Real Teache
Best Pract

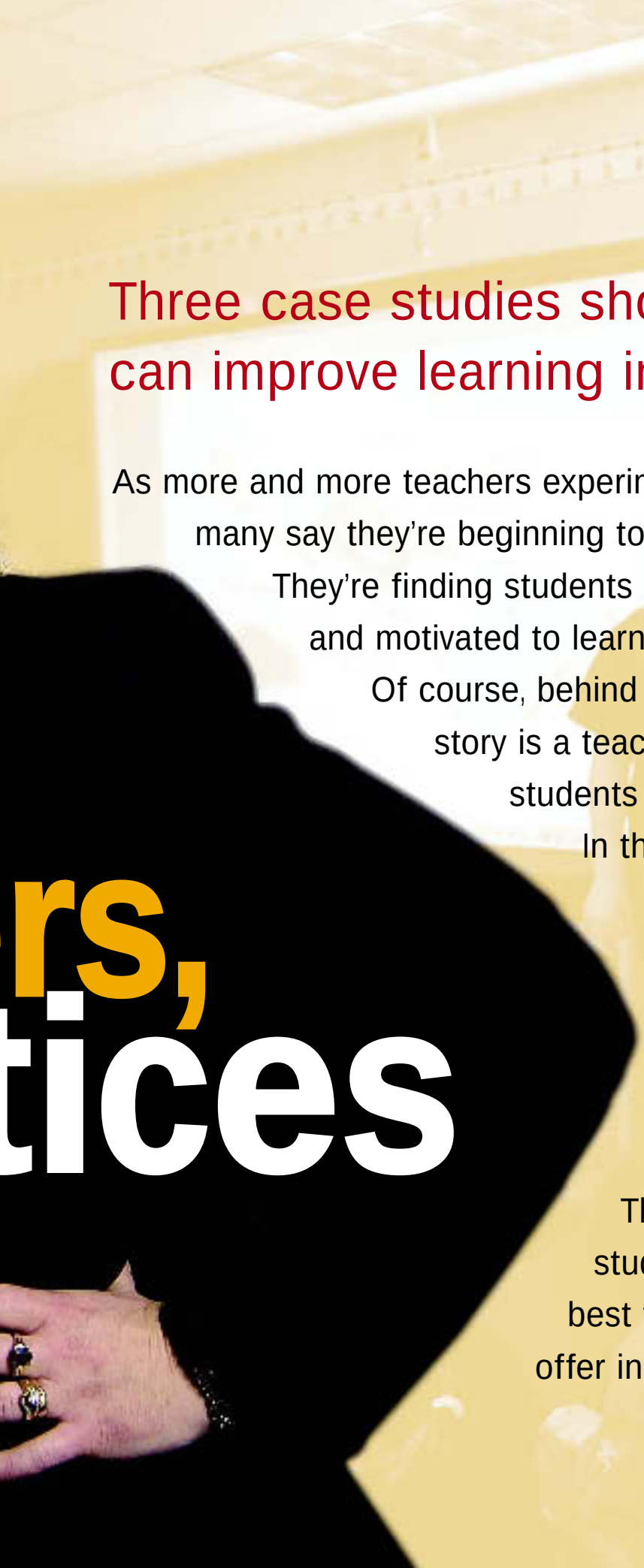
Educators share stories of their technology success

Toni Heinowski and Rachel Yurk accepted a technology challenge that transformed them into a successful teacher-training team.

PHOTOGRAPH BY TROY FREUND

by Sharon Oosthoek

Three case studies show how technology can improve learning in the classroom



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As more and more teachers experiment with technology, many say they're beginning to see results in the classroom. They're finding students are increasingly on task and motivated to learn.

Of course, behind every technology success story is a teacher determined to help students in new and innovative ways. In the spirit of sharing their expertise, several educators recently spoke with *i.e.* magazine about best practices and the impact technology is having on their students. The following three case studies highlight some of the best that technology has to offer in the classroom.

Stepping outside the comfort zone

The long distance line from Milwaukee, Wisconsin, cuts in and out as Toni Heinowski struggles to make her cell phone behave.

"I can run an interactive whiteboard, but I can't run my cell phone," she laughs.

Don't let this self-effacing elementary school teacher fool you. Heinowski, 42, may not be a whiz with all the latest gadgets, but her colleagues say she's one heck of a teacher-trainer when it comes to showing others how to motivate students with technology.

