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Virtual Classrooms, Real Results

By Molly Rose Teuke

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*Competitive differentiator, public service, or efficiency tool: academic institutions get smart about the benefits of e-learning.*

When Pennsylvania State University landed a US$1 million U.S. Department of Education grant in 1999 for its World Campus, it was to "support the creation of an efficient, database-driven environment for the design, development, and delivery of online content." World Campus is Penn State's online distance education campus, located at www.worldcampus.psu.edu and administered from the university's home campus in State College, Pennsylvania. Given that this virtual campus offers 250 full-credit online courses, operates on an annual budget of US$12 million, and serves nearly 5,000 students in all 50 states and 20 countries, no one was surprised that the choice of database emerged as a critical decision.

Like most universities and colleges, Penn State has legacy systems to contend with, and like other purveyors of Web-based education, the university contends with stiff competition both within and outside of traditional academia.

"We started with the understanding that students' expectations were set by media market players, by the clicks-and-mortar operations like Amazon.com," says Robert Snyder, director of Penn State's Data Management Services group and lead researcher on the grant. "That set a higher bar for us to be able to provide a comparable experience. "To do that," Snyder adds, "you want to start with a good foundation for managing data. One of the fundamental tools is a scalable, enterprise-level database at the back end, because every time a student logs in, you're establishing and reestablishing your level of credibility. You can have a flashy Web site, but if you don't have the infrastructure on the back end, you're doing smoke and mirrors at best. People can find the competition just as quick as they can type 'online education' in Google.

You want the infrastructure to be invisible, to create a seamless, quality experience."

That seamless experience is important to faculty and administrators as well as students. The technology infrastructure has to be capable not only of presenting a sophisticated portal, but of organizing and archiving learning objects (course content), interacting with legacy systems, and handling the mundane business of education. "We're just bringing this online, but the Oracle-based systems we're deploying should create several magnitudes of efficiency for the administration staff. Authors and instructors and universities and departments are all also looking at how we manage our digital assets,

and specifically, these learning objects. If we can track them, we can earn royalties from reuse and make those monies available to increase scholarship."

For Snyder, it came down to choosing best-of-breed for power, reliability, and scalability, with open architecture to accommodate legacy systems. The answer was an Oracle database to support administrative systems and content development and delivery. "Our database is the foundation of what we do," says Snyder. "It's the bedrock of our online education."

**Educating in Real Time**

Oracle was also the key to online learning for Edmonds Community College, in Lynnwood, Washington, which has offered Web-based course delivery since 1997. Four key issues drove Edmonds' choice of its Oracle database and Oracle9*i* Application Server (Oracle9*i*AS) Portal: organization of content and student records, development of tools for creating and accessing online content, creating a content archive to serve as a shared resource for faculty, and capability to link to legacy systems.

"One of the deal-makers for us was that the information exchange between the legacy system and the new database has to be done in real time," says Kevin McKay, Edmonds' director of distance learning. "There can't be a batch between the legacy system and the new applications batching every hour or even every 20 minutes. It's got to be up to the second so students know when classes are full. Only Oracle responded to this need and delivered the right package."

Another concern, says McKay, was security. "Once the distance learning server is up and running, it becomes a mission-critical application," he explains. "The prospect of anybody being able to hack into the database and change records or bring the server down—well, Oracle has a premier reputation for service security in the industry."

Scalability and flexibility were issues as well. Today's student population is growing in numbers and demographic diversity, and Edmonds, like other providers of Web-based education, is feeling the pressure. "Because we went with Oracle for both database and portal," McKay points out, "we now have a portal that, though we're in the early stages with it, enables us to do almost anything we can imagine, given the appropriate resources, time, and energy."

All this bodes well for the new breed of student: older, employed, looking for ongoing or just-in-time training or retraining because of career change or job loss. "We see people with degrees coming back to pick up an additional certificate or two-year degree for job-related reasons," says McKay. "They need the flexibility of online learning, and it's the underpinnings of the technology making that possible."

**Real *i*Learning in Glasgow**

Across the globe, in Glasgow, an economic development agency, Scottish Enterprise, is partnering with local institutions of higher learning to bring job-related and lifelong-learning content to an even more diverse community. Glasgow declined as an industrial center in the 1970s but emerged in the 1990s as an international business center. The skills of its workforce, however, hadn't kept up with demand in the new, knowledge-

based economy, and in 1999 an education initiative was launched. The project—branded "Real" for its real partnership of 35 community-based learning centers, more than a dozen colleges and universities, and a handful of private entities—has created a learning environment combining Web-based content with physical learning support centers, and even a mobile learning center. The Real on the Road bus is equipped with a broadband satellite, plasma monitors, printers, scanners, and 12 multimedia PCs, and it's even wheelchair accessible. It delivers hands-on computer access to classes and workshops in even the city's most disadvantaged neighborhoods. "The visibility and accessibility are vital, given the digital divide we face here," say Keith Falconer, senior executive at Scottish Enterprise Glasgow.

Real chose Oracle9*i* technology and Oracle *i*Learning to organize content and learners and to create a collaborative learning community linking the two. "We looked at a variety of learning platforms and virtual learning environments, and Oracle had the functionality," says Falconer.

"We needed Oracle9*i* technology to create a seamless learning experience while handling the administrative load—eliminating multiple registrations among the various partners, for example," Falconer says. An added benefit of Oracle *i*Learning is its capacity to ensure optimal utilization by managing access to physical resources such as PCs, the bus, and the training suites. "But more than that," he says, "we had access to people within Oracle who listened to our needs. This isn't a corporate solution; it isn't an academic solution: It's a citywide solution. We're appealing to the disillusioned learner who needs to be hooked in. We wanted an Amazon-esque approach to the delivery of learning, something colorful in essence that will recognize who you are and deliver content based on your age, your profile, and what you've done before and will make recommendations based on your interests and what others with your interests have done.

"Eventually," Falconer says, "we will have a lifelong-learning platform that people can use through school, through retirement, and beyond."

**Molly Rose Teuke***'s writing has appeared in Continental and the Chief Executive's Guide.*