

Editorial

Dear Readers,

We would like to welcome you to our newest edition of the *Journal of STEM Education: Innovations and Research*, Volume 19, Issue 4.

In this edition, we share with you six new articles in regards to furthering the education of students within the disciplines of STEM, along with an excellent book review.

To begin this issue, authors B. Chad Starks and William H. Matthaeus focus on studying several significant factors that contribute to the underrepresentation of specific groups (i.e., racial and ethnic minorities) in STEM educational programs, particularly at the advanced graduate levels. They created a recruitment method to substantially increase the number of applications and awards from 2012 to 2014 for racial and ethnic minorities at The Delaware Space Grant Consortium. The results of their study can be read in, "STEM Recruitment and Beyond: The Messenger is the Medium."

Similarly, authors Lexi Caldwell, Rosina Garcia, and Nicolette Cagle complete a comprehensive literature review of K-12 pipeline programs geared toward participants from underrepresented backgrounds and the techniques used to prepare students for the next stage in the E-STEM pathway. The results of this can be reviewed in, "K-12 Diversity Pathway Programs in the E-STEM Fields: A Review of Existing Programs and Summary of Unmet Needs."

The next article, by authors Robin Autenrieth, Chance Lewis, and Karen Butler-Purry, discusses the Enrichment Experiences in Engineering (E³) for Teachers Summer Research Program at Texas A&M University, which engages high school math and science teachers in an engineering research experience. In their article, they analysis surveys that were administered to students of the program before and after classroom implementation of an E³ lesson/activity.

Thomas O Williams, Jeremy V Ersnt, and Louis Rossi shift to analyzing a study that explored whether STEM education and Special education teachers have the appropriate credentials to effectively support the diverse needs of students and curriculum in inclusive STEM education classes. Their results can be read in their article, entitled, "Teaching Credentials in the Inclusive STEM Classroom."

Next, "Stem Outreach Using In-House and Mobile Demonstrations" authors, ABM Iftekharul Islam, Ajit Kelkar, Elie Azzi, Thomas J. Ryan, and James G. Ryan, describe the Joint School of Nanoscience and Nanoengineering (JSNN) STEM Outreach Program, which uses university resources to promote hands-on STEM demonstrations utilizing both in-house and mobile assets schools. The authors analyze the considerations for designing these outreach programs and student responses. The analysis provides insights for continuous improvement to keep the programs vibrant and interesting.

Authors Susan L. Murray, Julie Phelps, and Hanan Altabbakh focused their study on evaluating of the benefits of online flashcards in, "Enhancing Exam Prep with Customized Digital Flashcards." They analyze the results of an undergraduate engineering class using digital flashcards which were developed using off-the-shelf software.

To close our issue, authors Dr. Michael Mott, Dr. Hill-Cunningham, and Dr. Virginia J. Moore complete a thorough book review of William J. Sumrall's "Doing What Scientists and Engineers Do: How to Create an Elementary Science Classroom Where Students Are Successful At Doing Science And Engineering." They recommend the book as an invaluable tool to promote an understanding of science education for education majors and to prompt students to actively "do" the science so that they, in turn, can facilitate science learning in K-8 classrooms as teachers.

On behalf of the editorial board, I hope you enjoy this new issue and would like to request you share any comments via email at jstemed@gmail.com. In addition, if you would like to consider our journal as a venue to publish your research, we welcome you to submit manuscripts at jstem.org. We hope you enjoy this edition!

P.K. Raju
Editor-in-Chief
jstemed@gmail.com