QED NEWS

Quality in Education K–12 • Higher Education • Workforce Development

Education Division
ASQ The Global Voice of Quality™

Editor: Marianne Di Pierro, Ph.D.

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VISION STATEMENT: Shaping the Future Through Quality in Education and Professional Development

QEDNews *is the ASQ Education Division's newsletter for members with articles contributed by members. It is published twice a year, in the fall and spring.*

Message From the Chair

by Cindy P. Veenstra, Ph.D.

Greetings! Welcome to the Fall Issue of the Education Division's newsletter, *QEDNews!* The fall is always an exciting time in the education academic calendar, with the beginning of a new, exciting academic year.

I have served as chair of the Education Division since May 2010, and this will be my last chair's message (I will continue until December 31). I would like to reflect on what we have accomplished in the past two years.

- Two Division-sponsored STEM Education Conferences with the University of Wisconsin-Stout. All our conference papers were peer-reviewed and a paper was required to present at the conference. STEM stands for Science-Technology-Engineering-Math.
- The publication of the third division-sponsored book since 2003, including *Successful Applications of Quality Systems in K-12 Schools* and *Transformation to Performance Excellence*. Our current book, *Advancing the STEM Agenda: Quality Improvement Supports STEM* is selling extremely well and was awarded the ASQ Quality Press Golden Quill Award. It is a collection of edited papers from our successful 2011 Advancing the STEM Agenda Conference (see p. 12 for reviews of the book).
- Division-sponsored sessions and workshops at both WCQI and NQEC on improving education and training, and leadership.
- Recognition of the Division's quality management as a recipient of the J. S. McDermond Award both years. In addition, our surveys show the highest level of satisfaction we have seen on membership surveys.
- Member focus with social media; we are using Twitter to keep members informed of daily division news and other news of interest. @ASQ_EduDiv
- An online library that is full of resources, close to 500 articles and webinars. This year, a new initiative included providing members with at least one new webinar each month. Last month's was by Dr. Jan Ferri-Reed on helping millennial workers be successful in the workplace.
- The bi-annual publication of our *QEDNews*, which now has a 21st century look, of our peer-reviewed *Quality Approaches in Higher Education;* and the *Workforce Development Brief.*

Thanks to All

In my role as chair, I am reminded of those who have mentored me. John Dew recruited me into the Education Division leadership team as a K-12 Chair and from there he mentored me to serve as the Higher Education Chair and then as Chair-elect. I enjoyed the discussions Scott Martens and I had at the University of Minnesota and then at the World Conference in Minneapolis, while he was chair. I am especially thankful for the help Deborah Hopen gave the Division in founding the *Quality Approaches in Higher Education,* whose advisory committee I plan to continue chairing. Special thanks to Fernando Padró for actually reading my dissertation and the many conversations we had on framing higher education activities and the STEM Agenda Conferences. I will also remember the many conversations that Marianne Di Pierro and I have had—a very special thanks to her as editor of *QEDNews* and the improvements in the newsletter.

I wish to personally thank the leadership team and all active volunteers. We have accomplished a lot, had some fun times, and improved the Division's networking on quality in education. We have collaborated with other divisions and other professional organizations. A special thanks to Linda Milanowski, our ASQ administrator, who has exchanged daily emails with me and given the leadership team valuable advice. Together, these activities and efforts have contributed to an important dialogue on improving the quality of education. We are a more engaged and active Division.

Advancing the STEM Agenda Book was a Special Project

After the 2011 Advancing the STEM Agenda Conference, we approached ASQ Quality Press with a proposal about a book based on selected papers from the conference and it was accepted. It was a special time that I will always look back on as a significant experience. Co-editors Julie Furst-Bowe, Fernando Padro, and I worked long hours to meet the schedule along with the 36 authors. We received the chapter drafts in early January and completed the book by the first week in April. Sometimes, it was emails every day. Sometimes the authors got tired of receiving an email from me, but they all persisted! Although we had talked about the direction of the book, as we began our editing, we *really* talked about what was important, our Division's message on PDSA, systems thinking in the STEM pipeline, collaboration between K-12, higher education and industry, and innovative ideas for improving education. We talked about our vision and leadership for improving STEM education and the role of the Division. Like no other time, it enabled me to discuss ASQ and the Division's goals and prepare our future chairs for leading the Division.

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The Observation Tower:

The Tide is High–But We're Holding On

by Marianne Di Pierro, Ph.D.

Ironically, best practices may emerge out of catastrophes or exigencies, when the need for positive change appears suddenly and requires immediate action.

Tulane University's post-Katrina Renewal Plan serves as an example. In the aftermath of Hurricane Katrina, Tulane implemented sweeping academic program cuts and dismissed scores of professors in those programs. The president of the university had declared that the state of Louisiana had been financially compromised due to the devastating effects of the hurricane and advocated program and faculty cuts in order to maintain some sense of fiscal solvency.

In fact, ensuring fiscal solidity in the aftermath of the hurricane was a response that appeared to coincide with a particular, horrendous event, when in fact it was an action *prompted* by the hurricane, but not necessarily and solely inspired as a result of it. The reality of the situation is that Tulane must have been already in the process of analyzing its position as a major player in higher education and determining where it should concentrate its resources, moving forward. Even before the devastating storms brewed, downsizing, as a best practice to enhance organizational efficiency, must have been a consideration.

Katrina simply served as the vehicle prompting purposeful change, causing the university to reevaluate its position. University officials understood that the institution could not conduct business as usual, carrying dozens of costly programs. Therefore, streamlining programs, faculty, and staff was the chosen best practices approach to maintain the reputation and quality of the university, notwithstanding the complicated tenured faculty issues that emerged. The initiative involved focusing on the strongest programs, those that offered the best prospects for success and would distinguish Tulane as a world-class university, and then reducing or eliminating those programs not in the same league—a triage system of sorts: salvage the healthy and solid first.

Richard Schmidt, a board member and former Tulane civil engineering graduate, commented, "…when you have a situation like this, you have to take a step back and look at the overall plan and what's best for the entire organization."[1]

Such a philosophy is couched in self-reflection, and steeped in a magnanimous perspective that forces the ego into checkmate. It is difficult to maintain a world view when our egos beg to be stroked and we cannot differentiate between personal outcomes for personal advantage or those that connect to the higher order, the bigger picture. Despite the complexities, Tulane rose above the maelstrom and initiated best practices, though certainly the pain of getting there, for the greater good, must be acknowledged.

Tulane is not alone in its initiatives: consider the downsizing measures adopted in years past by Yale, MIT, San Diego State, and UCLA, among others, many of which were spawned by losses in endowments as well as other challenges to fiscal budgets.[2]

Yet, the downsizing trend is a feature of contemporary higher education. The University of Miami medical school is currently exploring the potential layoff of 800 employees in research and administration, due to losses in state funding and other financial allocations. Interestingly, an independent evaluation of the school indicated many areas of administrative duplication which resulted in taking "…from top to bottom—a whole layer out."[3]

Harvard University, in its endeavors to establish an unparalleled library complex, is currently grappling with sustainability of its holdings and exploring the real possibilities of layoffs within its vast librarian staff.[4]

Ironically, most of these problems stem from excellence, albeit it *unchecked*—the need to reach potential and to surpass even the highest of expectations, to cultivate the best and the brightest of an elite faculty, superlative academic programs, unparalleled scholarly research, and state-of-the -art technology. There is no moral judgment here—no right or wrong, but there is one important common sense consideration to bear in mind: When universities and organizations grow, they must consider capacity and just how far their dollars will stretch—not only during the *growth* phase, but in the *sustainability* phases as well—and not only when dollars are plentiful, but when endowment dollars are diminished, when state appropriations are reduced, when debt mounts, and when it first becomes apparent that egos drive duplication and expansion, rather than collaboration and shared integration of resources. What does *sustainability* look like under *these* circumstances? If the answer is downsizing, then we have indeed far surpassed capacity and overreached not only our budgets, but our reason.

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Check out our Library

Includes Link to the *Education Briefs*

http://asq.org/edu/quality-information/library

The Observation Tower continued from page 3

The example of Tulane serves in many ways; however, rather than have Katrina-like circumstances spur the response—the action plan—another approach is to bear in mind the more contemplative, reflective, quality-oriented perspective. At each stage in the process we should ask if the sails are set in the right direction, and then, most importantly, anticipate what may lie ahead, in both fair and foul weather.

