

Dear Readers,

Welcome to our fall issue of the year (Volume 15, Issue 2) for the Journal of STEM Education: Innovations and Research. Readers will find that our authors' excellent research continues and we have five intriguing articles and a fantastic guest editorial in this issue that describe several new approaches to improving students' learning through hands-on experiences and exposure to real-world case studies.

I am pleased to begin this issue with a special guest editorial by Dr. Edward Sickafus of Ntelleck, L.L.C., in which we are privileged to read a commentary about a new model of cognition applied to teaching the skill of invention in STEM classrooms. The model is a bi-level view of thinking involving unconscious and conscious duties of the brain and his commentary explains the model's immediate usefulness in attracting STEM students.

In "Peer-led Team Learning in Mathematics Courses for Freshmen Engineering and Computer Science Students," John R. Reisel, Marissa R. Joblonski, Ethan Munson and Hossein Hosseini, of the University of Wisconsin at Milwaukee, explain the instructional method called Peer-Led Team Learning (PLTL) and its ability to increase student learning in STEM courses. The manuscript outlines their analysis of PLTL freshmen engineering students in mathematics courses over a three year period.

In "Rapid Conversion of Traditional Introductory Physics Sequences to an Activity-Based Format," Garrett Yoder and J. Cook chronicle the conversion of East Kentucky University's entire introductory physics sequence to an activity-based format where laboratory activities, problem-solving sessions and lectures are seamlessly integrated into a single classroom environment.

CJ Chung, Christopher Cartwright and Matthew Cole discuss K-12 robotics competitions and their connection to STEM scores improvement in "Assessing the Impact of an Autonomous Robotics Competition for STEM Education." They describe the impact of Robofest, a competition for 5th through 12th graders that requires the use of mathematics and sensors, and found that students who participated showed improvement and achieved higher scores in math and science.

In "Facilitating Collaboration Across Science, Technology, Engineering and Mathematics (STEM) Fields in Program Development," James Ejiwale explores how program development is critical in providing a strong educational foundation to all learners in STEM education. He believes that synergy efforts among educators and professionals in the STEM fields will enable effective knowledge sharing.

Finally, Delores Rice and Mary Alfred describe their study that had the purpose to understand the career experiences of African American female engineers in "Personal and Structural Elements of Support for African American Female Engineers." Females in their study recounted how different portions of their life history, such as early childhood experiences, K-12 education and the professional workplace settings they had encountered, had an impact on their careers as engineers.

As we near the midpoint of the semester, I hope all of our readers can look upon the last semester and see true accomplishments and learning among their students and use suggestions from our authors in future semesters. We are excited to announce that our Facebook ([www.facebook.com/JournalofSTEMEducation](http://www.facebook.com/JournalofSTEMEducation)) and Twitter (@JournalofSTEMEd) pages are up and running, so feel free to follow us, and as always, we welcome comments, questions, and suggestions related to the journal, sent by email to [jstemed@gmail.com](mailto:jstemed@gmail.com).

Regards,  
P.K. Raju  
Editor-in-Chief