

Online Harvard Graduate School of Education

Teacher Development Program Drives Instructional Reform in Cambridge Public Schools

Executive Summary

CUSTOMER NAME

Harvard Graduate School
of Education/Cambridge
Public School District

INDUSTRY

Education

BUSINESS CHALLENGE

- Engage K-12 teachers in ongoing professional learning conducive to their schedules without affecting productivity.
- Provide online learning experiences equal to or better than on-site models.
- Meet state and regional needs for high-quality teachers.

SOLUTION

- Use network for online professional development.
- Link teachers globally for enriched collaboration.

BUSINESS VALUE

- Teachers apply online coursework to everyday teaching.
- Participants increase technology skills and enhance their approach to teaching.
- Deeper understanding of content and increased confidence for students.

Wide-scale Interactive Development for Educators (WIDE World), an innovative professional development program run by the **Harvard Graduate School of Education (HGSE)**, successfully pairs online coursework and face-to-face support for practicing teachers. **WIDE World** teamed with educators from the **Cambridge (Massachusetts) School District's Project COOL (Collaborative Online/Offline Learning)** to extend, deepen, and ultimately strengthen teacher teams' ongoing efforts to develop innovative, technology-enabled curriculum and improve student achievement. The two-year project was funded by the **Massachusetts Department of Education**, and the **Cisco Systems® Internet Business Solutions Group (IBSG)** provided business and technological support.

WIDE World offers K-12 teachers a variety of programs for continued development utilizing both onsite and online formats. WIDE World has been collaborating with the **Cambridge Public School District** administration and teachers since 2003 to increase the effectiveness of their program and broaden classroom instructional reform across the district. Harvard's dean of education alerted IBSG to the program in the spring of 2003, noting that the program demonstrated an innovative use of technology in K-12 teacher development.



Prepared by Cisco Systems, Inc.
Internet Business Solutions Group

“I FOUND THE PROGRAM ENGAGING. THE COLLABORATION OF MANY TEACHERS TO PROMOTE IDEAS AND PROBLEM-SOLVE WAS FAR MORE BENEFICIAL THAN BEING ISOLATED, WHICH FREQUENTLY HAPPENS. IT WAS VERY BENEFICIAL TO SEE AND READ WHAT OTHER PEOPLE WERE DOING SO I COULD APPLY SOME IDEAS IN REAL TIME WHILE ATTENDING CLASS.”

—Tracy Gordon, Cambridge teacher and COOL participant

BUSINESS CHALLENGE

Teachers’ ongoing professional development is a pillar supporting improved learning by their students as well as the wider improvement of schools and districts (Cohen, 1999; Elmore, 2002; Spillane, 1997). A growing body of research shows that effective professional development hinges on the provision of continuous, job-embedded support for learning, coupled with ready access to expertise and insights from the outside. However, most professional development in schools continues to be based on an outdated “transmission” model—a one-day workshop, or after-school in-service training that aims to download generic insights with little specific relevance to a teacher’s situation and with no ongoing support to help teachers translate new understanding into improved instruction (Drago-Severson, 2004; Little, 1993).

University-school collaborations coupled with network technologies offer a potent alternative to the transmission model. Growing numbers of university-based distance learning programs seek to introduce research-based knowledge while fostering communities of teachers in schools that work together to support each other’s ongoing learning.

Research has begun to clarify specific ways that distance learning makes a difference. Early research in distance learning compared technology-based courses with on-campus offerings and found “no significant difference” (Russell, 1999). More recent research in distance learning has identified ways that a networked environment holds distinct advantages for learning over onsite alternatives (Harlen, et al., 2003; Hofmann, 2002; Wegner, Holloway, and Garton, 1999). Carol Twigg, Executive Director of the Center for Academic Transformation, a national program in higher education course redesign, highlights three critical areas that distinguish effective uses of network technologies in the service of learning—quality assurance, improving access, and reducing costs (2001). WIDE World combines the intellectual rigor of research-based instructional strategies with the power of network technologies in ways that pay close attention to quality, accessibility, and cost efficiency.