Such best practices are not for the faint of heart.

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3. John Dorschner, "UM Medical School to Lay Off up to 800," *The Miami Herald*, May 8, 2001, http://www.miamiherald.com/2012/05/08/2789495/um-laying-off-800.html.
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Watch for our Fall Membership Survey

Shorter this year!

Your feedback is valued!

Engineering Education

Creating a Sense of Community: Mentoring First-Year Engineering Students

by Kenneth Reid, Ph.D.

Students enter engineering with visions of a future of relatively high demand and high salaries. In fact, in a recent article in *Time* magazine,[1] eight of the top ten best paid college majors were in engineering disciplines. *Forbes Magazine* described the 15 most valuable college majors, including number one ranked biomedical engineering.[2] On a positive note, biomedical engineers earn a median starting salary of more $53,000, which grows to more than $97,000 by mid-career. Further, growth in job opportunities is 61.7 percent. The same article, however, states, "These aren't majors that anyone could do. They're hard, and these programs weed people out." In fact, a portion of The College Board's[3] description of biomedical engineering asks, Are you ready to:

- Spend a lot of time working on projects in the lab?
- Handle a heavy workload of math and science?
- Take possibly five to six years to complete your degree?

Students may begin their engineering plans of study with a fuzzy understanding of engineering as a discipline. Mixed messages can add to the confusion that some students face as they begin college. In fact, many studies show that less than 50 percent of students who begin in engineering graduate with an engineering degree. Studies have shown that most of these students do not leave engineering because it's too difficult, but leave for other reasons often related to lack of a sense of "community."[4, 5] The question becomes this: If excellent students who would make excellent engineers choose to leave engineering, what can we do to encourage them to remain in engineering and help them be successful?

Most universities have a course or a series of Introduction to Engineering courses where topics like time management, study skills, and survival tips are discussed. However, presenting these topics doesn't necessarily lead to a sense of community, whether the community is defined as the community of students, the university community, or the profession of engineering. Efforts such as coordinated scheduling, where groups of engineering students are scheduled in the same sections of courses or residential living-learning communities where groups of engineering students share housing, have proven successful in fostering the sense of community and improving retention.

Programs where sophomore, juniors, and seniors are assigned as peer mentors for small groups of first-year students have proven highly successful at two very different universities. Ohio Northern University adopted a program similar to a successful program at the University of Pittsburgh.

In the program at Ohio Northern, faculty nominate students whom they feel would be effective mentors. Students who agree to serve as mentors submit a picture and a short description of their interests, from enjoy watching movies to playing card games to enjoy

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Mentoring First-Year Engineering Students continued from page 4

baking cookies. First-year students are assigned to review these brief descriptions on a website and are asked to indicate students they feel would be excellent mentors. Once all first-year students submit their choices, they are manually grouped, and mentors are assigned. Manually assigning mentors is possible with a relatively small incoming class of 120-130 students. Each mentor is expected to work with a group of 5-15 students.

Mentors are asked to meet with their group weekly in some social activity such as visiting the local movie theater to going out for pizza and game night. The intent is to give a safe time and place for new students to ask questions of their mentors, especially those questions they may feel uncomfortable asking a professor, and to get to know a group with similar social interests. Mentors are paid for their meeting time (averaging to about two hours per week).

The program at Pitt requires first-year students to sign up for a section based on information regarding their mentor and activities planned for the upcoming semester. Some topics include the following: basketball, billiards, adventure group/discover Pittsburgh, exercise and fitness, and music and movies. Students meet regularly with their mentor and group, and mentors also host office hours and are paid for some prep time.[6, 7] An added bonus is that students receive credit for taking this course at Pitt.

Are These Mentor Programs Successful?

Both programs have been quite successful. Data collected from the program at Pitt have shown an increase in average GPA and involvement in the honors program and a decrease in students transferring out of engineering at the end of their first year as well as decreases in the number of students on probation for poor grades. Although survey results showed that almost all students experienced issues with academics, family, or personal concerns during the year, most indicated that their mentor was helpful in coming to terms with these difficulties.

Ohio Northern has implemented the peer-mentoring program along with a few other initiatives aimed at improving student performance and retention into the second year of engineering. Retention at or near 90 percent has been observed, a very high percentage for an engineering program. While the high percentage cannot necessarily be attributed to peer mentoring alone, survey results indicate that students are able to build a sense of community through the program.

In addition, students were largely happy with the mentoring program based on a survey taken toward the end of the year. Some student comments on an open-ended question included these statements:

- We just talk, but if I had questions I knew she would answer.
- I found the group useful—he gave valuable advice.
- It was comforting to have somebody there for me that will answer any questions I have.
- Courtney is the best mentor ever!

Should My Engineering Program Consider Peer Mentoring?

Peer mentoring has been proven successful in a large public university where mentors and first-year students enroll in a formal class, and in a small private university where the program

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Portion of a web page for first-year engineering students to select their mentors

Mentoring First-Year Engineering Students continued from page 5

is conducted outside of the classroom. Successfully implementing a similar program requires faculty supervision and a budget—of course, most initiatives do! If your institution is interested in increased retention and an improved sense of community, by all means, consider establishing a peer mentor program.

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About the author

Kenneth Reid, Ph.D. is the director of first-year engineering, program director of engineering education, and an associate professor in electrical and computer engineering and computer science at Ohio Northern University. He was the seventh person in the United States to receive a Ph.D. in engineering education from Purdue University in 2009. He is active in engineering within K-12, serving on the Technology Student Association (TSA) board of directors and 10 years on the IEEE-USA Precollege Education Committee. He co-developed "The Tsunami Model Eliciting Activity," which was awarded Best Middle School Curriculum by the Engineering Education Service Center in 2009. His research interests include success in first-year engineering and engineering in K-12. His email address is k-reid@onu.edu.

Check out Norma Simons' Blogs Lean Six Sigma in Education

http://asq.org/edu/interaction/blogs-edu.html

Leaders Tom Berstene, Cindy Veenstra, Ardith Beitel, and Greg Mazzotta

Lots of Activity at the World Conference

by Cindy P. Veenstra, Ph.D.

At WCQI 2012 in Anaheim, CA, the Division was well represented by its leadership team. Don Brecken, Ardith Beitel, Tom Berstene, Belinda Chavez, Greg Mazzotta, and I attended the conference. We enjoyed the keynotes, the sessions and networking; we had a corner location for our booth and great traffic. Greg Mazzotta ran the exhibit; we received many positive comments and questions about our future activities. There was interest in using the certification body of knowledge to develop curricula on quality technology and engineering. We were asked about a future international project on quality in education. We passed out almost all of our material and we felt this was the best year we had had with our exhibit. Thanks to everyone who helped with the exhibit and a special thanks to Greg.

It was a very exciting WCQI since our Division book, *Advancing the STEM Agenda: Quality Improvement Supports STEM* had just been printed and delivered to ASQ Quality Press at the conference (We practiced JIT). There were a lot of inquiries about it. At an awards ceremony, co-editor Cindy Veenstra accepted the ASQ Quality Press Quill Award for an innovative, cutting-edge book for herself and co-editors, Fernando Padró and Julie Furst-Bowe. At our exhibit, we held a book signing

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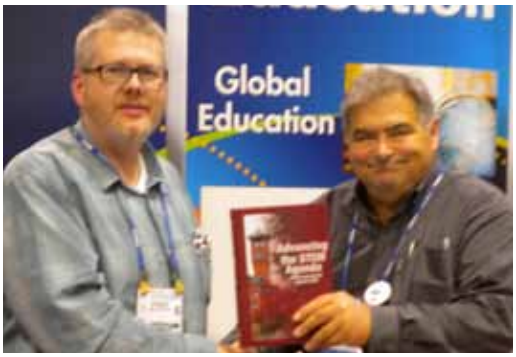
A book-signing event featured Cindy Veenstra (co-editor) and Vivian Ngan-Winward (author).

Lots of Activity at World Conference continued from page 6

and author Vivian Ngan-Winward was there with co-editor Cindy Veenstra to sign books.

We participated in the Divisions' raffle and gave out a copy of our book; it was won by Robert Allotta. The All Divisions grand-prize jackpot of a large gift certificate was won by Tom Berstene.



