

# Editorial

---

Welcome to the *Journal of STEM Education: Innovations and Research*, Volume 7, Issues 1&2. As the result of a reorganization of our editorial board, Dr. Chetan S. Sankar has become the Managing Editor for the Journal. We would like to take this opportunity to thank Dr. Sankar for his invaluable contributions over the years as the journal's Co-Editor in chief and to thank him for agreeing to serve in this new capacity. With his dynamic and effective leadership style, Dr. Sankar will be able to help streamline the publication process of the journal. Dr. P.K. Raju will continue as Editor-in-Chief.

As part of our reorganization, there are also several new faces on our advisory and review panels: the International Editorial Advisory Board welcomes Dr. Frank S. Barnes, Dr. K. Chandrasekaran and Dr. Steve E. Watkins, and the Editorial Review Board welcomes Dr. Randy Bradley, Dr. Jennifer Good, and Dr. Daniela Marghitu.

We are very pleased to publish six papers in this issue. In the first paper, Sheryl Sorby, Douglas Opplinger, and Norma Boersma present an engineering course for non-majors that has been developed for use at Michigan Tech. The course seeks to address the “image problem of engineers” and provides teaching candidates with new ideas and activities that they can use in their classrooms to teach engineering at the K-12 level. With a better understanding of what engineers do, teachers will be more able to offer encouragement to students in the pursuit of an engineering degree.

In the second paper, Lior Abari, Samuel Pierre, and Hamadou Saliah-Hassane discuss the problems of collection, storage, management and sharing of heterogeneous data within a repository that is being manipulated simultaneously by virtual teammates who are geographically separated. They present the electronic notebook as a possible response to this concern and describe simulation results showing the effectiveness of the electronic notebook, especially in terms of the response times required to carry out transactions.

In the third paper, Ahmed Khoumsi and Ruben Gonzalez-Rubio introduce us to the redesigned Electrical and Computer Engineering Programs at the University of Sherbrooke in Canada. Their department has adopted a new learning methodology that is based on competence development, problem solving, and the realization of design projects. In this article, the authors show us how this pedagogical approach has been successfully used for learning compiler design.

In the fourth paper, Julie Dyke Ford presents us with the results of an empirical study investigating engineering students' perceptions of writing in the classroom and workplace. Feedback received from students about engineering communication can assist engineering programs seeking ways to respond to the ABET criteria that assess student competencies in effective oral and written communication skills. She concludes the article with suggestions for practical ways that can be used in engineering classrooms to help students to become more effective communicators.

In the fifth paper, Heidi A. Diefes-Dux, Margret Hjalmarson, Judith S. Zawojewski, and Keith Bowman introduce us to the six principles that guide the design of model-eliciting activities (MEA) and demonstrate their versatility in meeting educational objectives. The authors encourage us to “motivate students' different ways of thinking about a given problem and empower them to solve problems they might perceive as difficult but worthwhile.”

In the sixth and final paper, the same authors, Heidi A. Diefes-Dux, Margret Hjalmarson, Judith S. Zawojewski, and Keith Bowman, carry the model-eliciting activity a step further by presenting the model-development sequence. They describe the exploration and adaptation of a mathematical model for solving a problem that is assigned to engineering students enrolled in ENGR 106: Engineering Problem Solving and Computer Tools at Purdue University. They explain how this problem-solving experience supports the development of the skills and abilities that engineers will need to be successful in the workplace.

I appreciate the contributions of the authors who have shared their research and teaching experience with us and the reviewers' invaluable opinions and suggestions. I have enjoyed reading these thought-provoking articles and I hope you will also find them both interesting and useful in your own classrooms.

P. K. Raju  
Editor in Chief