SOLUTION

The WIDE World solution aims to improve student performance through more effective teaching practices by addressing widely acknowledged weaknesses in traditional approaches to in-service teacher development. Rather than a one-day workshop or other short-term intervention, WIDE World online courses engage teams of educators in a six-to-twelve-week experience of rigorous professional development that directly helps them integrate new strategies into their practices.

In addition, WIDE World works closely with school systems and other educational organizations to integrate its services with districts’ other professional development plans. That may involve

onsite workshops, as it did for the Cambridge public school system. “WIDE World programs help educators join a continuing process of professional inquiry and collaboration, not just learn new instructional strategies,” says Harvard educator Martha Stone Wiske, who together with Prof. David Perkins is a co-principal investigator and founder of WIDE World.

Quality Assurance

WIDE World’s programs use a research-based model called the Teaching for Understanding framework (TfU), which provides a common language and approach to clarify educational goals, analyze effective practice, and track progress. TfU brings together three decades of educational research and emphasizes a ‘performance view’ that puts the emphasis on flexible understanding in practice, not simply the transmission of concepts and skills (Wiske, et al., 1998; Wiske and Perkins, 2005).

“Our courses combine TfU with other key instructional priorities, such as helping students truly understand what they study, differentiating instruction so that all students can achieve, enhancing student performance in mathematics, reading, and literacy, and integrating technology with curriculum to improve teaching and learning,” says Perkins.

WIDE World online courses are designed by experts and taught by experienced instructors who lead groups of coaches. Teachers who enroll in WIDE World courses are grouped with others who share their interests and a coach knowledgeable about both course content and online collaboration. Each coach works directly with up to 10 teams or teachers as they develop projects directly applicable to their classroom practice. The WIDE coaching model reflects an aspect of exemplary practice that current research has shown to be a hallmark of high-quality, effective distance learning (IHEP, 2000; Zhao, et al., 2005).

WIDE World instructor Lois Hetland says, “Initially, I thought online learning was not going to be as effective or have the same quality as face-to-face learning.” The past several years of experience working with teachers and coaches has changed her views. She notes that WIDE World programs are able to model the same educational principles that course participants are asked to apply in their own classrooms, including:

- Performance-based learning
- Embedded assessments with frequent coaching and support
- Reflection and collaboration with a community of colleagues
- The use of network technologies to enrich access to resources and interaction with coaches and fellow learners.

The networked environment, combined with some face-to-face interaction, has distinct advantages. According to Hetland, who has led both online and onsite professional development, the online environment offers:

- A more rigorous class due to a carefully honed sequence of practice-oriented assignments.
- Greater intellectual challenge due to give-and-take around concrete aspects of professional practice in discussion threads.
- Greater opportunities for extended peer and coach feedback.
- More stimulating interactions with peers across a district or even the globe.

Improved Access

Since 1999, WIDE World has trained 3695 educators and provided services to 144 school districts or educational institutions—81 within the United States and 63 abroad, including Turkey, Greece, Namibia, Uganda, Australia, Colombia, and Honduras. According to David Zarowin, executive director of WIDE World, “We have created professional communities that span the globe in which educators engage in self- and peer reflection. This is a key piece of what many academic institutions are trying to do. The use of the Internet enables community-building in ways that would not have existed before.”

The increased global access afforded by network technology also makes a difference at the local level in terms of time and space for professional development. Hetland notes that asynchronous online courses allow teachers the flexibility of scheduling when and where to do their coursework.

“IT’S A VIRTUAL COUNTERTOP WHERE YOU CAN HAVE A CONVERSATION AND A CUP OF COFFEE WITH PEOPLE ALL OVER THE WORLD.”

—Lois Hetland, WIDE World instructor

Reducing Costs

The cost benefits of using WIDE World arise from its unique approach to [online learning](#), emphasizing asynchronous coursework, study groups under the leadership of a coach, and a focus on teacher discussion over a sustained period of time. Those elements address concerns over loss of interactivity, even as they do away with the costs of conventional face-to-face workshops.