Advancing the STEM Agenda *book raffle winner, Robert Allotta, with Greg Mazzotta.*

We sponsored two presentations:

- A WCQI session on "Application-Based Projects in Six Sigma Training" by Dr. Jamison Kovach. It was very well received, with significant questions from the audience. She explained how she includes real, application-based projects in the Six Sigma courses she teaches.
- The second session was an ICQI workshop, "Quality Initiatives: Drivers of Success and Failure" by Kovach and Jerry Mairani. Most of the table moderators were ASQ Education Division members and included Cassie Elrod, Deborah Hopen, Kathryn LeRoy, Keith Pache, Joelene Smith-Drake, and Cindy Veenstra. It was a very exciting workshop that explored what attendees thought was needed for a quality initiative to be successful. (See the Jamison Kovach and Jerry Mairani article on p. 16.)

Division Awards Given at World Conference and STEM Agenda Conference

by Cindy P. Veenstra, Ph.D. and Marianne Di Pierro, Ph.D.

This is an exciting time for the Division, with 2012 as the first year in which Division awards were presented in recognition of the remarkable contributions of several distinguished members. It is our hope that the Division will continue this tradition of recognizing those who have contributed their leadership and service in the cultivating innovative ideas through which the Division and its members prosper both professionally and personally.

During the business meeting at the 2012 World Conference in Anaheim, the Education Division presented three awards.

A 2012 Award of Appreciation was given to Linda Milanowski, ASQ administrator, for her dedication in service of the Education Division leadership team and the Education Division. Since 1993, she has worked tirelessly as a team member, sharing her knowledge and expertise. In presenting the award to Milanowski, division chair Cindy Veenstra expressed the appreciation of the leadership team for her vigilant guidance of team initiatives.


Linda Milanowski, ASQ administrator, with award

A second 2012 Award of Appreciation was announced for Dr. F. Craig Johnson for his dedicated service and leadership on ASQ standards from 1993 to 2012. Johnson was not able to attend WCQI to receive the award in person; however, he sent an email conveying his great appreciation for this special recognition and expressed how much it meant to him to be honored for his distinguished efforts.

A third award, a 2012 Award of Special Merit, was announced for Christine Robinson for significant contribution to educational research on Kano surveys. Her award was in the shape of a light bulb that lights up, exemplifying "innovation." Robinson was unable to attend and receive the award in person, but expressed joy in this special recognition of her research prowess and statistical expertise.

In addition, at the Division's ASQ Advancing the STEM Agenda Conference, an award of appreciation was presented to Dr. Julie Furst-Bowe for her significant leadership and dedication to the ASQ Advancing the STEM Agenda Conferences (2011 and 2012) held at the University of Wisconsin-Stout, where she served as the provost. When the idea for a conference was first proposed, Dr. Furst-Bowe volunteered the UW-Stout campus and staff to make it happen and then served as conference co-chair for two years.

These awards are the beginning of a new tradition for the ASQ Education Division, one which recognizes the great contributions, hard work, and commitment of the members.

Help us Expand NQEC to Higher Education

Send in great proposals for 2013!

2012 Advancing the STEM Agenda Conference a Success!

by Cindy P. Veenstra, Ph.D. and Julie A. Furst-Bowe, Ed. D.

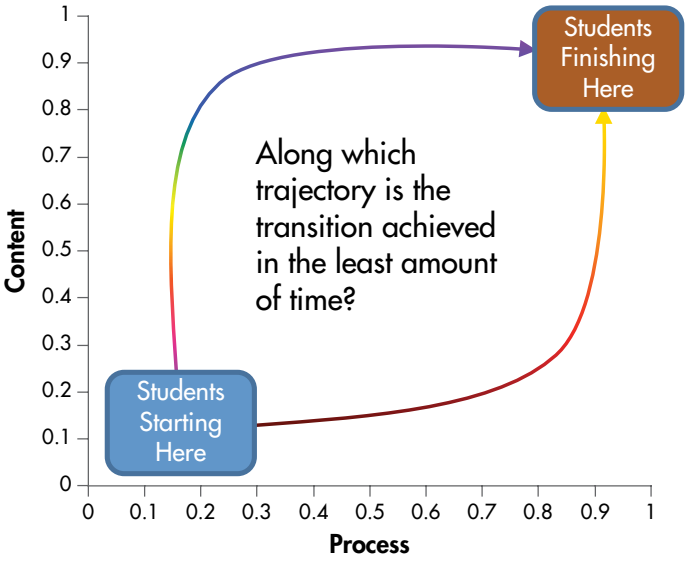
The ASQ Education Division's 2012 Advancing the STEM Agenda Conference held at the University of Wisconsin-Stout on July 16-17 was a great success. This article summarizes some of the highlights of the conference. We learned from four keynotes:

Panel includes from left to right, Paul Plotkowski, Reginald McGregor, Jeff Asproth, Amy Lane, and Fernando Padró.

Dr. Jeffrey E. Froyd, TEES Research Professor at Texas A&M University, spoke on "STEM Education Classrooms: Promising Practices for Improved Learning." As reported by an UW-Stout reporter, Professor Froyd noted, "Examining STEM education is important because we need more people in the STEM fields. There's not enough focus on STEM areas consistent with where we need to be, to be globally competitive."[1]

Professor Froyd discussed that most college STEM courses focus on content and not enough on process skills, such as critical thinking. Students need both; consistent with the Division's philosophy on the importance of academic processes and PDSA. His presentation was a delight to see, and brought a new dimension to the discussion that was backed by his research. In his presentation, he discussed seven promising practices of teaching that can be implemented. His presentation is available at the conference proceedings' webpage. Click on the title of his keynote and you will see both the slides he presented and slides from another presentation on active learning in STEM. These two presentations will be of interest to higher education faculty in and outside of STEM fields.

Graph of Content Versus Process
From Professor Froyd's Keynote



A panel discussion on STEM education-industry partnerships was led by Paul D. Plotkowski, dean of the Padnos College of Engineering and Computing at Grand Valley State University. This was an engaging keynote, full of questions and answers to STEM education-industry partnerships both at the K-12 and university level. The panelists included Jeff Asproth, 3M; Amy Lane, UW-Stout Career Services; Reginald McGregor, Rolls-Royce Corporation; and Fernando Padró, Cambridge College. The UW-Stout article reported, "'The big picture behind the push for STEM education is to help raise the standard of life in the U.S. and keep the country globally competitive, McGregor said. "It's not math and science—it's about helping your fellow American.'"[1] As an example, UW-Stout reported, "As an engineer and manager of engineering employee development for Rolls-Royce, the jet engine-maker from Indianapolis, Reginald McGregor works with students from middle schools to universities.... Why? "'We want to get students interested early in STEM fields, McGregor said. STEM is exciting, so let's bring it to life. Why does that airplane stay in the sky?'" Fernando Padró, our chair-elect, reported on the importance of department advisory groups. As an example of a university and industry working together, Amy Lane noted that in most programs at UW-Stout, a co-op experience is required where students are working 40 hours a week; at the same time they are registered as full-time students so that they can concentrate on their co-op experience.

The luncheon keynote, " Baldrige, STEM Engagement and Learning Communities," was presented by Julie Furst-Bowe, chancellor, Southern Illinois University Edwardsville and ex-provost, UW-Stout and Kitrina Carlson and Krista James, faculty members at UW-Stout. They discussed the success of Baldrige in shaping the STEM culture at the University of Wisconsin-Stout. Their presentation is available on the conference proceedings page.

The closing keynote, "Looking to the Future: The STEM Talent Development Roadmap," was presented by President Bryan Albrecht, Gateway Technical College. President Albrecht talked about the need to interest K-12 students in STEM technology. With the kickoff of the Wisconsin STEM Talent Development Roadmap project, he mentioned that one

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2012 Advancing the STEM Agenda Conference a Success! continued from page 8

of the recommendations will be that each school system develops a partnership with a corporation or community organization in its community.

The combined message we received from the conference is the same as last year: that collaboration is important—that so much more is accomplished in STEM education with collaboration partnerships. The papers were all well-received.

Of special interest was the presentation and tour of the UW-Stout STEPS program by Brenda Puck; it is a program designed to interest middle school girls in careers in science and engineering technology. It is in its 16th year at the UW-Stout, where it was started and then spread to other universities.

