When President George W. Bush signed No Child Left Behind (NCLB) legislation into law on Jan. 8, 2002, school officials across the nation began to fret over the landslide of data they would soon be required to accumulate and disperse.

But in Prince William County, Va., district officials breathed easy. A commitment to using technology to facilitate quality schooling coupled with an educated guess concerning impending federal guidelines, already had prompted officials at Prince William County Schools (PWCS) to begin an expansive and impressive data warehousing project.

“We had this solution when they came out with the [NCLB] legislation,” said Steve George, CIO for PWCS. “Our administrators are very supportive of technology.”

A COMMITMENT TO INNOVATION

The district’s technical innovations include a “Virtual High School” that was developed to offer students an alternative to traditional schooling. More than 600 high-schoolers have taken advantage of the 14 rigorous courses offered online.

PWCS also operates a Curriculum Management System (CMS), which houses tens of thousands of test items and lesson plans and is used to assess student learning throughout the year. The CMS is integrated with the district’s electronic grade book and student information systems.

Teachers benefit from the district’s technological savvy through its online staff development catalog, which they use to access hundreds of courses and workshops required for local staff development credit and staff recertification. A partnership with George Mason University provides several online technology courses as well.

“It’s all about the idea of continuous improvement,” said Holly Hess, director of planning and assessment for PWCS. “We’ve been dedicated to that for a long period of time, but recently we’ve really focused on it in a more intense and concentrated way.”

THE HOUSE THAT DATA BUILT

The data warehouse project is a part of that newly focused intensity. Using Oracle technology, PWCS merged 14 disparate databases to form a multipurpose database warehouse that currently houses demographics and five years of test scores for the district’s 63,000 students.

In the future, George said the data warehouse also will include student grades, attendance records, certain discipline information and more.

“Our plan is also to link student demographics and test scores to the HR (human resources) file to accommodate the ‘how they qualify’ portion of No Child Left Behind,” George said. “Eventually, we’ll also tie it to our financing and our budget.”

Because PWCS already had standardized on Oracle technology for its financial and human resources needs, George said his IT department naturally turned to the company for the data warehouse project.

“We knew how to use the Oracle tools. We knew they were robust and that they could handle our current needs and our future needs,” George said.

The PWCS IT team used a three-month assessment process — which included interviews and mini-workshops with school department heads, principals and educators — to determine what school personnel needed from the new data warehouse.

“Basically they wanted to get rid of the paper,” said George. “They wanted data accessible when they needed it and in a format that was intuitive and would save time.”

The project was implemented in multiple phases, several of which already are complete.

“In Phase I, we took the student demographics from our student system, linked it to our test scores and rolled that out within a six-month period of time. It was very quick,” explained George. “In Phase II, we expanded on the number of tests we collected and the number of reports we generated. It was a very fast turnaround for a project like this.”

George credits Oracle tools for the ease and speed with which the PWCS data warehouse was deployed. He said the company’s technology also simplified information delivery. “There’s no need to have software on the client computer. So for every user, you don’t have to go out to a school and load software. It’s all available via Internet browser.”

Currently, George’s IT team is deep into Phase III of the project, which involves linking the current data warehouse with the district’s HR system to facilitate NCLB’s teacher endorsement, credibility and other requirements.
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— Holly Hess, director of planning and assessment, Prince William County Schools.

INFORMATION IN AN INSTANT

Reaction from administrators and teachers to the broad range of information now available in the easy-to-use database has been “very positive,” according to Hess.

“We just finished training sessions for rolling out new reports and specific information on the calculations that lie behind the reports,” said Hess. “They [teachers and administrators] saw the tool. They worked with the tool, and the response has been overwhelmingly positive.”

Hess herself also is overwhelmingly positive about the data warehouse, which eliminated mounds of paperwork her office used to create annually.

“Every year for the past 10 years, my office has produced a three-inch notebook full of reports we generated from various databases,” said Hess.

The lengthy paper report was cumbersome and difficult to navigate, and gathering report information from more than a dozen databases was costly and time consuming. The paper report is no longer necessary thanks to the information-generating capabilities of the data warehouse.

“It’s a matter of refocusing your resources. Having data at your fingertips that used to take four or five hours to generate now takes five minutes. That means you can refocus that four or five hours on what really matters, improving student learning and teaching.”

— Holly Hess, director of planning and assessment, Prince William County Schools.

“There’s nothing worse than having data you can’t really work with because it’s not formatted or maintained in a way that lets you extract from it what you want,” explained Hess. “So being able to have all of this in one place and the tools to produce what we need to produce is very exciting.”

Now that so much data is housed in a single repository, PWCS officials are making quality use of the information. Not only does the system make generating NCLB-required reports — such as adequate yearly progress (AYP) summaries — painless, it also is proving to be an effective assessment and planning tool.

“A department chair or grade-level team leader can use it to discover how they taught, what results they got and how they might improve,” said Hess. “Administrators are using it in their overall school planning process.”

The data warehouse also gives school principals the ability to instantly generate three years of data concerning their individual school’s particular student achievement objectives.

“In school planning councils, principals can now generate that report, print it and share it with their community and their teachers,” said Hess. “They can discuss how they got where they are and what they need to do to get to the next step.”

REFOCUSING RESOURCES

Aside from its obvious data-gathering benefits, Hess and George said they believe the centralized data warehouse is saving PWCS money.

“We know there’s a savings, especially in manpower at the school level,” said George.

“It’s a matter of refocusing your resources,” Hess added. “Having data at your fingertips that used to take four or five hours to generate now takes five minutes. That means you can refocus that four or five hours on what really matters, improving student learning and teaching.”

Easier access to important data coupled with cost savings and the potential for overall educational improvement is prompting other districts around the nation to consider data warehousing projects.

District officials in Charles County, Md., are implementing a similar system, and George said he hears from other interested districts almost daily.

But George said he isn’t surprised at the interest in his successful data warehousing venture.

“In the 30 years I’ve been here, this is probably one of the most successful projects we’ve undertaken at PWCS,” he said. “The amount of time it took and the success we’ve had is just unheard of. Really, it is.”

To build its innovative and highly successful data warehouse, PWCS used:

Oracle9i Database
Oracle Application Server/Portal
Oracle Warehouse Builder
Oracle Discover
Oracle9i Developer Suite

To find out more about implementing a data warehouse built on robust Oracle products visit www.oracle.com or call: 1.800.633.0584