Ohio Department of Education: Delivering a Collaborative Enterprise Approach to Student Data Management

Overview
The Ohio Department of Education (ODE) oversees 725 public-school districts with over 4,000 schools and two million students in the State of Ohio. In addition, Ohio has the support of 23 regional service centers in the state which are called Information Technology Centers (ITCs) that provide IT and other educational and administrative services to the school districts.

Ohio, like many other states, has worked with various models for managing student and education related data. However, the local autonomy of school districts and the existing state governance structure has led the Ohio Department of Education to rethink its data management model and develop an approach that respected school district autonomy but yet provided an approach for data collaboration and innovation to support decision making at the local and state level.

Challenge
The challenge facing Ohio was the delivery of a data management model that allows the state to collect student and support state and federal accountability report but at the same time deliver value to the school districts in terms of data needed to support decisions in the classroom. Another challenge facing the ODE, specifically, was the state statute that places restrictions on the level of student data that the department can collect and maintain (i.e., ODE can have access to the individual names and addresses of students). So while ODE was seeking to move to a system of student level accountability, it was constrained by the data management model it could put in place to manage this data.

ODE’s first attempt to move to a more student level data management model occurred in the late 1990s. ODE tried to implement a hosted student information system which would serve all school districts in the state. Though it was striving to provide a robust student data management model, ODE realized that a centrally managed student information system was not feasible, given the various school district requirements and the existing governance relationships in the state.

ODE re-examined its approach and determined that a standards based approach that allowed for more flexibility in local IT data management solutions but enforced data standards across the school districts would yield a more workable state model. This revised approach allowed the ITCs to work with its constituent school districts to deploy the local student information system package to meet their own needs. However, publishing data standards and an underlying collection method would allow the state to
collect student level data across all school districts and leverage the data to support state and federal reporting as well as the data for the school funding formula. In addition, this model could also be used to support student record transfer amongst school districts (e.g., a student that transfers from one district to another) as well as the distribution of student data to the school district to support instructional and accountability decisions in the classroom.

**The Ohio Solution Approach**

The Ohio Department of Education and its stakeholder groups identified a set of fundamental building blocks that needed to be in place to support an education information network in the state. These building blocks include:

- Unique student ID assigned to each student in the state
- Redesigned student data collection approach that not only supports movement of data from the districts to the state but also across districts
- Analysis tools that enables delivery of data into the classroom and school to support decision making
- Instructional tools that link informed decision making to action

IBM supported the development of selected key building blocks in this enterprise education architecture. Specifically, IBM provided the unique student ID solution that has been in operation since 2001 and which has allowed ODE to collect student level data to support state reporting. With that fundamental building block in place, the state could better facilitate the matching of student demographic information with assessment outcomes and track the performance longitudinally over time in support of Adequate Yearly Progress (AYP) goals.

Given the ability to track student outcomes longitudinally, the state worked with its stakeholders (school districts and ITCs) to establish a model for providing this data back to the classroom to support instructional decisions. IBM supported ODE and the lead ITC, Northwest Ohio Computer Association (NWOCA), in the development of a teacher portal and data warehouse, known as Data Driven Decisions for Academic Achievement (D3A2), to deliver outcomes to the classroom. Specifically, IBM led an engagement to modify its Insight at School Data Warehouse model and associated reporting templates to build a teacher portal. To support the linkage of data to classroom actions, IBM created a link from the data warehouse reports to Ohio’s open source content management system, Fedora, which provided instructional supplemental materials aligned to state standards. To support the long term sustainment of the solution, IBM then provided the knowledge transfer that enabled NWOCA to maintain and provide the services to host this solution for the school districts in the state.
Now IBM is working with the state to support additional redesign of the state’s data collection and reporting system. This redesign of the Educational Management Information System (EMIS) provides SIF integration components, an operational data store, and a validation web front-end that addresses the following Ohio Department of Education business problems:

- Collection and storage of duplicate demographic data across various student data files (Ex. Student Identification Number, gender, race, test results in the testing file)
- Continued data storage in flat file formats (rather than a normalized relational database structure) that limit efficient access, management and use of the data for longitudinal analysis and linkages between student and staff data
- Continued restrictions of the collection of data to a weekly batch mode rather than utilizing new technologies and standards to support real time data submissions

IBM is developing the validation web interface and the relational operational data store (ODS) components of the EMIS redesign initiative. This redesigned data collection approach will provide the ability to collect more and better data at a higher frequency as well allow the state to gain improvements in data quality and timeliness that will allow administrators and educators to make informed educational and administrative decisions.

**Benefits**

The two million students in Ohio all have unique State IDs. This has enabled the linkage of student demographic information to assessment results longitudinally for the past 5 years. The state and its constituent school districts can now access that data to support instructional decisions in the classroom. Through the use of Web 2.0 and open source technologies, the state is now able to leverage the data for informed decision making and instructional support. In addition, the enterprise architecture leverages the ITC technology capabilities which support the school districts in data management, resulting in improved data quality. As the state builds out its enterprise architecture to support the real time movement of data across the state, it can begin to add additional instructional tools that will benefit educators in the school and classroom.

**For more information**

To learn more about IBM and Student Information systems such as the one implemented in Ohio, please contact your local IBM representative or Kirsten Schroeder who leads IBM’s services for State Department of Education at kirsten.e.schroeder@us.ibm.com or call 571-228-5133.

© Copyright IBM Corporation 2007