It was very nice to see repeat presenters from the 2011 conference, signifying commitment and satisfaction with our conference. Returning presenters included:

- **Maleka Hashmi** and **Kitrina Carlson**, UW-Stout, "Interdisciplinary Service Learning: Two Approaches to Solving One Problem."
- **Amanda Little**, UW-Stout, "Service Learning in Non-Majors Biology: Learning Outcomes and Lessons From the Field."
- **Kitrina Carlson** and **Krista James**, UW-Stout, "Diversity Awareness Education in an Introductory Seminar Course to Promote Social Responsibility."
- **Vivian Ngan-Winward**, Salt Lake Community College, with "STUDENTfacturED: Providing a Way to 'STEM' Out From Behind Old School Walls and Into the Real World Workplace."
- **Bethany King Wilkes**, Oklahoma State University, with "A Comparison of Epistemological Beliefs of African American Engineering Students."
- **Wendy Zinn**, San Bernardino Community College District (CA) and **Craig Reisgen**, High Performance Math, with " High Performance Math," a program that encourages underrepresented students to learn math and physics through virtual designing of car engines and cars that compete in a virtual car race.

The entire matrix of breakout sessions with hyperlinked papers is available on the conference proceedings page.

In an effort to collaborate with ASQ sections, we invited the ASQ Section 1203 (Minnesota) and the ASQ Section 1216 (LaCrosse, WI/Winona, MN) to join us with an exhibit. It was great having their participation and support, including articles about the conference on their websites. Thanks Sections 1203 and 1216! We hope this collaboration will continue in the future.

We thank the conference committee, our 38 reviewers, the UW-Stout faculty, and professional education staff that contributed so much to the success of the conference.

Reference:

1. UW-Stout, "Industry-Education Partnerships Touted at STEM Conference," *UW-Stout News*, http://www.uwstout.edu/news/UW-Stout-News-Story.cfm?formID=2198&pageID=120293

About the authors

Cindy P. Veenstra, Ph.D. and **Julie A. Furst-Bowe, Ed.D.,** served as conference co-chairs for the 2012 Advancing the STEM Agenda Conference. Veenstra is principal consultant with Veenstra and Associates and the Education Division chair; Furst-Bowe is the chancellor of Southern Illinois University Edwardsville and the higher education chair.

Education Division Welcomes Belinda Chavez as Incoming Secretary

by Marianne Di Pierro, Ph.D.

Belinda Chavez has joined the ASQ Education Division team as incoming secretary and current membership chair. Belinda is an ASQ Director, Region 14A Director, and Section Affairs Council Chair. She is an ASQ Certified Manager of Quality/Organizational Excellence and Six Sigma Black Belt, an IPCM Certified Manager, and George Group Certified Lean Six Sigma Black Belt. She is currently employed by Honeywell Technology Solutions, Inc. as the NASA Safety Center Audits and Assessments Office Operations Manager.

She was re-elected for a third, two-year term (FY 2011-12) as ASQ Director and Region 14A Director. She was also re-elected for a third, one-year term as Section Affairs Council (SAC) Chair and served as 2009 SAC Vice-Chair and Nominating Committee Chair. She is the ASQ Quality Management Process Chair, Student Branch Committee Chair, and worked with numerous committees including Strategic Business Planning, PPAC, Education and Training Initiative, Membership, Economic Case for Quality, and ASQ Global. Belinda is working closely with ASQ Global to ensure smooth transition of Regions 7 and 14A Mexico Sections to ASQ Mexico.

The Education Division is proud to have Belinda as a member of the team and looks forward to a long and rewarding association with her as she lends her expertise, knowledge, and talents to enhancing quality in education.

Julie Furst-Bowe Becomes Chancellor of Southern Illinois University Edwardsville

by Marianne Di Pierro, Ph.D.

The ASQ Education Division congratulates Julie Furst-Bowe, higher education chair and 2013 chair-elect, on her appointment to chancellor of Southern Illinois University Edwardsville (SUIE), where she began her post on July 2, 2012.

Furst-Bowe was provost and vice chancellor for academic and student affairs at the University of Wisconsin-Stout (UW-Stout) in Menomonie, a position that she held since 2005. She began her tenure at UW-Stout in 1990 and held a variety of administrative roles during this time. Her background in quality improvement initiatives in higher education made her an ideal candidate for the chancellor's position at SIUE.

Furst-Bowe enjoys a national and an international reputation in the field of quality in higher education and has served as a senior examiner for the Malcolm Baldrige Quality Award program. Through her efforts, the university was the recipient of the prestigious Malcolm Baldrige National Quality Award in 2001. The Baldrige model formed the framework at UW-Stout for important innovations such as the student laptop program and the Discovery Center for applied research and economic development outreach. Throughout her lifetime, Furst-Bowe has dedicated her efforts to quality academic improvement and to serving as a liaison to other institutions of higher learning in efforts to incorporate quality initiatives into their educational systems.

Furst-Bowe was instrumental in working with Cindy Veenstra, ASQ Education Division Chair, and Fernando Padró, Chair Elect, in spearheading the first Advancing the STEM Agenda Conference at UW-Stout last year. That conference led to the publication of a book by the three editors, *Advancing the STEM Agenda: Quality Improvement Supports STEM*. Furst-Bowe holds a doctorate in education from the University of Minnesota.

A Message From the Chair continued from page 2

Conference Site Chosen for 2013

Great news! We are looking at our third year with an ASQ STEM Agenda Conference in June at Grand Valley State University. Look for more details in our email blasts.

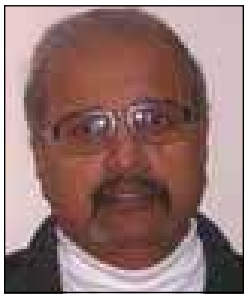
NQEC 2012

I look forward to meeting many of you at NQEC 2012. Please join us at our business meeting at the conference hotel from 9:45 a.m. to 11:00 a.m. on Sunday, November 11. We would love to hear your ideas for division activities. (Also see articles on NQEC on pp. 11 and 12)

About the author

Cindy P. Veenstra, Ph.D. is principal of Veenstra and Associates and chair of the Education Division. She is an ASQ CRE and Fellow. Her research includes strategies for improving college STEM student retention.

Introduction to Sid Nair



Sid Nair, Ph.D., professor of higher education development at the University of Western Australia, hosts our 22-minute September webinar, "How to Increase Response Rates for Surveys—Well Can You?" It is our newest addition to our monthly series of webinars. This is his second webinar; the first was "Using Student Satisfaction to Start Conversations about Continuous Improvement."

Nair, a professor in the Center for Advancement of Teaching and Learning, has published more than 90 scholarly publications in refereed journals and conferences in addition to five books and six book chapters. His research interests focus on student feedback, improvements using evaluation data, quality in higher education and, more recently, the quality of education in private providers.

Professor Nair is also one of our newest associate editors for *Quality Approaches in Higher Education (QAHE)*. He has authored two articles in *QAHE*, the latest one titled, "An Integrated Approach to Quality Enhancement in a Multi-Campus University." Welcome, professor Nair! We look forward to working with you.

Join the Workforce Development Network!

http://community.asq.org/networks/Education_Division_Workforce_Development_

National Quality in Education Conference: Refocus, Renew, and Rev Up for Learning!

by Jay Marino and Becky Martin

Developing Global Leaders Through Quality Schools, Classrooms, and Systems Thinking is the theme of 2012 National Quality in Education Conference (NQEC). Educators from around the world will gather in Louisville, KY, to engage in the four focus areas of the conference including:

- Curriculum, Instruction, Assessment, and 21st Century Learning
- Strategic Planning and Systems Thinking
- Using Quality Practices to Close the Achievement Gap, Pre K-12 Through College
- Baldrige in Education for Significant Continuous Improvement

NQEC is a premier conference *by* practitioners *for* practitioners. NQEC focuses on continuous improvement processes that have proven results in academic growth and engagement for all students. Educators value this opportunity to network, refocus, renew, and rev up for learning.

We will be presenting a session on Monday, November 12 titled, "The Plan on a Page; Connecting all Stakeholders" in which we'll share five key strategies that engage and empower stakeholders in the strategic plan. The plan on a page ensures that key components such as vision, mission, core values, and goals are included on a one page, easy-to-understand document that clearly sets and communicates direction in the organization. Here's a preview of the five key strategies.

Strategy One: Shared Leadership

The foundation of any effective plan is selecting the right process and people to work on it. By establishing a community of leaders, organizations can collectively harness the talent of a diverse group of stakeholders and benefit from their multiple perspectives. The new paradigm of educational leadership calls for collaboration and involvement in leading the educational organization. When a cohesive team is empowered with leadership responsibilities, it is more likely that their decisions will be supported and acted on by colleagues. An effective team utilizes the cooperative power of the group to guide the way.

