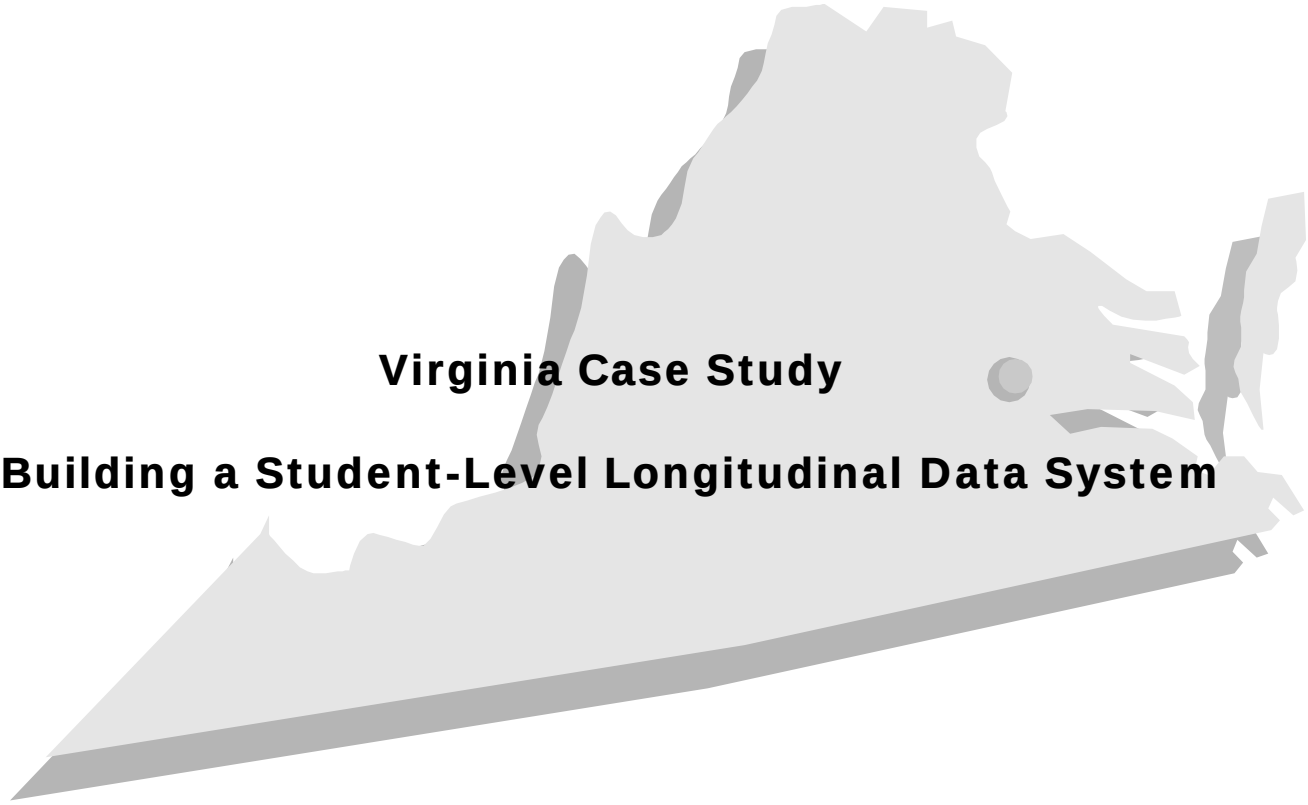
DATA QUALITY CAMPAIGN

Using Data To Improve Student Achievement



Virginia Case Study

Building a Student-Level Longitudinal Data System

Data Quality Campaign

August 2006

The Data Quality Campaign is a national, collaborative effort to encourage and support state policymakers to improve the collection, availability and use of high-quality education data and to implement state longitudinal data systems to improve student achievement. The campaign aims to provide tools and resources that will assist state development of quality longitudinal data systems, while also providing a national forum for reducing duplication of effort and promoting greater coordination and consensus among the organizations focusing on improving data quality, access and use.

To these ends, four site visits were conducted in the spring of 2006 to state education agencies (SEAs) to gather information on their experiences in developing statewide longitudinal data systems: Florida, Utah, Virginia, and Wisconsin.

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Virginia: Enjoying Support

The Virginia Department of Education (VDOE) oversees 132 public school districts (divisions) in which over 1.2 million students were enrolled in the 2005-06 school year. Public school students in Virginia participate in the largest on-line assessment program in the country.

