employed by the Memphis City School District where she taught at both elementary and secondary levels and also held positions in curriculum development and teacher training.

Carolyn is passionate about learning and the development of employees. She has mentored many young professionals who now have very successful careers.

Education and Professional Development include:

- B.S. Degree, University of Arkansas
- M.S. Degree, University of Memphis
- Post graduate studies: University of Memphis, University of Wisconsin
- Graduate of the Institute of Executive Leadership, Rhodes College

Professional Organizations:

- American Society for Training and Development
- Society for Human Resource Management
- Corporate University Xchange

Belinda Watkins

Vice President of IT Enterprise & Security Engineering, FedEx Services

In this role she is accountable for:

- The operation of FedEx's global security infrastructure
- Digital brand assurance
- Ensuring 100% availability of FedEx systems for reliable, "on-time" delivery services
- Reporting the overall strategy and state of security to the FedEx Executive Management Committee and the Board of Directors.

Prior to her current position she served as Vice President, EIS - Network Computing where she was responsible for:

- Development and effectiveness of the internal and external FedEx communication channels including voice, video, and data networking in addition to email, directory services, and other portals.
- Development and implementation of systems/network reliability, performance improvement and capacity plans for services provided by the Network Computing organization.

Ms. Watkins holds a BA in Mathematics from Millsaps College, an MA in Education from Mississippi College, and both an MS in Telecommunications and Information Systems Management and an MBA with a concentration in Finance from Christian Brothers University. She is also a graduate of the Leadership Memphis class of 2000.

She serves on the following Boards:

- Memphis Family Shelter Board of Directors
- State of Tennessee Science, Technology, Engineering and Mathematics (STEM) Innovation Network Advisory Board

