

*SPIE Professional October 2009*

## Collaborative Learning

*ELCAN employees reach out to future scientists and engineers.*

By Beth Kelley

If students do not take an interest in science, technology, engineering, or math before middle school, they are unlikely to ever consider these subjects as potential career paths.



When Paul Klocek, general manager of [ELCAN Optical Technologies](#) in Richardson, Texas, (USA) and former SPIE board member, learned of this sobering statistic through an NSF study, he decided to do something to help inspire the next generation of scientists and engineers. He and a group of other ELCAN employees were connected with a local K-6 elementary school through Richardson Independent School District's outreach offices in 2005.

This program at the [Math, Science, and Technology \(MST\) magnet school](#) has evolved into an educational partnership now in its fourth year.

Acceptance into the MST magnet school is based on a lottery system, explains school principal Angela Vaughan, and the school provides an incredible opportunity for students to get hands-on experience with math, science, and technology, including classes with a technology-certified teacher. However, the Dallas area school cannot provide the real-world expertise that working engineers can, and that's where ELCAN volunteers step in. The volunteers provide tutoring for students, host math competitions, and help judge at events.

ELCAN has also provided materials and technology, including interactive whiteboards known as SMART boards, says Sandra Hayes, executive director of technology for the Richardson Independent School District.

ELCAN also designed a wiki-style [Web site for ELCAN volunteers, MST parents, and students](#). The dual-purpose site allows students to gain practice working with a Web site and serves as an open communication tool with contact and event information. "Everyone can use it at school or when they are at home, so it creates an always-open link for the partnership," Klocek says.

Vaughan says the ELCAN tutors are especially helpful when it comes to assisting students after school hours with their science fair projects. MST is a Title I school, meaning that more than 40% of its students come from low-income households. "We require that all of our students participate in the science fair, which can be a little difficult for our students who are economically disadvantaged," Vaughan says.

View membership info and update your address.

MY ACCOUNT

EXPIRES ON: 02/28/2010

RENEW

### Member-only Content:

These articles are available only to SPIE Members as a valuable resource.

♥ Icon denotes member-only content.

### SPIE PROFESSIONAL

[Contact](#)  
[Advertise](#)

### RELATED SPIE LINKS

[Search SPIE Digital Library](#)  
[Student News](#)  
[Leadership Series Articles](#)  
[SPIE Press Room](#)  
[Public Policy News](#)  
[Open Access Publications](#)  
[SPIE Leadership](#)

### OCT. 2009 ADVERTISERS

- [Applied Optics Research](#)
- [LaCroix Optical](#)
- [Future Fab International](#)
- [OKO Technologies](#)
- [Optical Research Associates](#)
- [Optimax](#)
- [Prism Awards for Photonics Innovation](#)
- [Software Spectra](#)
- [SPIE Newsroom](#)
- [University of Rochester, Institute of Optics](#)



*A 2009 math contest winner at MST magnet school, center, accepts his prize. Also pictured are ELCAN employees, left to right, Janet Baker, Mark Conlon (next to prize winner) Jon Spangler, Barbara Johnson, Paul Klocek, and Darren Hennigan.*

Last year marked the first robotics competition, which Vaughan, Hayes, and other school district staff considered a huge success. Vaughan hopes to tap into ELCAN employees' expertise and expand the robotics program this school year. "This year we've got enough robotics kits for six or seven teams per classroom," an unheard-of number, Vaughan adds.

Both Klocek and Vaughan emphasize the collaborative nature of this project. "A committee of ELCAN volunteers regularly meets with the MST principal, specialists, and teachers to continuously add content and evolve the partnership," Klocek says.

As a member of the board of the Metroplex Technology Business Council (MTBC), Klocek is now working to replicate the ELCAN/MST partnership model in more than 100 schools all over north Texas.

"It does not take a heroic effort to have a significant impact on students and the people in your organization," says Klocek. "Any organization will find this interaction with the students equally inspirational to the volunteers. People want to be a part of organizations that support these types of community activities."

---

### **School Aid**

When collaborating with volunteers, schools need to play an active role in keeping the lines of communication open, principal Angela Vaughan says. "Just find that contact person that can really be your voice for that company, and keep sending them things. Let them know what you're doing."

Vaughan also suggests that "a lot of times, companies don't quite know what we need or how to fit it into a school district or a school setting. Being able to talk through that and having that conversation would be key."

---

### **About ELCAN**

[ELCAN Optical Technologies](#) is a global provider of precision optical and electronic solutions for medical, defense, security, industrial, commercial, and entertainment customers.

With a legacy spanning almost 160 years in the design and fabrication of fine optics, ELCAN founding companies include Ernst Leitz (Germany) and Texas Instruments (U.S.A.). ELCAN is an acronym for Ernst Leitz CANada.

Today, ELCAN is part of the Raytheon group of companies, with more than 1300 employees and 500,000 square feet of manufacturing facilities in Midland, Ontario (Canada); Richardson, TX (USA); and Málaga, Spain.

---

### **Beth Kelley**

Beth Kelley is an SPIE editor

---

*Have a question or comment about this article? Write to us at [spieprofessional@spie.org](mailto:spieprofessional@spie.org).*

---

DOI: 10.1117/2.4200910.14

[Return to SPIE Professional Magazine](#)