



## **Guest Editorial: Collaborate for STEM Success**

by Cindy P. Veenstra, 2013 Advancing the STEM Agenda Conference co-chair

This is the fifth annual joint issue of the *ASQ Primary and Secondary Education Brief* and the *ASQ Higher Education Brief* focusing on science, technology, engineering and mathematics (STEM) in recognition of [National Engineers Week](#) Feb. 17-23. Engineers Week was founded by the National Society of Professional Engineers in 1951<sup>1</sup> and today, a number of organizations honor National Engineers Week, including ASQ. In addition to this joint issue, ASQ often sponsors a survey of students and parents on engineering topics. This year's survey on risk-taking attitudes among teens and the connection to STEM careers was highlighted by ASQ CEO Paul Borawski in his blog, [A View from the Q](#).<sup>2</sup>

This brings me to the discussion of collaboration. We must have more collaboration between parents and school systems in encouraging youth to consider STEM careers. Together, we must work to help students develop an engineering mindset that will support them in their college years as a STEM major and later in a career as a quality engineer, scientist or design engineer. We also need more support from ASQ members in reaching out to local schools and colleges on this important topic. Together, we can raise awareness of how using quality tools can improve student academic success in math, science and engineering. If you wish more information on how you can participate, feel free to email me at [conference@asqedu.org](mailto:conference@asqedu.org) (an ASQ Education Division email address).

In the ASQ Education Division's book, [Advancing the STEM Agenda: Quality Improvement Supports STEM](#), we shared how the 2011 Advancing the STEM Agenda Conference informed us of the importance of collaboration.<sup>3</sup> The division identified four levels of partnership and collaboration:



- General partnerships between K-12 education, universities and communities.
- Partnerships between K-12 education and universities that are ongoing and continuous.
- Partnerships within universities to improve learning outcomes through better teaching and retention of students, especially when it comes to student groups that are underrepresented.
- Partnerships that support the transition of students from graduates of STEM majors to successful STEM careers.

Consider this: A report from the U.S. President’s Council of Advisors on Science and Technology (PCAST) “[Engage to Excel](#),” predicts that the United States needs one million more STEM graduates in the next 10 years than the current graduation levels.<sup>4</sup>

The editors of *Advancing the STEM Agenda* believe collaboration is key to success. More collaborative participation is needed at all levels—from K-12 education, to higher education and industry.

### **What’s in store for the 2013 STEM conference**

With these ideas in mind, the ASQ Education Division teamed up with Grand Valley State University (GVSU) located near Grand Rapids, MI, for ASQ’s third annual Advancing the STEM Agenda Conference, taking place June 3-4 on the GVSU campus. The conference will explore the theme of collaboration with industry to promote STEM education.

In 2012, the GVSU School of Engineering was recognized as a National Academy of Engineering exemplar of real world engineering education for its scaffolded co-op to interdisciplinary industry-based capstone project program. It’s the perfect setting to explore the STEM challenge. [View this video](#) for examples of GVSU’s efforts and collaboration with industry.<sup>5</sup>



We are very excited about our [keynote speakers](#):

- Paul D. Plotkowki, dean of the Seymour and Esther Padnos College of Engineering and Computing at GVSU.
- Glenn Walters, deputy cabinet secretary of the New Mexico Higher Education Department in Santa Fe and known for his keynotes at the ASQ World Conference on Quality and Improvement and Education Team Excellence Recognition efforts at ASQ's National Quality Education Conference.
- Reginald McGregor, manager of engineering employee development and research and technology strategy at Rolls-Royce Corporation in Indianapolis and chair of the company's engineering education council.
- Carrie Houtman, the regulatory services leader for Michigan and Minnesota at Dow Chemical. In the past year, Houtman led Dow's STEM education initiatives and represented Dow at think tanks, trade associations and, most notably, as part of President Barak Obama's Advanced Manufacturing Partnership.

To provide more emphasis on collaboration between industry and universities, especially on co-op and capstone experiences, one of the keynote sessions will offer a panel discussion from industry viewpoints and another from an academia perspective. See the [program page](#) for more details. Similar to last year, the panelists will share best practices and provide learning experiences to apply in our collaborative effort to provide more experiential learning to STEM undergraduates.

The conference features four workshops:

- Improving Graduation Rates at a Comprehensive University: A Case Study of Institutional Alignment and Process Improvement in Higher Education



The Global Voice of Quality™

- How to Make Your Entrepreneurial Dreams a Reality
- Developing Highly Effective Industry Partnerships: Co-op to Capstone Courses
- Implementing and Assessing STEM Learning Communities

We expect to have four tracks of peer-reviewed paper presentations. Additional information will be announced in mid-April.

We hope you will join us at the conference for an engaging and significant experience toward improving STEM education promoting STEM careers. This international conference will bring value to attendees and it is at the forefront of the latest ideas on improving education. If you work in industry, we encourage your participation. Please help us by sending a copy of this issue to managers involved with K-12 and university outreach.

## References

1. National Society of Professional Engineers, "National Engineers Week Programs," National Society of Professional Engineers, 2013. <http://www.nspe.org/PartnersStates/eweek.html>
2. Paul Borawski, "Risk, Failure and Careers in Quality," *A View from the Q* blog, Jan. 31 2013. <http://asq.org/blog/2013/01/risk-failure-careers-in-quality-2/>
3. Cindy P. Veenstra, Fernando F. Padró and Julie A. Furst-Bowe, eds., *Advancing the STEM Agenda: Quality Improvement Supports STEM*, ASQ Quality Press, 2012.
4. President's Council of Advisors on Science and Technology (PCAST), "Engage to Excel: Producing One Million Additional College Graduates with Degrees in Science, Technology, Engineering, and Mathematics," Executive Office of the President of the United States, 2012. [http://www.whitehouse.gov/sites/default/files/microsites/ostp/pcast-engage-to-excel-final\\_feb.pdf](http://www.whitehouse.gov/sites/default/files/microsites/ostp/pcast-engage-to-excel-final_feb.pdf)
5. ASQ, "General Information/Contacts about the ASQ Advancing the STEM Agenda Conference," ASQ, 2013. <http://asq.org/conferences/stem-agenda/general-information.html>



### **About the Author**

*Cindy P. Veenstra is the immediate past chair of the ASQ Education Division. She is a member of the research staff at the Center for the Study of Higher and Postsecondary Education at the University of Michigan in Ann Arbor. This is her third year serving as co-chair of the ASQ Advancing the STEM Agenda Conference. She is an associate editor for Quality Approaches in Higher Education. Veenstra holds a doctorate degree in industrial and operations engineering and is an ASQ Fellow.*