



PROBLEM, SOLVED

Professional development helps teachers create 21st-century classrooms

Last October, middle school students in Andover, Kansas, received devastating news about their online classmates in Kibera, Kenya. Excessive rain had flooded their village's sewage system and contaminated the water supply, forcing the children to walk for miles to purchase drinking water from a private well.

For the sixth and seventh graders at Andover Middle School, it was a hard lesson in the reality of life for their African peers. But their teachers realized that it was also an opportunity for the students to tackle a real-world problem: How could they help their Kenyan friends? The students studied the water issue across multiple disciplines—calculating estimated costs in math class, studying waterborne diseases in health—and ultimately found a solution. By connecting with the water filter company LifeStraw, as well as schools in Greece and Pennsylvania, they formed several partnerships and raised the \$7,000 needed to provide their African classmates' schools and homes with filters to protect them from contaminated water.

On the day the filters arrived in Kibera, all of the parties met over Skype* as the Kenyan students hugged the life-saving devices. "Our students saw all of their hard work and problem-solving skills come to fruition," says Dyane Smokorowski, K-12 instructional technology coach for the Andover School District.

The Andover teachers were able to effectively manage this innovative project after participating in the [Intel® Teach Elements](#) program, a free online professional development series that helps teachers effectively integrate technology into classrooms with student-directed, project-based approaches. Smokorowski, an Intel senior trainer, says the courses have helped her and many of her colleagues navigate an education landscape that is constantly evolving in response to rapid developments in technology.

"We were taught that we were supposed to be the most important person in the room, so we had better know our content inside and out," says Smokorowski. "Then the information age came. Now children have access to information in their back pocket. I had to relearn how to teach to help children to find their own answers and be the guide on their journey."

Intel Teach Elements is a series of professional development courses designed to help teachers use technology to prepare students to succeed in the knowledge economy and develop 21st century skills. Chief among those skills is problem solving. In a recent survey conducted by The Economist Intelligence Unit (EIU), [Driving the Skills Agenda](#), employers rated problem-solving as the most critical skill for their employees to possess, followed by collaboration, communication, and critical thinking. A report by Project Information Literacy (PIL), [Learning Curve: How College Graduates Solve Information Problems Once They Join the Workplace](#), also found that employers are dissatisfied with the problem-solving skills of new hires.

"Employers said recent grads are good with technology, but are not good problem solvers when given an undefined task," says Mike Eisenberg, chairperson of PIL's Lifelong Learning Board and dean emeritus and professor at the University of Washington's Information School.

To address this issue, Eisenberg and fellow educator Robert Berkowitz created [Big6](#), an information literacy program that provides a template teachers can use to help students solve problems with information technology.

Through webinars and online workshops, teachers study the Big6 model and its applications. For example, the first step—task definition—helps teachers and students frame assignments into compelling questions. So, instead of telling a student to write a report on orca whales, the assignment begins with a researchable question: Are orcas endangered and, if so, what can we do about it? “Now we can really get into it. We can start to organize the problem, create a mind map, and use other inspiration and brainstorming tools,” says Eisenberg.

The ability to effectively synthesize information is another key problem-solving skill that employers are seeking, says Hiller A. Spires, co-director of the [New Literacies Teacher Leader Institute](#), a professional development program for teachers based at North Carolina State University College of Education.

Spires notes that, in the past, presenting information in a compelling and visually arresting way was a task usually left to marketing departments; today it's a vital skill for employees across organizations. “Now everyone has access to information, but that's not enough. You need to be able to put it together in a way that will really add value to a particular project and attract attention,” says Spires. “The ability to do that will set you apart.”

To help teachers prepare students for this environment, the New Literacies week-long workshops utilize digital tools such as Animoto*, a user-friendly video-creation platform. Creating videos not only helps kids develop synthesis skills, it also gets them excited about learning and exploring—which can, in turn, generate interest among even the more skeptical educators within a school district.

“It's really hard to keep kids engaged these days,” says Spires. “If you're successful with that, you'll get your colleagues' attention.”