



From the Editor: Preparing Our Future Innovators

by Amanda Hankel, editor

While teens believe some science, technology, engineering and technology (STEM)-related careers as offering the best chance of getting a job in the future, 67 percent of youth in grades 6-12 who are interested in pursuing a STEM career say they are concerned about the obstacles they would face, a [recent ASQ survey](#) reported.

The survey was fielded online among 713 youth in grades 6-12 and a complementary survey was fielded online among 327 parents of children aged 10-17, in anticipation of National Engineers Week, Feb. 19-25. Meanwhile, ASQ has more than 14,000 member engineers who say they are concerned about ensuring a highly skilled workforce and educated engineers for the future.

So what do these results mean? I think it means students want to pursue STEM-related careers, but question their preparedness to meet the demands of these fields.

In honor of National Engineers Week, this issue of the *ASQ Education Brief* takes a look at STEM from both a K-12 and a higher education perspective. What can educators at any level do to increase student exposure to STEM-related curricula, motivate them to pursue STEM-related fields, and ensure they're prepared to follow through on those intentions?

In this issue, several articles offer a closer look on how school districts and universities are working to better prepare students in STEM-related subjects:

Cindy Veenstra, in her [Guest Editorial](#), "Reflections on Moving Forward on STEM Education," provides her take on how to advance STEM education by engaging schools, universities and the STEM-related industry.

In the article "[Leading the Way](#)," Jay Marino, superintendent of Dunlap School District in Peoria, IL, discusses how his school district embraced "21st century learning," a large part of which involves STEM. The school adopted several Project Lead the Way courses, a program



providing STEM-related curriculum to schools around the United States, in its high school to increase student exposure to STEM topics.

The article, [“Ph.D. Program Offers New Opportunities in Engineering, Applied Sciences.”](#) provides a look into the new Ph.D. program in the engineering and applied sciences at Western Michigan University in Kalamazoo, MI. The article outlines how the program is set up and what it requires of its students. The new program illustrates another effort at the university level to provide opportunities for students to pursue STEM-related careers, and the program’s setup could serve as model for other universities looking to establish similar programs.

We also showcase excerpts from the book, [Advancing the STEM Agenda: Quality Improvement Supports STEM](#), published by ASQ Quality Press and available in May 2012. The publication is a selection of conference papers and workshops from the ASQ Education Division’s first *Advancing the STEM Agenda (Science, Technology, Engineering, and Mathematics) in Education, the Workplace and Society Conference*.

In the article, [“SySTEMically Improving Student Academic Achievement in Mathematics and Science.”](#) read about the Western Wisconsin STEM Consortia project, which provided professional development for 60 K-12 teachers from 9 different school districts in Western Wisconsin to improve student academic achievement in mathematics and science.

Meanwhile, the article [“Increasing Sustainability of STEM Intervention Programs Through Evaluation.”](#) discusses STEM Intervention Programs (SIP) that seek to recruit and retain students in science and math-based disciplines in an effort to improve STEM education at the postsecondary level. The paper investigates the extent to which SIPs at a sample of large, public, research universities are evaluated, and how the evaluations are conducted and the results used.

Finally, be sure to mark your calendar for the [second annual ASQ Advancing the STEM Agenda in Education, the Workplace and Society Conference](#), taking place July 16-17 in Menomonie, WI. This is the second annual ASQ STEM conference and it offers a unique objective: to network and blend ideas on continuous improvement with the latest research or



best practices related to STEM initiatives in high schools, colleges and universities, and the transition to STEM careers. Anyone involved with STEM initiatives to recruit and retain students as STEM majors, or mentor them into their STEM careers as scientists, STEM technicians and engineers, should consider attending this event.

The future of our world depends on our ability to keep improving, advancing and innovating—finding new and better ways to do pretty much anything. And in many areas, that means having engineers, scientists, mathematicians and technology-savvy professionals capable of doing that. It seems students today want to be the world's next engineers and scientists, and make a difference through innovation, but as the ASQ survey illustrates, they are unsure of their ability to be successful at it. That is where their educators—whether they're college professors or kindergarten teachers—come in, to expose students to STEM subjects and prepare them for a career in STEM.

What's your take? What can educators do to improve STEM education and help students be better prepared for careers in STEM? Email me at ahankel@asq.org