"One of Toni's strengths as a teacher-trainer is that she's patient. She's been a beginner. She understands that sometimes teachers are a bit fearful of technology and she puts them at ease," says Kevin Messman, coordinator of instructional technology for the New Berlin Public School District, where Heinowski teaches fifth grade at Elmwood Elementary School.

Although Heinowski knows what it feels like to be a beginner, she's now become an expert. In fact, she is part of a two-person technology training team with colleague Rachel Yurk, 36.

The transformation from technophobe to technophile started two years ago, when Messman approached Yurk and Heinowski with the idea of having them explore the uses of a SMART Board interactive whiteboard in their classrooms. He knew both teachers were looking for leadership opportunities and thought this would be a good project for them to share.

"He said, 'I'll buy one and I'll put it in your classroom. But you must agree to teach others,'" recalls Yurk.

Heinowski and Yurk agreed, and then spent the next year learning just what they could do with their new piece of technology. Their exploration made them proficient in using the interactive whiteboard and a host of other technology tools that work well with it – everything from laptops and video cameras to DVD burners and reading software.

"We had [what we called] a Kramer door between our classrooms like in [the TV show] *Seinfeld*. In the early days, the Kramer door would fly open and one of us would rush in. The kids would laugh and say, 'Ms. Heinowski,' or 'Ms. Yurk has a problem,'" says Yurk.

Their first decision involved how they were going to share the single interactive whiteboard between two classrooms – the process would involve constantly unhooking it, moving it to the adjoining classroom and hooking it back up again.

Heinowski decided to take advantage of the situation and use it as an opportunity to boost the confidence of two students. She asked the two boys to learn how to set up and use the interactive whiteboard to save time for the teachers. The result was impressive.

"It was amazing how their behavior changed. It was amazing what they achieved," says Heinowski. She explains that the students had always needed to focus more in school, but because they could use and set up this new technology, other students now saw them as the smart kids.

> "Their exploration made them proficient in using the interactive whiteboard and a host of other technology tools that work well with it."

Despite their enthusiasm for technology, both teachers take great pains to point out that simply having technology in the classroom is not enough.

"You need to make sure you're doing something with it that you couldn't do if they took it away," says Yurk. Heinowski agrees. "I try to get the most bang from my technological buck," she explains.

One of Heinowksi's more innovative uses of the interactive whiteboard is to link it up with Kurzweil reading technology, which reads out loud to her dyslexic students. She also uses the technology to read aloud the work of all her students so they can hear grammatical mistakes, such as run-on sentences.

"Now everyone wants the SMART Board to read to them," says Heinowski.

She's particularly pleased because this means her dyslexic students are no longer seen to have a different learning style.

One of her dyslexic students made a movie with a classroom digital camera about Kurzweil technology, presented it on the interactive whiteboard and explained how it has made a difference in his life.

Another student created a lesson about her trip to Mount Rushmore. "She downloaded pictures from e-mail, added hyperlinks and gave a lesson to the class about why kids should see Mount Rushmore and learn history. It fit right into curriculum," Heinowski says, the pride in her voice almost palpable.

"When you're in fifth and sixth grade, no one wants their work to be seen. Now they want to show the class," says Heinowski.

In the middle of all this learning and experimenting with technology, the pair also kept their original promise to teach others what they've learned. For two years, the duo has been traveling across the district and state, often with their gizmos packed into the back of a van, showing colleagues how to use technology to improve their students' learning.

Drawing on their own learning experiences, support from their school district and direct examples of how technology has helped their students, Yurk and Heinowski have become an ideal technology-training team.

Putting science in motion

High school physics teacher John Moyer loves to drive home the idea that using technology in science classrooms benefits students – literally.

Since signing on to the Delaware Department of Education's Science Van Project in 2004, Moyer has been driving a van full of technology goodies – including data-collecting probes, laptops loaded with specialized graphing software, and interactive whiteboards – to schools across the state.

"We bring equipment with us that teachers wouldn't be able to buy, or maybe they already have it but don't know how to use it," says Moyer.

The project also provides schools that can't afford technology the opportunity to teach scientific concepts with tools they wouldn't otherwise have access to, making it easier for students to learn.

"Carbon dioxide probes are $250 each and you need 10 for a class. That's a lot of money for one lab. But if we spend the money and take it to 25 schools, then it makes economic sense," explains Moyer.

Launched in 1997 as part of the state's reform of science education, the Science Van Project is meant to help high school students meet the high expectations of Delaware's Science Content Standards. It helps teachers use technology to take an inquiry-based approach to teaching science. The cost of the program to schools, which varies from US$250 to $1,600, is eligible for Title II funding.