Such costs include:

- Hiring teacher substitutes
- Providing stipends for workshop participation
- Loss of productivity during class time
- Speaker payment
- Travel expenses
- Food and onsite expenses

While online courses may initially have higher fixed course fees than traditional classrooms, those costs are offset by lower variable costs such as course and student delivery. In a report published by Australia’s [National Centre for Vocational Education Research \(NCVER\)](#) titled, “Online Delivery in the VET Sector: Improving Cost-Effectiveness,” the author noted that courses with high levels of interactivity over the Internet and pre-existing web-based resources have costs lower than or equal to traditional classroom instruction (Curtain, 2002).

With that in mind, notes Zarowin, “WIDE World purposefully keeps the technology required for its courses simple,” to reduce costs on training time (teachers usually have one face-to-face workshop to learn how to use the course) and capital costs. WIDE World participants need only an Internet connection and a computer. “WIDE World sustains its teaching sessions over *time*,” adds Hetland, “which reinforces lessons quickly forgotten after a daily workshop.”

Cambridge Connection

WIDE World's work with the Cambridge Public School District is an example of how the three elements of quality, access, and cost-efficiency came together to help build an expanding network of support for continual educational improvement in one school district. Joanne Krepelka, educational technology coordinator for the Cambridge Public School District, and Joan Stern, the district's coordinator of library and media services, have been involved with finding better ways of using technology to improve students' reading, writing, and thinking skills. "We realized that there wasn't a depth in the products," Krepelka says. "The use of technology was superficial, and it wasn't really focused on improving students' learning in ways we thought mattered most."

Joan Soble, a teacher and professional development coordinator with the district, says the problem was "how to take good things out of the pockets in the district where they were happening" and put them to use districtwide. In other words, there needed to be a way to share best practices interactively across the district. Soble, Stern, and Krepelka, who are Project COOL directors, shared their concerns and goals with Harvard educators and the Harvard-COOL partnership was born.

For the pilot program, 90 Cambridge educators from across the district participated on collaborative design teams to create rigorous curriculum units aligned with district learning standards, using the TfU framework. Teams received guidance through site visits and in-service workshops led by teacher-leaders. At least one member of every team has taken WIDE World online courses, which directly support the team's application of TfU and its use of technology.

Research over a number of years has indicated that participants in high-quality Internet courses spend more time on task and can net more out of classes in terms of subject matter confidence, understanding, and retention than their counterparts in traditional classes (for example, Nelson, 1997; Harlen, et al., 2003; Hiltz, 1997). That certainly was true of the Project COOL experience. Stern, who took one course on a team with several other Project COOL leaders, adds: "We loved the online course for the opportunity it gave us for some very intense conversations about teaching and learning that we never would have gotten otherwise. We found how little of our professional time was available to have those conversations. The online experience was respectful of time; you could do it any time of day or night, and you could do your assignments when you could give it your best thought."

"You're learning. You're writing. You're thinking and getting feedback," says Soble. "It's the interactive flow that the technology allows to happen."

Tracy Gordon, a Cambridge pilot participant, notes that community was the most important factor for her course success. "I feel that many voices collaborating produced better ideas and plans. I found it very beneficial to see and read what other people were doing."

Cambridge librarian Laurie Cleveland adds: "You connect more effectively with the outside world through online courses. You actually learn more because you are exposed to much more information from diverse areas."

Teacher Cathy Pendergast sums it up: "Online brainstorming and group collaborations were critical factors for developing our lesson plans and unit assignments."

BUSINESS VALUE

Project COOL

The Cambridge pilot netted many positive results in the areas of:

Quality

- Improved teachers' learning experience in a high-quality, supportive, technology-enabled environment.
- Increased teacher engagement with professional development due to the online, asynchronous format.
- Real-time changes in current teaching practices as teachers implemented new teaching techniques while participating in online coursework.
- Immediate feedback from students in response to implementation of new approaches to teaching.

Access

- Anytime, anyplace flexibility of learning.
- Increased interaction among teachers inside the district due to the online format.
- New interactions with teachers around the world, expanding local access to effective teaching practices and ideas.

