Editorial

Dear Readers,

Welcome to Volume 13, Issue 3 of the *Journal of STEM Education: Innovations and Research*. With the semester's end come many changes in the world of education, and our journal is no exception. This issue marks the departure of my dedicated editorial assistant, Kristen Billy, who has obtained her master's degree and is moving on to pursue a career in technical communication. We all wish her the best of luck in the future. In her place, I would like to welcome Anna Hewlett, a undergraduate student in Public Relations here at Auburn University whom I expect to be a great asset to the journal.

Despite these editorial changes, our authors' excellent research continues, as readers will find evidenced in this issue's eight interesting articles that describe several new approaches to improving students' learning and career preparation. To begin the issue, in "A Teacher Observation Instrument for PBL Classroom Instruction" Linda M. Stearns, Jim Morgan, Mary Margaret Capraro, and Robert M. Capraro of Texas A & M University and the Aggie STEM Center share an observation instrument they developed to assess teachers' implementation of Project-Based Learning (PBL) in their classrooms. PBL has undeniably become an important concept in our field, and the authors provide a useful way to provide teachers with feedback on their classroom activities, particularly following professional development.

Continuing the focus on PBL, "Teaching Advanced Vehicle Dynamics Using a Project Based Learning (PBL) Approach" by Sangram Redkar of Arizona State University describes his experience incorporating PBL into a course comprising an interesting assortment of students. Students included not only graduate and undergraduate learners, but also practicing engineers of differing levels of experience. The author describes his approach to this class, shares the assessment outcomes, and explains why PBL is particularly effective for such a diverse class.

Moving from PBL to industry-based projects, Matthew Franchetti, Mohamed Samir Hefzy, Mehdi Pourazady, and Christine Smallman share the framework that has been developed in the University of Toledo's Department of Mechanical, Industrial, and Manufacturing Engineering to offer industry-based senior design capstone courses to their students in "Framework for Implementing Engineering Senior Design Capstone Courses and Design Clinics." Such industry-based projects are expected to enhance not only students' technical abilities, but also such skills as communication and teamwork. The authors detail how these courses are designed and share the (quite positive) outcomes they have witnessed thus far.

In a similar effort to increase the non-technical skills that make students more marketable in today's workforce, Kenneth R. Pence and Christopher J. Rowe of Vanderbilt University bring us "Enhancing Engineering Education through Engineering Management." They describe the coordinated minor added to their engineering curriculum that offers courses in areas such as project management and engineering economics. Feedback from alumni and their employers shows this to be an approach other programs might be wise to consider.

Ryan D. Sweeder and Philip E. Strong of Michigan State University's Lyman Briggs College also take up the theme of STEM careers in "Impact of a Sophomore Seminar on the Desire of STEM Majors to Pursue a Science Career." These authors explored the effect of introducing a seminar class early in the curriculum in hopes that more interaction with scientists and faculty would help students gain a better understanding of careers in science. Based on students' responses, this has been proven a worthy endeavor.

Another professional skill set is tackled in "Promoting STEM to Young Students by Renewable Energy Applications" by Faruk Yildiz, Jill L. Humston, and Reg Pecen of the University of Northern Iowa. They describe a partner project between their university and local high schools in which students much complete hands-on team projects that weave together math, science, and engineering concepts. It's likely that more students will enter and succeed in the STEM fields if they can make connections between these subjects and real-world applications early in their education.

Though many of this issue's articles focus on fostering non-technical skills, student success is undoubtedly equally dependent upon their ability to perform adequately in classes. In "Enhancing the Mathematics Skills of Students Enrolled in Introductory Engineering Courses: Eliminating the Gap in Incoming Academic Preparation" Patricia A. Tolley, Catherine Blat, Christopher McDaniel, and Donald Blackmon (University of North Carolina at Charlotte) and David Royster (University of Kentucky) offer the instructional technology WeBWorK as a potential way to better prepare incoming STEM students, thus increasing retention and student achievement. They share with us the situations in which they found WeBWorK to be useful.

Finally, James A. Ejiwale of Jackson State University of Mississippi brings us "Facilitating Teaching and Learning Across STEM Fields," an overview of how the role of STEM educators has shifted from simple lecturer to facilitator of student success. This discussion of new instructional technologies and methods is obviously supported by the many articles in this issue that introduce just such innovative classroom strategies, demonstrating that educators in our field do wish to enable their students' success rather than merely funnel technical facts into their minds.

As the Spring semester comes to a close, I hope all of our readers can look upon the last few months and see true accomplishments and learning among their students. As always, we welcome comments, questions, and suggestions related to the journal, sent by email to jstemed@gmail.com.

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

Once again, I would like to extend a special invitation to anyone who might be attending the American Society for Engineering Education (ASEE) Annual Conference and Exposition in San Antonio, Texas, on June 10–13. As I noted in our last issue, I will be available there to meet, greet, and thank authors, reviewers, and advisory board members at the Laboratory for Innovative Technology and Engineering Education (LITEE) booth (Booth #345) from June 10–12, and I would love to speak with interested readers, authors wishing to publish, or anyone who has been involved with our journal. I can be contacted about this at rajupol@auburn.edu. I look forward to seeing some of you there!