Editorial

Dear Colleagues,

Welcome to the Journal of STEM Education: Innovations and Research, Volume 11, Issues 7 & 8. This Special Issue focuses on engineering education research conducted through two institutions: the Center for the Advancement of Engineering Education (CAEE) at the University of Washington, and the Laboratory for Innovative Technology and Engineering Education (LITEE) at Auburn University. Some articles present the results of implementing LITEE's multimedia cases in the classroom, while others step outside the classroom to reflect on how we can improve the overall learning experience of engineering students.

I am pleased to begin this issue with a special guest editorial by Cynthia J. Atman, Jennifer Turns, and Sheri D. Sheppard, in which we are privileged to read about the results of research conducted at the Center for the Advancement of Engineering Education. The authors argue for the need for more informed educator decision making in the quest to improve engineering education.

Our first article, "Effectiveness of LITEE Case Studies in Engineering Education: A Perspective from Genre Studies" by Ashley Clayson, draws upon research in the field of communication, using the framework of "genre ecologies." Rather than focusing on measurement of student performance, this article examines how LITEE's multimedia case studies encourage student learning by enabling compound mediation.

Next, "Results of Using Multimedia Case Studies and Open-ended Hands-on Design Projects in an 'Introduction to Engineering' Course at Hampton University" by Nesim Halyo and Qiang Le describes how the authors revised their Introduction to Engineering course at Hampton University to include LITEE case studies and hands-on design projects. They share their observations after implementation of the revised course, including increased student motivation due to hands-on projects and increased focus on engineering ethics during group presentations.

Our third article, "Effectiveness of Three Case Studies and Associated Teamwork in Stimulating Freshman Interest in an Introduction to Engineering Course" by Joseph S. McIntyre, relates the author's experience incorporating three case studies into his course. He explains his methods of evaluating student interest in the case studies and measuring their effectiveness as learning tools, and he notes certain factors he determined to have had an impact on the value of the case studies.

In "Use of Presage-Pedagogy-Process-Product Model to Assess the Effectiveness of Case Study Methodology in Achieving Learning Outcomes," Chetan S. Sankar and P.K. Raju illustrate the 4-P model of student learning they used to research how learning style, behavioral tendencies, gender, and race can act as facilitators or barriers to the learning process. After using LITEE case studies at two universities, they used this framework through which to view students' opinions on their preferred modes of learning, the areas in which they perceived improvement, and in what ways they found the case studies most useful.

Then, in "Learning from Action Evaluation of the Use of Multimedia Case Studies in Management Information Systems Courses," Barbara Kawulich explains the results she obtained from conducting an action evaluation of the use of multimedia case studies in undergraduate Management Information Systems (MIS) courses. She shares not only her findings about the positive effects of using case studies, but also about how data collection methods can be improved to yield fuller responses from students about case studies in the future.

Finally, Kyra L. Sutton and Chetan S. Sankar discuss their study of how satisfied students are with different aspects of academic advising in "Student Satisfaction with Information Provided by Academic Advisors." Since advising is crucial to the retention of engineering students, they suggest areas of advising that require improvement and strategies for better meeting students' advising needs.

Each of these studies advances our understanding of what our students need to succeed in the field of engineering. As educational innovators, we constantly seek better ways to approach student learning. I hope these articles will give our readers some useful information that can be applied in the classroom now, as well as generating ideas about how we can move forward from here. As always, we welcome questions, comments, and suggestions from our readers at jstemed@gmail.com.

Finally, as the end of the semester draws near, we would like to wish everyone a Merry Christmas and a Happy New Year. I hope that 2012 brings many good things for all of our readers.

Best regards,

P.K. Raju
Editor-in-Chief