Cost Savings

- Higher productivity linked to the fact that teachers had more time to prepare and teach their own classes since they could learn anytime and anyplace.
- Administrative cost reductions related to class release time, space rental, food, and travel costs.
- Fewer material costs resulting from assignments and discussions carried out online and not on paper or by phone.

A group of Project COOL teachers who had recently completed Massachusetts' intensive, state-mandated Technology Self-Assessment Test showed marked improvement after taking a WIDE World course¹: "Participants felt their students experienced a deeper understanding of curriculum topics, due in large part to the increased quality of teaching products," says Krepelka.

WIDE World

Overall, results for WIDE World appear as bright as those reported for its project with Cambridge. In fiscal year 2005, WIDE World's enrollments and revenues grew by more than 80 percent, with significant initiatives underway or being planned in North and South America, Africa, and China. According to surveys conducted since 2003, 97 percent of respondents report that courses have had an impact on their teaching². Changes they cite include improvements in design of lesson plans, assessment of students, and communication with students.

¹On the three portions of the assessment, X2 (1) = 7.3, 6.7, and 3.7, respectively; $\eta^2 = .31, .30, \text{ and } .22$; $p < .01$, $p = .01$, and $p = .06$.

²831 out of 855; response rate = 49%.

In addition, 94 percent of teachers report improvements in students' learning, citing positive changes in attentiveness, the types of questions they ask, and the depth of their understanding. Also, those who completed surveys both before and after WIDE World courses show significantly enhanced attitudes toward instructional collaboration and online communication³.

CISCO CONNECTION

Dr. Tracey Wilen-Daugenti, who manages the higher-education practice at Cisco, says IBSG first was able to assist HGSE with some basic business strategies and marketing ideas related to the operation of WIDE World, and later helped in scaling the momentum of the online and hybrid-learning initiative.

"I was initially introduced to the WIDE team by Harvard's dean of education," says Wilen-Daugenti. "The program was exploring two questions in higher education that are of key interest to educators: First, how can Harvard provide quality and needed teaching development programs for K-12 teachers without interrupting their productivity and ensuring reasonable costs to districts, and second, can you provide quality online learning courses that are equal to or better than face-to-face learning.

"I introduced them to [Cisco® Networking Academy® Program](#) experts from Cisco, who have expertise in distance and hybrid learning techniques, and who also have used the train-the-trainer model to scale the program to well over 500,000 global students. Cisco also has a fair amount of expertise in e-learning from our own internal [continuing education programs](#) for employees who also need continual training on the job. We have developed a number of sustainability and costing models that, with the collaboration of Harvard program managers, can be transferred into the university setting."

NEXT STEPS

Harvard will continue to collect longitudinal data from the WIDE program with the intent of comprehensively evaluating the impact of the program on teachers and student outcomes.

"As we gain more experience, analyses of longer-term outcomes for teachers and their students are planned as a way of accurately measuring results. It's important to understand thoroughly how changes in teaching practice lead to improvements in student performance," says David Eddy Spicer, research manager for WIDE World.

Harvard also is expanding its online program with overseas school districts and provinces where the demand in continuing teacher development is strong.

Eddy Spicer says enriching content with additional channels is the next logical step. "As we target large-scale global expansion, we have realized the importance of including video, language translation, and rich media content in our program so that our courses are easily understood by many cultures. We have a robust network in place to explore a variety of advanced technologies such as content delivery networks, video, and collaboration tools."

³Based on multiple-item scales with internal consistencies and test-retest r of .8 to .9. For instructional collaboration, $d = .37$, $n = 88$, $p < .0005$; for attitudes towards online communication, $d = .41$, $n = 88$, $p < .0005$.

It is clear that the Cambridge pilot and the nearly 4000 teachers who have participated in WIDE are seeing immediate benefits for their students. After visiting with several design teams and reviewing work with students, Soble summed up what she had seen. “We’ve handed teachers a very complementary set of tools—Teaching for Understanding, technology, online learning, and collaborative time. As a result, the teams have become very clear about what they’re trying to teach, and they’ve become much more self-reflective about the kinds of projects they want students to create. The fruit of this work is in the emotional and intellectual engagement of their students demonstrated through high-quality work, excitement, and increased confidence.”

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