
EDITORIAL

In his article in the March 2001 issue of *Prism*, Wallace Fowler, the President of ASEE, states, “Many school districts are in a bind. They have to use teachers who don’t have math and science background to teach those subjects. As a result, teachers are often unable to put science and math into a real-world context. We need to find ways to bridge the gap between those who understand science, math, engineering, and technology to those who do not.”

How do we go about building the bridge to close this gap? Like any massive undertaking, blueprints have to be made, resources committed, foundations laid, supporting pillars constructed, and then the superstructure built. Work is already proceeding on this endeavor and many different segments of society are working together to develop a bridge that will be both elegant and effective.

Organizations such as the National Science Foundation, the National Academy of Sciences and others have already drawn the blueprint for the bridge. Agencies such as the Undergraduate Education Directorate at NSF and the Department of Education have committed the resources needed to improve undergraduate and K-12 science, math, engineering, and technology (SMET) education. Professional organizations such as ASEE, FIE, Sigma Xi, IEEE, ASME, and others are providing opportunities for faculty members to share their innovative methods, thereby creating a strong foundation for the bridge. However, these foundations are mostly focused on specific disciplines, such as engineering, business, science, or math.

George Hairston, CEO and President of Southern Nuclear states in an article in this issue, “Progressive Educators Must Lead, not Follow,” that there is an urgent need for students to obtain an interdisciplinary education. He stresses the necessity for an integrated approach that cuts across disciplines to form the pillars on which the bridge will be built. Based on the feedback from our readers reported in the article, “Feedback on the May-August 2000 Issue of *The Journal of SMET Education: Innovations and Research*,” we believe that this journal is well positioned to become one of these support pillars.

However, a lot more work remains to be done to create the superstructure of the bridge so that Fowler’s vision can become a reality. This requires developing innovative instructional materials, disseminating them, and making them part of classroom instruction in engineering, business, pre-service teacher education, and K-12 classrooms. It will take teams made up of committed and motivated faculty from many disciplines to build the superstructure of the bridge.

In order to help classroom educators in this endeavor, three articles and one case study appear in this issue. Articulating the need for cooperation between industry and research laboratories, Jeffrey Harper in his article, “Development of a Method to Analyze and Classify Problem Statements in Technology Transfer,” discusses a methodology to analyze and classify the technology transfer assistance from a national laboratory such as NASA’s Marshall Space Flight Center to industries. Mark Walls discusses the need to bring in authentic work-world problems to course materials in an article entitled, “The Undisciplined Interdisciplinary Problem: PBL and the Expanding Limits of SMET Education.” He believes such problems free students from having to learn or think in fixed ways. He also states that approaches like problem-based or case-based instruction avoid prescribing the terms of learning.

In order to provide our readers with instructional materials that can be used immediately in their classrooms, we have included a case study by William Boulton and Michael Dowling entitled “BMW’s 3-Series: Managing Platform Design and Development Costs.” They bring the real-world experience of BMW’s product design and development team into the classroom using a well-developed case study. The value of the case study is enhanced by the inclusion of a teacher’s note, where the authors discuss strategies through which this case study could be used most effectively.

Chi Anyansi-Archibong, Andrew Czuczry, Claudia House, and Tony Cicirello emphasize that more such case studies need to be developed and disseminated in the SMET disciplines in their article, “Trends and Lessons Learned in Interdisciplinary and Non-Business Case Method Application.” They provide readers with guidelines on how to address the challenges in developing case studies in SMET disciplines. The SMET related citations section has been retained in order to provide information on articles in other journals that are relevant to SMET education.

We hope you will find this issue of *The Journal of SMET Education: Innovations and Research* to be a thoughtful and provocative one and, as always, we welcome your comments.

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