History of Development

Data Collection

Under the umbrella name of Education Information Management System (EIMS), the VDOE has set priorities to meet state and federal reporting requirements and enable stakeholders at all levels of education to make informed educational decisions based on accurate and timely information. The components include: decision support tools for educators at the state and local levels; standard and ad-hoc reporting tools for the VDOE; web-based data loading and data entry capability; secure data transfer to and from educational entities over the Internet; assignment of a unique testing identifier to each student in the state; and training for educators on using information to make better decisions. Virginia is adopting the Schools Interoperability Framework (SIF) specification as their standard for transmitting data to EIMS. The EIMS is not intended to be a school or district-level information management system for scheduling, grade reporting, or attendance accounting.

Online testing is an important component of the VDOE's data collection effort and is the largest online testing program in the country. Testing takes places in the fall, spring and summer, each division setting their own three-week window. The Standards of Learning (SOL) for Virginia Public Schools describe the commonwealth's expectations for student learning and achievement in grades K-12 in English, mathematics, science, history and social science, technology, the fine arts, foreign language, health and physical education and driver education. In 2000, the commonwealth launched the Standards of Learning (SOL) Technology Initiative with the goal of reducing student-to-computer ratios, creating Internet-ready local area networks and high-speed, high bandwidth capability in all schools, and establishing a statewide online testing system. Mandated by the state legislature, a major impetus for online testing was faster turnaround of results. The use of online testing was important due to the volume of assessments and opportunity for retakes in Virginia. According to VDOE staff, paper testing was driving instruction to a crawl.

The testing contractor maintains the assessment data, with five years of data in the Data Warehouse as of the 2005-06 school year. Answer documents are collected on all students, tested and untested. Currently, school-level data can be disaggregated to the strand level, and student level data are available to teachers from 2005 forward.

The VDOE began collecting student level enrollment data at the end of the school year (EOY) in 2002. The Student Record Collection (SRC) is a snapshot enrollment collected multiple times a year [September, March, June, and August with a December count of students receiving services in special education being contemplated].

Unique Identifiers

All data collections are electronically submitted via a single sign-on portal (Single Sign-on to Web Systems, SSWS). SSWS accounts are managed locally. As much as possible, one record layout is used for all data collections, including assessment data. By March 2004, all

of the public school students in Virginia had identifying numbers assigned (SSIDs). Although this process was not entirely integrated into all of the districts at that time, the first records collected with the SSID were at the end of the year in 2005. During the 2005-06 school year, the SSIDs were used for state assessment data collection (State Testing Identifier, STI).

There is a statewide identification (ID) system for teachers in which a unique statewide ID (not necessarily a Social Security Number) is assigned to individuals receiving a teaching license. Currently, teachers can be connected to the courses they teach, but course enrollment or course completion by student is not collected.

Implementation Issues

The General Assembly in Virginia is considered to be a leader in the nation in providing resources for technology and implementation of student information and data collection systems.

The governor supported the statewide longitudinal student data collection effort because of his interest in examining the relationships among teachers' university educations and the subsequent performance of their students. Representatives from a consulting firm met with the governor to discuss the relevant issues and facilitate political support. The State Superintendent supported the effort because of her belief that using data to make decisions at the local level is important – that data should be used for informing instruction as well as for evaluating schools and districts.

Funding was provided by the state to support the effort. Although staff had planned to take a longer time to implement the system, in order to complete the process within the governor's term the VDOE spent one year and three months from the time of awarding the contract to the completion of the assignment. The Request for Proposal was written in August, awarded in December, and work started in March.

A student information advisory group was created to provide reality checks and obtain district buy-in. Ownership of the project was fostered by district representatives being included in and shaping the process.

Virginia was an early participant in the Schools Interoperability Framework (SIF), a non-profit technical standards association that collaborates on developing standards for sharing education data quickly and securely. It was the first state to purchase SIF memberships for each of its districts.

The State Board of Education in Virginia is the state education agency and is the entity that has responsibility for federal reporting. Time for board review and approval must be factored into all calendars and scheduling.

Costs

Estimated costs to the state:

- The cost of the statewide student information system and assessment data warehouse is approximately $3 million per year, plus the cost of staff time at the VDOE.
- Beginning in 2000, from a $360 million appropriation, the Standards of Learning (SOL) Technology Initiative provided funds to schools to build infrastructure to reduce student-to-computer ratios, create Internet-ready local area networks and high-speed, high bandwidth capability in all schools, and establish a statewide online testing system.

Estimated costs to districts:

- School division data system personnel are not currently funded by the state.
- The costs for data submission are rarely funded directly; however, schools are given money from the state to implement the Standards of Quality and they may choose to use the money on behalf of data collection and submission.
- Districts were encouraged to "make friends" with the federal program offices where funds might be available.
- VDOE negotiated a very low price for divisions to expand their use of SIF beyond state reporting.

Benefits and Uses of System

Benefits

- Data integrity has improved. Data are much more likely to be accurate since they are coming from one source, with the addition of assessment variables added at the time of testing.
- Having a consistent record layout for the collections has helped with submitting and extracting data.
- The unique identifier enables the state to account for every student.
- Online testing is much more efficient.