Moyer, 32, was a science teacher for 10 years before joining biology and chemistry teacher Kathy Melvin on the project. Today, he and Melvin regularly visit the state's 25 public high schools to deliver training to teachers on how to use a variety of technologies in the science classroom.

Before visiting a school, they provide teachers with an initial five-day or weekend-long training session at their home-based lab in Dover, Delaware. These sessions prepare teachers to make the most of the school visit. Together, Moyer and Melvin train about 500 teachers a year in Dover.

After the initial training, these teachers can request an on-site visit. That's when Moyer and Melvin hop in the van for four to six days of follow-up work. They spend that time team-teaching science classes with the help of some of the most advanced science education technology available.

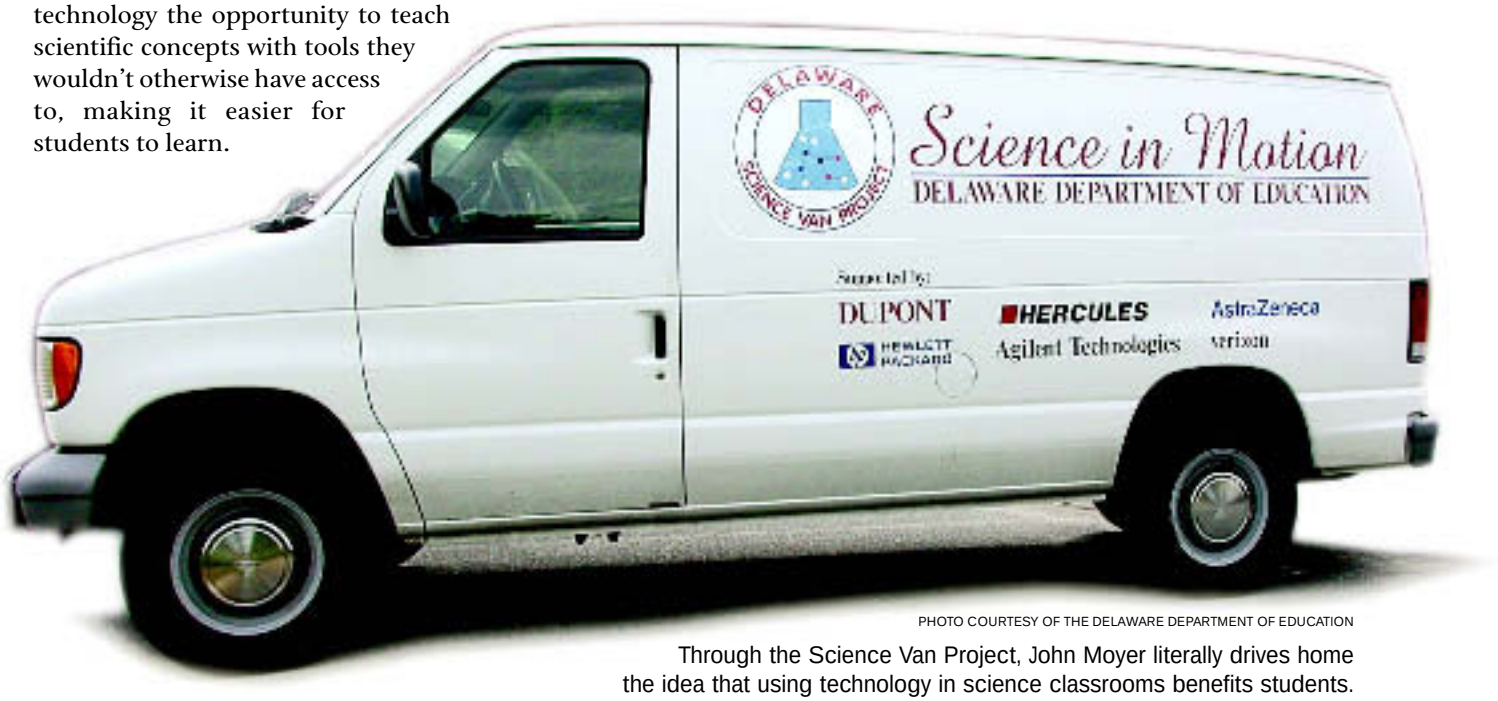

PHOTO COURTESY OF THE DELAWARE DEPARTMENT OF EDUCATION

Through the Science Van Project, John Moyer literally drives home the idea that using technology in science classrooms benefits students.

During their visits, they show teachers more about how to use and benefit from technology in the classroom.