Strategy Two: Clear Focus

Leadership teams need to ensure that improvement plans incorporate explicit and agreed-upon focus. To ensure group consensus, input is essential to make certain that the values of stakeholders are represented. Only the most important or "critical few" focus areas should be included to keep the effort centered and manageable. To establish a clear and common focus, a plan on a page that contains a clear vision, concise mission, meaningful core values, and measurable goals should be explicitly shared with all staff and stakeholders.

Strategy Three: Set and Communicate Direction

It's the responsibility of the leadership team to ensure that each person clearly understands the plan and his or her contribution to it. The plan on a page can be a powerful approach to concisely set and effectively communicate direction

to all stakeholders. Educators can post the plan on a page where it can be referenced and used in decision making. Undoubtedly, in the absence of clear direction, stakeholders will determine for themselves what is most important, an action that may be antithetical to the group. The plan on a page ensures a clear and consistent focus on the most essential components of the plan.

Strategy Four: Measurable Goals

A successful plan on a page contains clear and measurable goals. Goals written in SMART format (specific, measurable, attainable, realistic, and time bound) focus efforts and deliver results. Leadership teams need to measure and monitor progress frequently to determine the impact and effectiveness of strategies. A concept referred to as a "dashboard" helps educators observe results and make in-process adjustments to the plan. Like the dashboard in a car, educators can monitor key indicators of achievement and keep an eye out for "warning lights" or areas in need of further attention. Dashboard measures provide a process for early detection of progress through a public display of data in graphical formats for easy interpretation by stakeholders. Effective leadership teams know that what gets measured gets done!

Strategy Five: Ownership

The plan on a page isn't worth the paper it's printed on if it doesn't produce action and generate results. One way to increase ownership,

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The Education Division will sponsor a meeting with Division members.

Time: Sunday, November 11, 9:45 a.m. – 11:00 a.m. at the conference hotel.

NQEC Conference continued from page 11

responsibility, and accountability for the plan is to have everyone create his or her own version. Consider the following scenario:

A school district's leadership team involves stakeholders in the creation of a strategic plan that includes a vision, mission, core values, and strategic goals to guide and align the school system. To clearly set and communicate district direction in a simplistic way, the team distributes a summary document, the district plan on a page, to all employees and stakeholders within the school district.

Next, each school writes a school improvement plan that aligns to the district's strategic plan. To ensure clear and shared focus at the school level, the leadership team summarizes their work in the form of a school plan on a page. The plan is distributed to all classroom teachers and stakeholders to guide and align improvement efforts within the school.

Then, teachers post the school's plan on a page in their classrooms and talk about its meaning with students. Collaboratively, the teacher facilitates the creation of a classroom plan on a page with student input. Their plans include specific SMART goals that align to the school improvement plan. Every classroom monitors its progress toward school goals in its own dashboard or data center. The class uses this instrument to determine progress and identifies areas to pay particular attention to in the respective classroom system.

Through a collaborative process of shared leadership; the establishment of common and shared focus with input from stakeholders; the setting of clear direction at all levels; the creation of measurable SMART goals; the monitoring of goal progress in a dashboard; and the involvement of everyone creating his or her own plan on a page, school leaders can involve everyone in the process of continually improving the educational system.

About the authors

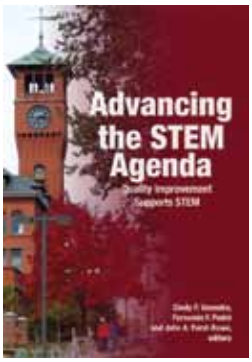
J. Jay Marino, Ed.D. is the superintendent of schools in the Dunlap Community Unit School District 323 in Dunlap, IL. He also serves as an international consultant assisting American and European school organizations in their continuous improvement efforts. Learn more at http://www.jaymarino.me or contact Jay via email at continuous_improvement@jaymarino.me.

Becky Martin is the professional development facilitator for the Cedar Rapids Community School District. She directs professional development for the district and also works in the areas of school improvement and continuous improvement. She is instrumental in the planning and implementation of the professional learning community initiative for the Cedar Rapids district. Her background includes design, delivery, and management of professional development programs. Martin is a certified data coach for *Decision-Making for Results* through the Reeves Learning and Leadership Center. She works collaboratively with local area education agency staff to coordinate professional development and school improvement opportunities.

Martin has delivered presentations at local, state and national conferences and organizations including but not limited to National School Board Association, ASCD, and NQEC and has authored articles in leading education publications. She is recognized nationally as the K-12 Quality Tools Chair for the American Society for Quality's Education Division and hosts a Quality in Education blog. Contact Becky at rmartin@cr.k12.ia.us.

Education Division's *Advancing the STEM Agenda* Book

A collection of conference papers from the 2011 Advancing the STEM Agenda Conference. Available through ASQ Quality Press.



This publication is full of collaborative models, best practices, and advice for teachers, higher education faculty, and human resources personnel on improving the student retention (and thereby increasing the supply of STEM workers.) Ideas that will work for both STEM and non-STEM fields are presented. The introduction maps out the current landscape of STEM education and compares the United States to other countries. The last chapter is the conference chairs' summary of what was learned from the conference and working with 36 authors to develop this book. This effort is part of a grassroots effort among educators to help more students be successful in STEM majors and careers.

"Veenstra, Padró, and Furst-Bowe provide a huge contribution to the field of STEM education. We all know the statistics and of the huge need in the area of STEM students and education, but what has been missing are application and success stories backed by research and modeling. The editors have successfully contributed to our need by focusing on collaborative models, building the K-12 pipeline, showing what works at the collegiate level, connecting across gender issues, and illustrating workforce and innovative ideas."

John J. Jasinski, Ph.D.
President, Northwest Missouri State University

"*Advancing the STEM Agenda* provides a broad set of current perspectives that will contribute in many ways to advancing the understanding and enhancement of education in science, education, and engineering. This work is packed with insights from experienced educators from K-12, regional, and research university perspectives and bridges the transition from education to workplace."

John Dew, Ed.D.
Senior Vice Chancellor, Troy University

Annual Business Meeting to be at NQEC Starting in 2013

by Cindy P. Veenstra, Ph.D.

ASQ's National Quality Education Conference (NQEC) is now in its 20th year. In our 2011 survey, we asked Education Division members who work in colleges and universities if they would prefer to have their networking conferences at WCQI, NQEC, or the STEM Conference. The majority of the responses were for NQEC (reported in the Spring 2011 *QEDNews*). We believe this is primarily due to the academic schedule, and November is more convenient than May for a conference.

In this discussion of where to have the "home" for a substantial conference networking venue for higher education faculty, the leadership team decided it would make more sense to host our annual business meeting with members at NQEC. Starting with the 2012 NQEC, we will have an informal business meeting (Sunday at the 9:45 a.m. session, room TBD), and in 2013 we will begin a new tradition of hosting our annual business meeting at NQEC. We believe this makes sense with the potential of growth for NQEC both in the traditional K-12 tracks and the higher education tracks.

The Education Division will continue to actively support WCQI and host a meeting for members on the Sunday before the conference, but it will be more focused on brainstorming about activities for workforce development, Lean Six Sigma, leadership, and partnerships with industry. Additionally, the leadership team is currently planning for our third Advancing the STEM Agenda Conference at Grand Valley State University. With its focus on STEM (science-technology-engineering-math) education, the conference has a very strong higher education component. With the number of grants available on topics related to STEM, we are starting to see a broader appeal of this conference than what one usually thinks of as strictly "STEM."

In summary, our strategy takes into account the breadth of our membership from K-12 schools, colleges and universities, workforce development, industry, consultants, and others interested in networking on improving quality in education worldwide.

Higher Education Faculty: We Need Your Help With NQEC 2013

As we work with ASQ to expand higher education networking at NQEC, we are asking members who are higher education faculty and administrators to help us in three ways with NQEC 2013:

1. Send us your suggestions for focus areas for proposals that blend well with the traditional topics of NQEC (for example, topics on teacher preparation, school of education's approaches to training teachers, PDSA in higher education, helping disadvantaged students, assessment, accreditation, and other related issues). If you would like to volunteer for an advisory committee, please contact Cindy Veenstra (chair@asqedu.org).
2. Once the Call for Proposals is released (watch for it in the division's email blasts), please submit a proposal.
3. Volunteer to help review papers. Last year, ASQ had a difficult time finding NQEC reviewers for higher education proposals. If we have enough volunteers, the Division will volunteer to conduct the reviews for all the higher education proposals. Let Cindy know if you are interested in reviewing NQEC higher education proposals.