Uses

- The online assessment system provides an introduction to electronic reports for many users. Rather than receiving printed reports from the state or assessment contractor, educators can request what is needed and print it locally, or archive an electronic copy. These changes were somewhat painful at first but are now widely perceived as useful and more efficient.
- Data are checked using statistical procedures to look for unexpected values and large differences from data submitted the prior year. Verification reports are sent to the districts for their review and possible action. Once the data are deemed final by the district, the reports are signed by the district superintendent or director of finance.
- The VDOE does not currently provide student-level data, even redacted, to anyone. Researchers may obtain aggregate level data with small cell sizes (N <= 10) suppressed.
- Once the data become available, requests for information will follow. VDOE staff recommend anticipating this by creating formats early in the process that will allow the data to be accessible and reduce the number of customized extractions required of staff. Consider creating a website with public query tools or forming a partnership with another organization to provide the data following the state department's requirements for maintaining security and confidentiality.

Lessons Learned

Design

- Keep your scope small and have clear deliverables.
- Expect the process to be extremely painful for both districts and the state as they work together to get the kinks out of the system the first year or two.
- Develop a long-term view. The VDOE has a ten-year plan which is implemented two years at a time due to the legislative process.
- Understand that the reality of implementation will be somewhat fragmented.

Maintenance/Change Control

- Provide the flexibility to meet the diverse needs of teachers, principals, superintendents, school board members and other policymakers.
- Creating a set of standards for entering names before the system is implemented can improve the quality of data and help resolve matching of students.
- Publish the data quickly and regularly to improve accuracy.
- Emphasize that policy decisions and instructional decisions are based on data so they have to be the best they can be.

Partnerships

Vendor

- When writing a Request for Proposal (RFP), be as specific in delineating your requirements as possible, and try to have clear expectations between the state and the vendor.
- Be knowledgeable about what you are looking for and have the vendor demonstrate it for you. If you do not have in-house experience, go visit states that do and learn from them.
- Ask the respondents how they would evaluate themselves regarding their success in completing the task.
- Encourage the vendors to be creative in their proposals. Put an open-ended scenario in the RFP and assess the responses. Look for a good mix of specificity, flexibility, and creativity.
- In reviewing the responses to RFPs, "beware the snake oil salesman." A response of "32,000 hits on the website" versus "principals using the reports to inform decisions" is very telling.
- A good RFP response should demonstrate an understanding of education data and the current state of education data systems in the world today. Responses that are overly technical are not the best, nor are well-known "big name" companies necessarily the best ones to do the job. What is required is an understanding of education data collection, submission, and extraction processes from the local level to the state level.
- Look for a vendor who knows more about what you need than you do.
- Work with vendors to identify what is needed at the local level as well as what the state needs.

District

- Work to help local administrators and teachers become better consumers of the data, so that they know how to use them and are not uncomfortable accessing and reviewing reports.
- Nurture the relationships between the people managing the student data and those managing the assessment data at the local level. Both groups need to understand all the components of the data system and how they fit together.
- Try to give districts as much notice as possible for changes and additions to data collection. A good goal is to give districts at least one year of notice as data may need to be collected throughout a full school year.
- Districts should realize that a statewide data tracking system is not going to replace everything that is needed at the local level. "Don't give up on local richness of data but make sure you are consistent in providing good data to the state."

Staffing

- Create a panel to evaluate the responses to the RFP. If possible, include a local assessment director, the state assessment director, IT staff from within the state and from another state, and more educators than IT staff.
- Require experienced staff to be on your vendor team – those who can help shape the products when the state doesn't yet know the answers to all the questions about what they need.
- Cultivate a highly-placed person with credibility to help with the policymakers and bring their understanding of the system along. It is great to have someone in a high position support you and help fill in the gaps of understanding at the upper levels.
- It is extremely helpful for managers to allow staff to take leadership and to pursue different avenues as needed. For example, staff needed to know how principals use data and what training they needed and were given the freedom to put a study together to answer those questions.
- Try to put a mix of advocates and dissenters on the advisory board so you hear all the issues up front and can address them.

Recommendations for Future Development

- Provide "user friendly" access to data for all interested parties – from teachers to the chief state school officer - to reduce the number of *ad hoc* requests currently being filled by VDOE staff.
- To provide continuity over time in content of reports, document the data that need to be compiled for each report.
- Implement a student-level course completion data collection to complete the link between teachers, courses, and students.
- Implement an electronic transcript concept to facilitate moving student information between schools and from P-12 to higher education.
- Implement collection of student-level SAT, ACT and AP data.
- Provide resources to teachers that connect data on student achievement with strategies that can be used to improve instruction.
- Continue to implement the SIF standards.