Take temperature probes, for instance. Moyer explains that this one tool allows teachers to drive home several important opportunities for learning. The probe looks much like a thermometer, with a cord attached, and connects to a student's laptop. It can be used when studying chemical reactions that give off or absorb heat.

The student places the probe in a test tube of liquid – water, for example – and then begins to cool the liquid. As the liquid's temperature drops, the probe feeds the data to the laptop and special science software graphs the temperature drop in real time. This way, students learn that when water freezes, it flat lines at zero degrees for 30 seconds.

"You can see it freeze and see the graph flat lining at the same time. They see it right before their eyes. There are a lot of aha moments when you collect data in real time," says Moyer.

The probes can also plug into a special device that allows students to complete between four and eight experiments at one time. "Let's say an experiment takes 10 minutes, and you need to do eight. Instead of waiting for 80 minutes, you can get the data in 10," says Moyer.

Moyer also encourages teachers to capture the experiment on digital video cameras to show later on an interactive whiteboard. The teacher can then export the video of the experiment to the whiteboard, insert data tables or graphs and even write on the screen.

This is especially useful when recapping the previous class's experiment before moving on to the next one. "Students see the data as the experiment is going on, and they retain the information better," says Moyer.

But it's not just students and their teachers who learn during Moyer's traveling Science Van sessions. Moyer often finds that he comes away from his trips with nuggets of teaching knowledge himself.

"I just saw a teacher with 41 years' experience. I learned a lot about classroom approaches from him, and he learned about technology from me," says Moyer.

While he's only been with the Science Van Project for about 18 months, Moyer says he's not likely to tire of it any time soon. He says it's the perfect combination of science, teaching and technology.

"I'm able to impact a great number of teachers per year through visitations or just by troubleshooting science technology problems via e-mail. This in turn impacts an even greater number of students in our state.

"It's a very rewarding job. I enjoy turning students on to science and teachers on to teaching science using high technology," says Moyer.

Using the allure of technology

Chris Klein knows technology can be a good learning tool – but he also knows the allure of cool technology can be a good way to get students interested in learning.

Klein is the technology coordinator for Maplewood Richmond Heights School District in St. Louis, Missouri, a 1,100-student district with an early childhood center, an elementary and middle school, and a high school.

But for one class a day Klein also teaches a popular broadcast class.

By combining both roles, Klein says he's able to help other teachers implement technology solutions in the classroom in ways that make sense to teachers, not just administrators.

> "It's a very rewarding job. I enjoy turning students on to science and teachers on to teaching science using high technology."

"Teaching is the root of everything I do," explains Klein. Although stepping into the teaching arena can be frustrating at times, Klein feels that spending time in the classroom helps him to stay current with the challenges teachers face.

The class also helps Klein reach students who are bright and attracted to technology, but easily bored in a traditional classroom setting – the type of students who might sleep in and miss a class. That's why Klein schedules his class for first thing in the morning, helping to ensure that students are at school for the rest of their daily classes. "Once I get them through the door, they're engaged and ready to go. They're here for the rest of the day. Many might not come otherwise," he says.

But getting into Klein's class isn't easy. And those who do get in make a big commitment.

Klein declined to base acceptance on previous grades, insisting poor or good marks would be no indicator of performance in the kind of class he wanted to teach. He had a different type of student in mind.

"What I need is for students to be committed. It was a Tuesday at lunchtime, and I gathered them together and

said, 'I've got 12 spots and 17 of you. I need three letters of recommendation from faculty in 24 hours.'

"I send these students out into the field with $7,000 or $8,000 worth of equipment. I need them to be dependable," he explains.

He also needs them to meet deadlines – hence the 24- hour deadline for letters from faculty.

If there's still work to be done at the end of class, Klein expects students to take responsibility for it. After all, in a real news broadcast operation, the whole team depends on each team member to get his or her work done on time. It's not unusual for Klein to leave the school while students stay behind to meet deadline.

"I got a call from students at nine-thirty one night saying, 'We just finished. It's on the server and ready to go.' I'd left, and it was just a few students in the building with the janitor," Klein recalls.

Klein assigns each student a job that mirrors a real news broadcast operation. Students work as executive producers, directors of photography, segment producers and anchors.

Together, they produce a 20-minute, bimonthly news show about school events and broadcast it to each homeroom. The show is also available on iTunes as a podcast called the *Devil's Advocate* (the school team is called the Blue Devils).

"They're coming along. If you watch broadcast one and broadcast eight, I think you'll see a difference," says Klein.

While students strive for professional standards, Klein also wants them to have fun.