We will continue to look for other conference opportunities for networking with our higher education members. Feel free to send us your suggestions.

A Tool for Competency Identification and Development

by Deborah Hopen

Identifying and developing required competencies is a key learning objective during all phases of a student's education. During the K-8 years, schools focus primarily on helping students become proficient in the foundational knowledge and skills that will enable them to delve into more complex topics while in high school. Higher education universities often require that the core subjects—language arts, mathematics, humanities, and physical and social sciences—be honed at the same time students increase specific capabilities in subjects related to their majors. Throughout their careers, adults continue to learn through education, training, and development programs sponsored by their employers. The goal, of course, is to generate adults who are competent to fulfill their job duties, manage their personal affairs effectively, and contribute to the overall good of society.

This noble objective isn't new, but there still seems to be a long way to go to fulfill it. A common lament of employers across the globe is that members of the workforce are poorly prepared to

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Competency Identification and Development continued from page 13

meet current job requirements and are even less ready to meet requirements of the future. The burden for closing this gap falls on employers, who frequently view the costs associated with education, training, and development to be a sinkhole—one that takes employees away from productive work and reduces bottom-line profitability.

The challenge, therefore, is to look at today's three-year-old and be able to predict what competencies he/she will need at 18, 30, 50, and 80. Then, a system must be put into place to move that student's learning through all the required knowledge and skills areas in a way that develops true competency—the ability to fulfill tasks appropriately, make effective decisions, address deviations from normal circumstances, etc.

Getting Started on the Journey

Identifying current and future competency requirements is a daunting task, and it's one that entails constant vigilance. Today's anticipated competencies for that three-year-old are predicated on current assumptions related to future occurrences. As the future evolves, however, greater insight on success factors becomes clearer, and the competencies must be revised to reflect these deeper insights and observations. This fact makes it abundantly clear that learning always will be a life-long process; there is no way that we ever will have an accurate enough crystal ball to forecast those future competencies so that they coincide exactly with a student's kindergarten or initial educational experience.

At the same time, however, it seems worthwhile to have a competency framework available that can provide a sound foundation for today's view of future needs and that can be revised without inordinate effort. Revisions to the framework need to be constructed carefully to avoid the common pitfalls of including vague descriptions or items for which education, training, or development may not necessarily generate a change in employee capabilities. Without a tool of this nature, educators, employers, and students are faced with wandering in a land of ambiguity or starting with a blank sheet that is likely to vary significantly from organization to organization. Neither of these options bodes well for creating mutual success.

Despite the daunting nature of the task, the horizon looms bright: Microsoft has designed a comprehensive competencies framework for educators (http://www.microsoft.com/education/en-us/training/competencies/pages/default.aspx) that can be used to guide competency development and improvement. As this website states, "Competencies describe the functional and behavioral qualities that an individual must possess in order to help an organization achieve success. Each role in an organization requires a different emphasis or mix of competencies."

The purpose of this article is not to promote the use of this particular framework but to show how a tool of this nature can be used. The concept here is more to gain from focusing on the application of a well-considered, logically designed framework than in developing a unique framework. This particular framework was developed with educators in mind, and therefore seems like a reasonable example. Although it can be applied to K-12, higher education, or workforce development, the following examples demonstrate how it was used to help a small business develop its training and development protocol.

Creating Development Plans

The process began with representatives of the workforce, first-line supervision, and management reviewing every position's current and anticipated future requirements. The ISO 9001:2010 standard and an industry-specific standard were used during that process to ensure that the competency boundaries were set appropriately, taking into account a full-range of knowledge, skill, and capability requirements.

Master documents defining the required competencies and development sources (education/training course, on-the-job assignments, etc.) were prepared for each position. A personalized version of the suitable master document was prepared for each employee. Then each employee's current competencies were assessed—in a joint discussion with the employee and his/her supervisor. Priorities for new and improved competencies were identified, along with a timeline and clearly identified approaches for obtaining the required capabilities. Quarterly reviews were conducted to ensure that the development plans were progressing and that adjustments were implemented, where necessary.

Furthermore, a corporate-wide system was developed to track the workforce performance level for each competency. This approach required a different type of leadership attention than just tracking the percentage of completion against the development plans, or some similar metric. By keeping leaders focused on the pace and extent of development, they could see the connection between the specific competencies and organizational performance.

At the end of each year, leaders assessed whether the competencies obtained had a differential impact on results. Where there were disconnects, organizational competency requirements were identified, tied to specific positions, and individual employee development plans were adjusted. A two-way process for modifying competency requirements for each position emerged—one driven by an evaluation at the position level and one driven by an evaluation at the organizational level. The plan, then, was logical and congruent.

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Competency Identification and Development continued from page 14

Moving Toward the Future

Leaders believe the application of this process led to the improved results that have occurred. This system has been shared with other members of the same industry and now has been recognized as a best practice. Does it require time and effort to maintain? Of course it does, but the focus is on the part of the process that drives performance. It took only one week for this company's leaders to review the Microsoft framework, tweak it a bit to add some business-specific items, and then start applying it for position analysis. The bulk of the work involves monitoring progress at the individual and organizational level and making necessary revisions. This sustainable approach identifies and ensures development of the competencies needed for workers and employers to succeed.

About the author

Deborah Hopen has more than 30 years of experience in total quality management. She has served as a senior executive with both *Fortune* and *Inc. 500* companies. Her varied experience includes time spent in general management, quality assurance and quality control, training, human resources, organization development, research and development, process engineering, and accounting. She is the author and co-author of more than 100 publications and presentations, and has taught statistical process control and production costing at the university level. Hopen is a Certified Quality Engineer with more than 15 years of experience and is recognized as a Lean Six Sigma Master Black Belt.

From July 1995 through June 1997, she served as president and chairman of the American Society for Quality. She has served as president of the Washington State Quality Award Program and the International Standards Initiative, as well as continues her involvement as a leader with numerous Washington state cultural and charitable organizations. In addition to her rank as a Fellow of ASQ, Hopen was awarded the prestigious 2011 Simon Collier Quality Award, as well as the 2010 Frank M. Gryna Award. Hopen is the editor of ASQ's *Journal for Quality and Participation* and is one of the founders of the *Quality Approaches in Higher Education* journal (*QAHE*).

Note: *Information on this Conference sponsored by four other divisions is listed here for our members who may be interested.*

Celebrating Quality Around the World!

Join us as we explore the issues faced by auditors and other quality experts alike when doing business in our global economy. This year the Audit Division is partnering with the Quality Management, Design and Construction, and Biomedical divisions to provide information, networking opportunities, and insights from an expanded variety of industries.

Keynote speakers include:

- **Sipho Tjabadi**, Quality General Manager for Eskom, South Africa's state-owned electricity enterprise.
- **Marta Wilson**, CEO of Transformation Systems, Inc. and author of the books *Leaders in Motion and Everybody's Business*.
- **Peter Shearstone**, Division Vice President, Quality Assurance/ Regulatory Affairs/Medical Affairs, Abbott Diagnostics.
- **Timothy McKay**, Executive Vice President, Growth and Regional Development, Dallas Area Rapid Transit.

Events and dates to consider:

- Monday, Oct. 8 through Wednesday, Oct. 10: Pre-conference tutorials
- Thursday, Oct. 11 and Friday, Oct. 12: Keynote speakers and technical sessions (8:00 a.m. – 5:00 p.m.)
- Thursday, Oct. 11: Audit Division business meeting (5:30 p.m. – 7:00 p.m.)
- Thursday, Oct. 11: Opening reception "A Celebration of Quality Around the World" (7:00 p.m. – 10:00 p.m.)
- Friday, Oct. 12: Closing reception (4:45 p.m. – 6:00 p.m.)
- Saturday, Oct. 13: ASQ certification exams (all exams start at 8:00 a.m.)
- Saturday, Oct. 13: Golf outing starting at the River Golf Club (11:00 a.m.)

For additional information on scheduled events, pre-conference tutorials, keynotes, and technical sessions, visit the 2012 Audit Division Conference website.

