

EDITORIAL

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In this issue of Journal of Research in STEM Education, we present eight articles that came out of an NSF-funded conference that explored three themes in STEM. These themes include: problem solving, equity and computational thinking. This issue was co-edited by Drs. Anna Bargagliotti, Dorothea Herreiner and Jeffrey A. Phillips, the co-organizers of the NSF funded Breaking the Boundaries in STEM Education conference.

In the first article, Bargagliotti and colleagues (2018) present the overall goal of the conference and contributions of the conference to the emerging field of STEM, particularly at the college level. In the second article Berude and colleagues (2018) describe two programs, ACCESS (A Community Committed to Excellence in Scientific Scholarship) and The McNair Scholars Program designed to support underrepresented students in STEM disciplines at Loyola Marymount University (LMU). They provide an overview of each program and detail about components of the programs that have led to success. The third article in this issue is authored by Dekhtyar and Schaffner. Dekhtyar and Schaffner (2018) describe the design of a Cross Disciplinary Minor Program in STEAM that has been implemented at California Polytechnic University.

Consistent with the third theme of the conference, the fourth article by Reinholz et al (2018) focuses on the question of what makes a good disciplinary or interdisciplinary problem. They draw from literature across the STEM disciplines and two conference sessions to provide insight into what makes a good problem within a specific STEM discipline and across the disciplines. The fifth article by Reinholz (2018) explores an important issue, equity during peer conferences. Reinholz provides an analysis of students peer assessment conversations in introductory college calculus using equity as a framework for his analyses. More specifically, it “explores the participation of students in peer assessment conversations, by focusing on the types of feedback and word choices used by different groups of students, by race and gender”. In the piece “Reflective Apprenticeship for Teaching and Learning Mathematical Proof”, the sixth article of this issue, Reinholz (2018) explores teacher learning in a graduate-level analysis course designed for teachers by drawing from the frameworks of extreme apprenticeship and Peer-Assisted Reflection (PAR). The paper describes how the teachers developed across the four dimensions of extreme apprenticeship. While this paper is grounded in mathematics, implications for teaching and learning in other STEM disciplines are also discussed. Dahlquist et al (2018) make contributions to the ongoing dialogue about integrating computational thinking (CT) into undergraduate curricula in the seventh article of this issue. They provide descriptions of three CT integrated undergraduate courses that have been developed and taught at Harvey Mudd College and Loyola Marymount University. The authors describe the course objectives, implementation challenges, and assessments for each course. In the final article of this issue, Fuqua and colleagues (2018) make an attempt to identify antecedents, processes, and outcomes of an interdisciplinary, collaborative conference and ongoing collaboration that stemmed from the conference by conducting a comparative study of three working groups from the conference using a triangulation of qualitative and quantitative methods.

Collectively, these articles present unique insights into the field of STEM Education and Integration specifically. We hope these articles will engage our community in ongoing discussion around STEM integration at the college level.