"If they say, 'Let's take a camera and strap it to a skateboard and run it down the hall,' they take the ZR40 camera (a single-chip handheld). I'd rather risk a $300 camera than a $2,500 camera," he laughs.

The potential for cameras on skateboards may explain why Klein's class is so popular. He got five more applicants than there were spots. And it's just the second year he's offered the class.

To date Klein's arsenal of alluring technology includes US$40,000 worth of cameras, video editing stations, microphones and software, $12,000 of which was donated by the local cable company. The rest came from the Maplewood Richmond Heights School District.

"A course such as this reinforces the soft skills of education. It helps teach students how to manage time," says Klein. "Everything is deadline driven. They work in groups and change speaking and writing styles depending on what they're trying to produce.

"[The course offers] a lot of real world skills. It's not about remembering facts and figures like 'The Civil War started in this year.' It's not knowledge like that. This is a vocational course. They're learning workplace skills."

Exceptional educators

Forward-thinking teachers such as Heinowski, Yurk, Moyer, Melvin and Klein are essential to our education system. Every day these educators push their limits and step outside of their comfort zones in an effort to not only instill students with a useful, quality education, but also to provide their colleagues with the means of providing that education.

These educators and many others like them make a difference in students' and teachers' lives each and every day.

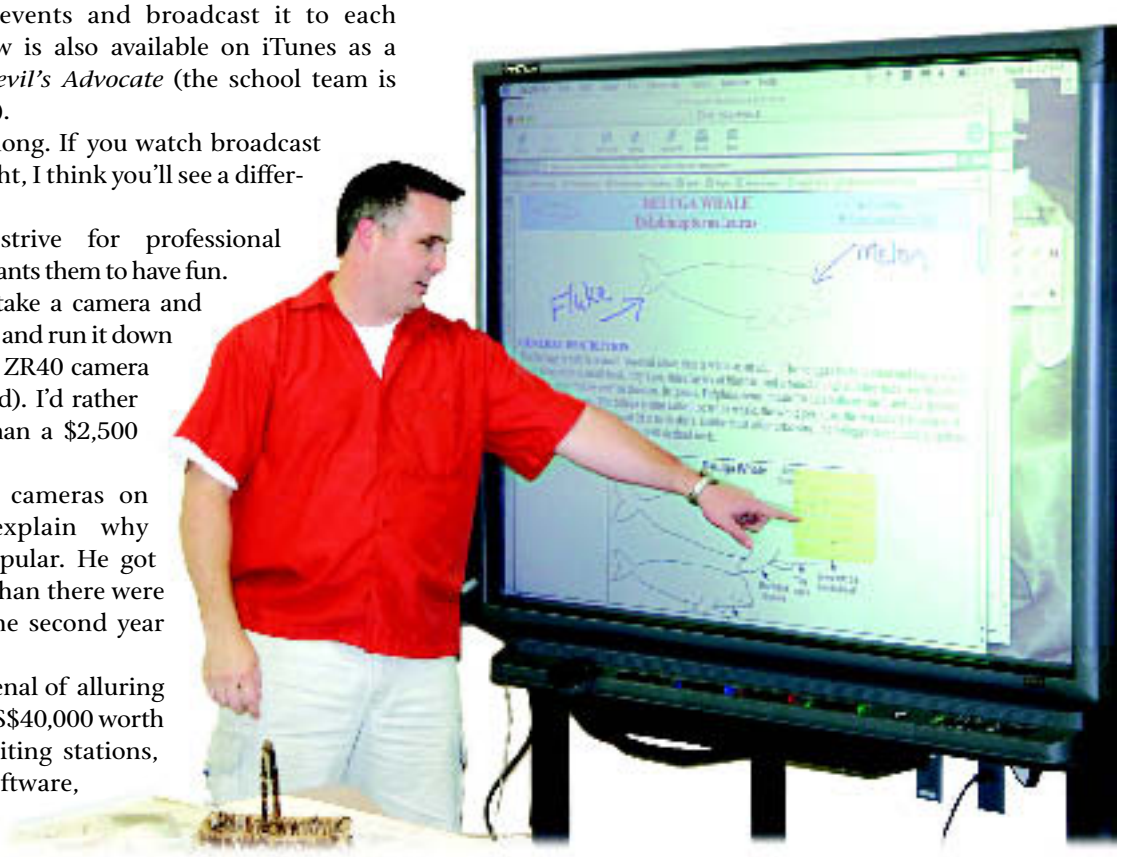

PHOTO COURTESY OF CHRIS KLEIN

Technology coordinator Chris Klein uses technology to get students interested in learning.