ASQ Audit Division
The Global Voice of Quality™

Education Division Sponsors ICQI Workshop That Investigates Why Some Quality Initiatives Succeed, While Others Fail

by Jamison V. Kovach, Ph.D. and Jerry Mairani, M.S.

For years now quality practitioners have sought to determine why some efforts to improve organizational performance and sustainability succeed and, perhaps more importantly, why the majority fail. Historical research suggests three leading reasons for the failure of quality initiatives:

- Little to no support from the leadership in implementing the initiative.
- Lack of attention to change management issues during implementation.
- A failure to fully and effectively execute the quality function being deployed.

Despite these findings, clear solutions to tackle this problem remain elusive. Recently, with support from ASQ, a research team spearheaded a project to investigate the various factors differentiating success and failure in quality initiatives. ASQ Past Chair David Spong and Chair Jim Rooney gave the go ahead for this project, and team members included:

- Stephen Hacker – Chair ASQ Global (now Chair Elect)
- Richard Mallory – Incoming Chair Government Division
- Cindy Veenstra – Education Division Chair
- Bill Barton – Incoming Human Development/Leadership Chair
- Michael J. Glowacki – Operations Management Team & Workplace Excellence Forum Council Chair
- John (Jack) Moran – Quality Management Division
- Denzil Verardo – Commissioner, California Senate Commission on Cost Control in State Government
- Susan Westergard – ASQ Headquarters Support
- Jerry Mairani – Past ASQ President

As part of this research effort, a discussion forum was held at the Institute for Continual Quality Improvement (ICQI) sponsored by the Quality Management Division of ASQ at the 2012 ASQ World Conference for Quality and Improvement in Anaheim, CA. This forum, which was sponsored by the ASQ Education Division, investigated drivers of success and failure for quality initiatives by having participants brainstorm ideas to answer the following five questions:

- How can we help others see poor performance/failures as opportunities for learning/improving?
- How can we tie quality improvement efforts to the balance sheet (e.g., financial savings)?
- How can we overcome barriers to creating good operational performance?
- How can we close the gap between what we know and what we do (e.g., improve execution)?
- How can we ensure improvement efforts demonstrate value in ways that will drive management/leadership support and sustainment?

These five questions were posed to obtain new insights regarding important aspects of this issue, which have not been discussed largely in other forums. During the discussion forum, participating attendees broke into small work groups at tables around the room and an individual question was posed at each table. Discussion leaders were stationed at each table to guide the group's discussion to generate ideas about specific methods to address the problem at hand, and included several ASQ Education Division members:

- Cassie Elrod – Current ASQ and Education Division Member
- Debbie Hopen – Past ASQ President and Current Education Division Member
- Kathryn LeRoy – Current ASQ Member
- Keith Pache – Chair, ASQ Section 1405
- Joelene Smith-Drake – Current ASQ Member
- Cindy Veenstra – Education Division Chair

The discussion forum resulted in some unique and insightful ideas from participants about specific aspects regarding why quality initiatives succeed or fail. This research is surely enhanced by having obtained input directly from quality practitioners who have first-hand knowledge about this problem. Here is a summary of the topline learnings:

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Use Twitter to Keep Up To Date on the Division's Activities

Click the twitter button on the home page, asq.org/edu/

Education Division Sponsors ICQI Workshop continued from page 16

- *Change Integration:* It is important to anticipate what the reactions to change may be before change starts and anticipate how those reactions may impact the outcome.
- *Value Realization:* Executive-level support is driven by necessity and/or the value those initiatives bring to the organization.
- *Method Execution:* Many organizations train individuals believing this is all that is required, but the participants suggested a wide scope of other actions they believe were more important for bringing about quality initiative success.
- *Leadership Support:* Very little in the literature addresses the issue of leadership fully. The ideas shared by participants suggest reasons why this is an essential component.

To learn more about this project, its findings, and the affinity diagrams that summarize the discussion among groups at the event, look for an article about this research in *The Journal for Quality and Participation*, available in late October at www.asq.org/pub/jqp. Additional work to address this problem is ongoing, and a subsequent discussion forum/workshop to explore this issue further has been proposed for the 2013 ASQ-ICQI conference in Indianapolis, IN. The next event will focus more specifically on value realization for quality initiatives. This concept is an important aspect of success, because if an organization is unable to realize value resulting in a high return on investment (ROI) for a quality initiative, leadership support is likely to diminish or in the worst case, disappear and the quality initiative will likely fail to produce the expected results. Therefore, the next discussion forum/workshop will aim to generate ideas and develop methods for reporting quality initiative ROI to the executive level through financial functions/processes within organizations. In addition, the feasibility of conducting a well-designed study is underway to determine the correlation of reporting solid organizational results generated from quality initiatives to executive management and what would be the requirements of those processes. All quality practitioners and ASQ members are welcomed and encouraged to participate in the next workshop and/or find ways to get involved in resolving this problem within your organization and your local ASQ community. With your help, we can find a solution to this problem and make quality a long-term focus for more and more organizations every day.

About the authors

Jamison V. Kovach, Ph.D. is an Associate Professor at the University of Houston. She received her Ph.D. in industrial engineering from Clemson University. Her industrial experience includes more than five years as a process engineer in the U.S. textile industry, and she is certified in Six Sigma Black Belt training. Kovach was awarded the 2010 ASQ Feigenbaum Medal and was inducted into the International Academy for Quality in 2011. Contact Kovach via e-mail at jvkovach@uh.edu.

Jerry Mairani is a 40 year manager, executive, and leader with more than 30 years as a full-time quality professional. He has held internal director positions in telecommunications and manufacturing and is a Past President and Chair for ASQ. In a training and consultative capacity, now with Precipio Performance Improvement LLC, he has provided services to many organizations throughout his distinguished career. Contact him at jmairani@precipiollc.com.

2013-2014 OFFICERS

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Watch for our email blasts – Important Information

A Report on the

U.S. News STEM Solutions: A Leadership Summit

by Belinda Chavez

The particular difficulties our society faces regarding Science, Technology, Engineering and Math (STEM) revolve around the basic question: What is STEM? At the first U.S. News STEM Solutions Summit in Dallas, TX, speakers, panelists, and participants from business, government, and education fields gathered to discuss and share their concerns and efforts toward educating the public on STEM. They focused on how to build on the careers of our students and the urgent need to drastically change the public perception of STEM.

Belinda Chavez and Betty Shanahan at the 100 Women Leaders reception.

Not everyone understands the meaning of the term, STEM. Random interviews of people in a busy city revealed that knowledge of the term STEM was basically limited to students and teachers. While some tried to guess what the term means, the majority of those interviewed simply stated they did not know. This simple interview process illustrates that STEM educators and promoters must actively engage and educate the public about the importance of STEM education to close the skills gap that is adversely affecting the position of the United States as a world leader.

We should change our conversations by speaking of the benefits of STEM education, not just the challenges. Businesses seeking specific skills contingent on STEM education could benefit from a well-educated platform of employee candidates. Building on relationships with businesses will allow students to enter into cooperative arrangements and internships, thereby promoting a skilled workforce at the time of their graduation from college. Students who learn 21st century skills will keep up with rapidly changing media and technology challenges. STEM centers at colleges and universities will help teachers promote STEM and will prepare teachers to teach STEM.

Oddly enough, it is becoming more and more evident that STEM advocates, parents, and teachers, are part of the reason STEM students are changing their career paths, moving away from STEM. The pressure of being "the best and brightest" may be causing students to switch majors and drop out of STEM education because they may not be earning grades at the top of their class. Scholarships with steep scholastic requirements, as well as parents with expectations of all A's and B's may also contribute to the decline of STEM students by exerting performance pressure. Young women in their early STEM education often experience peer pressure from their fellow male students who look upon women more as homemakers, wives, and mothers, than engineers and scientists, thereby causing the female STEM population to drop out of STEM or to change career paths to less technical curricula.

Whether young adults are currently in STEM education or candidates for future STEM education, an emphasis needs to be placed on the importance of STEM education and careers to promote growth and success of our economy, as well as to support students in their trajectory to degree completion.

The education process must begin very early in the lives of our STEM students. Keynote speakers at the STEM Leadership Summit inspired the audience with their stories of struggle and ultimate success. Panelists touted the need for setting examples to show young children if you do "this," you will have "this," e.g., do the math, become an engineer; do the science, become a rocket scientist.

