

Dear Readers,

Welcome to our first issue of the year (Volume 15, Issue 1) for the *Journal of STEM Education: Innovations and Research*. Readers will find that our authors' excellent research continues and we have six 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 Tamara Moore, of Purdue University, and Karl Smith, of the University of Minnesota and Purdue University, in which we are privileged to read about the continuing growth of discipline-based education and STEM integration. They detail the roles of the National Research Council, the National Science Foundation and our own *Journal of STEM Education* in the growth in our fields over the past 14 years, the current status and importance of integration to STEM, and suggestions for continuing to improve in this area.

In "The Use of Regional Data Collection to Inform University Led Initiatives: The Case of a STEM Education SWOT Analysis," Jerlando F.L. Jackson and LaVar J. Charleston, of the University of Wisconsin at Madison, and Juan E. Gilbert, of Clemson University, conducted a strengths, weaknesses, opportunities and threats (SWOT) analysis in order to understand how to boost student participation in STEM at all education levels within one region of southeastern Wisconsin. In doing so, they wished to also gain a greater understanding of how to increase STEM participation in order to bolster industry in that region and attract STEM graduates to the area.

In "Combining the Tasks of Grading Individual Assignments and Assessing Student Outcomes in Project-Based Courses," Kevin Dahm chronicles an efficient strategy used by the Chemical Engineering program at Rowan University to assess the achievement of ABET student outcomes in two project-based courses over a six year period.

Wei Zhan discusses undergraduate research opportunities and their effect on STEM education in "Research Experience for Undergraduate Students and its Impact on STEM Education." He describes two engineering research projects performed by supervised undergraduate research assistants at Texas A&M University and the impact of both the experience and undergraduate student involvement in the field.

In "Group Tasks, Activities, Dynamics, and Interactions in Collaborative Robotics Projects with Elementary and Middle School Children," Timothy Yuen, Melanie Boecking, Jennifer Stone, Erin Price Tiger, Alvaro Gomez, Adrienne Guillen and Analisa Arreguin explore an opportunity for elementary and middle school students to bring individual interests, perspectives and expertise together in order to work on real-world STEM issues at a summer robotics camp.

Vikram Kapila and Maged Iskander, of the Polytechnic Institute of New York, also talk about bringing excitement to STEM subjects for K-12 students in "Lessons Learned from Conducting a K-12 Project to Revitalize Achievement by Using Instrumentation in Science Education." Their study analyzes project RAISE (Revitalizing Achievement by Using Instrumentation in Science Education) and how using sensors and computerized data acquisition in high school science labs can enhance student achievement, bring excitement to the STEM subjects and inspire a pursuit in STEM careers.

Finally, Alyssa McGonagle, Hedley Freake, Steven Zinn, Timothy Bauerle, Jeffrey Winston, Gary Lewicki, Marcia Jehnings, Diba Khan-Bureau, and Melissa Phillion, describe a program alliance between four institutions that seeks to help diversify and enlarge the STEM communities in the state of Connecticut in "Evaluation of STRONG-CT: A Program Supporting Minority and First-Generation U.S. Science Students."

As the spring comes to a close and summer begins, 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. As always, we welcome comments, questions, and suggestions related to the journal, sent by email to [jstemed@gmail.com](mailto:jstemed@gmail.com).

Regards,  
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Editor-in-Chief