Charlie Bolden, NASA's administrator, spoke about Leland Melvin, the only professional football player who became one of America's astronauts. Even though Melvin lived his dream of being a professional football player, his educational background allowed him to position himself in a successful career as an astronaut. Kareem Abdul-Jabbar also shared how athletes should have a sound education upon which to rely when their

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Volunteer to Help the Division

Check out opportunities to participate in the Division's activities. We welcome your participation.

http://asq.org/edu/interaction/getinvolved-edu.html

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athletic careers are finished. He cited the less than 400 available jobs as a professional basketball player to more than a million available engineering and technology positions just in the state of Texas. With this comparison, Abdul-Jabbar instilled upon the audience the importance of STEM education as a viable pathway to take athletes, and others, into marketable and realistic careers.

With the rapidly changing technology of software and electronics, it is just as important to promote creativity. Tim Daly, the actor, strongly believes that we must put the arts in STEM creating STEaM to inspire creativity and innovation in the STEM fields. With innovation comes the willingness to accept failure and to learn from these experiences.

According to Bolden, the United States will be launching humans into space within the next five years. Vehicles, launch hardware, and suits are being redesigned and tested, and NASA needs a new generation of STEM experts to work on the design and development of these projects.

Panelists spoke about how FIRST (For Inspiration and Recognition of Science and Technology) places a high importance on leadership while promoting science and technology skills and interests. This group inspires young competitors to use science and technology to solve real-world problems in events such as the FIRST Robotics competition. FIRST is promoted and sponsored by "real world" mentors, engineers, and scientists actively engaged in the workforce who inspire continued scientific conversation.

We must consider the kinds of partnerships necessary to leverage STEM opportunities in general, and in particular for women, who remain underrepresented in STEM fields. During the STEM Leadership Summit breakout sessions, significant statistics were shared concerning young women in Texas and New Mexico. Of the engineer-degreed people in these areas, 50 percent are white men and 18 percent are women of all races. Of the 18 percent women, only 11 percent of those women are in the workforce. These types of statistics were also shared during a recent visit to Mexico when the professors were discussing their dissatisfaction with the number of women engineer graduates versus the very small percentage (less than 11 percent in Mexico) who actually entered the workforce. The cause, they strongly believe, is the culture in a developing country. This major downfall for women STEM students and women engineers exists in many countries, including the United States.

We must create more partnerships between education and businesses to overcome this cultural imbalance through on-the-job training, internships, and cooperative arrangements. These actions will help STEM educators achieve success when striving to increase diversity in the workforce. We must also change pedagogical as well as philosophical approaches in the teaching of STEM to girls and young women and to draw them into the workforce as viable contributors.

During the inaugural STEM Solutions Summit, more than 100 women leaders in STEM were honored. As I watched and listened to nearly 30 women leaders tell their success stories and thank their mentors, I truly felt inspired to initiate purposeful changes in the educational system and to encourage conversations among students that permit them to explore STEM careers and the opportunity to contribute to world improvement through science. But it's more than just the classroom training that makes a STEM graduate successful. The partnership, the mentor, the on-the-job training, the risks taken, and the failures experienced, all of these events build upon each other and complement STEM education to provide successful employees who are innovative, creative, and highly profitable, thereby making vast improvements to our technology, our world, and our future.

About the author

Belinda Chavez is the NASA Safety Center Audits and Assessments Office Operations Manager for Honeywell Technology Solutions, Inc. in support of the NSC Audits, Assessments and Assurance service contract. She is currently a member of ASQ's Board of Directors, the Section Affairs Council Chair, Region 14A Director, and the Education Division Membership Chair. Chavez holds ASQ certifications as a Six Sigma Black Belt and Manager of Quality/Organizational Excellence. She has more than 20 years of safety and quality experience in manufacturing, government, and service organizations in both the Department of Defense and NASA space programs. Chavez can be contacted at chavezb1@peoplepc.com.

ASQ Education Division's Publications on Quality in Education

The number of ASQ publications on quality in education topics has grown in an effort to respond to the diverse needs of our members from our education sectors K-12, Higher Education, and Workforce Development. Some of these publications are sponsored by the Education Division and some by the ASQ marketing group. Except for *The Journal for Quality and Participation*, articles from these publications are available in our online library. Note that we have links to these publications on the right-hand side of our website. The table below summarizes our publications.

QEDNews, the Division's newsletter, provides information to members on our activities and includes contributed articles on interesting topics related to quality in education. All articles are contributed by Education Division members.

The purpose of our double-blind, peer-reviewed online publication, ***Quality Approaches in Higher Education***, is to engage the higher education community and the ASQ Education Division membership in a discussion of topics related to improving quality and identifying best practices in higher education and to expand the literature specific to quality in higher education topics. The journal web page includes the latest Call for Articles and all the issues. Manuscripts are limited to 4,000 words.

The newest addition to our publications is the Division-launched ***Workforce Development Brief*** for members interested in Workforce Development. If you have an article that describes instructional design or delivery, adult learning theory, or other education topics related to workforce development, please submit it to Deborah Hopen (debhopen@nventure.com). Articles should be 1,000 to 1,200 words and should be accompanied by a brief biography (75-100 words).

The ***ASQ Primary and Secondary Education* Brief** and **The *Higher Education Brief*** feature invited articles associated with each issue's particular education-oriented theme. Themes and articles are often suggested by the Division's leadership team. As a special publication, a joint issue on STEM issues is published annually in February to coincide with the celebration of Engineers' Week, since many of our ASQ members are engineers or are in the engineering field.

The Journal for Quality and Participation is a long-standing, peer-reviewed, combination print and online publication that focuses on the people side of quality. Each issue includes the department "Educators' World," which is dedicated to quality in education. This journal is published by ASQ.

In addition, stand-alone articles may be uploaded to the online ASQ Education Division library after a review.

We encourage you to tell us more about your activities and what you are doing to enhance quality at your institutions. An exchange of ideas, via published articles, helps us to further your research and get your ideas out into our learning communities so that we can all profit from your expertise.

We welcome your participation as a contributor and reader!

Publication	Sponsor	Invited/Contributed	Peer-reviewed	Frequency	Editors
QEDNews Division Newsletter	Division	Contributed only by Division members	No	Bi-annual	Marianne Di Pierro
Quality Approaches in Higher Education	Division	Contributed	Yes	Bi-annual	Fernando Padró
Workforce Development Brief	Division	Contributed and Invited	No	Bi-annual	Deborah Hopen
ASQ Primary and Secondary Education Brief	ASQ Publications	Invited	No	Six issues per year	Amanda Hankel
ASQ Higher Education Brief	ASQ Publications	Invited	No	Six issues per year	Amanda Hankel/ Marianne Di Pierro
The Journal for Quality and Participation, "Educator's World" department	ASQ	Contributed	Yes	Quarterly	Deborah Hopen

Education DIVISION STRATEGIC PLAN 2011- 2012

Education Division
The Global Voice of Quality™

MISSION

To promote networking worldwide on quality in education, including K-12, Higher Education and Workforce Development.

VISION

Shaping the future through quality in education and professional development.

VALUES & BELIEFS

We believe that:

- Members network in different ways.
- Our networking will improve student learning outcomes and achievement at all levels.
- Our networking will improve excellence in our education systems throughout the world.
- Helping low income school systems to achieve student success is part of ASQ's social responsibility focus.
- Effective collaboration requires trust and mutual respect
- We encourage student members to network with us as they develop a career as a quality educator.
- Continual member feedback through surveys guides improvement.

GOALS

- To network to improve student success at all levels.
- To use members' dues effectively.
- To support ASQ's global and social responsibility initiatives.
- To increase member satisfaction and participation in the Education Division.
- To empower educators to demonstrate 21st century leadership and learning.
- To provide publications, conferences and discussion boards for networking on quality in education and to provide targeted networking for each focus area: K-12, Higher Education and Workforce Development.
- To show how quality thinking can improve solutions to current educational challenges such as preparing students as leaders in the 21st century, decreasing the achievement gap, improving STEM education and providing a learning culture in the workforce.

GUIDING PHILOSOPHY

We think of Quality in Education in two ways:

- "QUALITY in Education" Attaining excellence in the education system by monitoring key performance indicators and performing the strategic and tactical work necessary to meet goals and improve continually.
- "Quality in EDUCATION" Integrating quality leadership, thinking, concepts, and skill areas in K-12, higher education, and workplace curricula and classrooms.

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We Welcome Your Email!

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Shaping the Future Through Quality in Education and Professional Development