

Virginia Information Technologies Agency



Virginia School Quality Profiles: Bringing Data to Life

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Virginia School Quality Profiles: Bringing Data to Life

Executive Summary

The Virginia Department of Education (VDOE) has leveraged a full suite of current technology products to update and re-engineer a signature initiative for transparency and accountability. Users from parents to policy makers now easily view and compare performance of Virginia schools via a responsive, accessible website displaying dashboards of current data: www.schoolquality.virginia.gov.

The new School Quality Profiles (SQP) website replaces the agency's 90's-era School Performance Report Cards, which provided static PDFs and Excel spreadsheets. The 2015 General Assembly directed the state Board of Education to redesign the reports. Extensive public outreach preceded and informed design and development.

Today, the interactive website uses visual analytics to demystify school data and render it more accessible to parents and stakeholders. Cutting-edge data visualization and content strategies expose patterns, trends and correlations in vast amounts of data. Millions of historical student records, from internal and external sources, now are used to develop key performance indicators. The reports render on an array of mobile devices and are fully accessible to the visually handicapped.

The SQP demonstrate project excellence through direct alignment with policies and best practices, including those of the governor, legislature, secretariat, agency, school board and NASCIO. The project is a thoughtful marriage of data architecture and information management strategies. The agency now manages its vast amounts of education data as a significant and beneficial asset. Transparency is enabled, while student privacy is protected stringently. Improved visibility into school, school division and commonwealth performance is improved – and now also offers a current view.

The SQP puts data to work, enabling real-time actionable insights that meet state and federal regulatory goals and are useful to elected and appointed officials, agency and school staff, parents and citizens.

Concept

The Virginia Department of Education (VDOE) provides support, guidance and technical assistance to Virginia's 132 school divisions. It is responsible for implementing K-12 policy decisions of the state legislature, governor and state Board of Education.

In the late 1990s, VDOE began publishing School Performance Report Cards to increase accountability for student learning. The report cards presented aggregate data on the performance of students on state tests, safety and discipline, teacher qualifications and other indicators specified by the Board of Education.

The 2015 General Assembly directed the state board to redesign the School Performance Report Cards to more effectively communicate to parents and the public about the status and achievements of Virginia's public schools. The challenge was to replace a 15-year old legacy application that generated PDF and Excel files with user-friendly, interactive reports that would meet the expectations of the legislature, and that could be readily expanded to include new-school performance measures, as dictated by policy development at both the state and federal levels.

To comply, VDOE created an interactive website that uses visual analytics to demystify school data and render it more accessible to parents and other stakeholders:

www.schoolquality.virginia.gov. Project objectives included:

- Jettison the old
- Harness the data
- Embrace technology
- Improve public schools
- Support policy goals

Extensive public outreach preceded and informed design and development. This outreach included a preliminary survey and focus groups conducted by the Center for Innovative Technology, a follow-up online survey conducted by VDOE, multiple roundtable discussions with stakeholder groups, and an extended period of time for members of the public to address the state board.

VDOE safeguarded the privacy of student academic records by supplying only aggregate data to the vendor. In addition, all aggregations and calculations related to state and federal accountability reporting were done by the agency before data was supplied to the

vendor. Extensive data governance was developed as part of the project and includes clearly defined roles and responsibilities.

Creative and technical agency staff collaborated with the supplier to build the SQP from scratch. The team embraced cutting-edge data visualization and content strategies to expose patterns, trends and correlations in vast amounts of data. Millions of historical student records, from internal and external sources, are used to develop the key performance indicators.

The platform leverages open source technology including PHP, MySQL, WordPress, Linux, C3 SVG charting library, and the Zurb Foundation framework.

SQP's custom dashboard was developed to be responsive across multiple devices. The website is in full compliance with state and federal reporting regulations including Section 508, Americans with Disabilities Act, Family Educational Rights and Privacy Act, and commonwealth standards for security, privacy and accessibility.

VDOE implemented a soft launch of SQP in October 2016, including a written and executed communications plan of outreach to policy makers, schools and school districts, statewide/trade media and social media. Video storytelling was used to reach target audiences. VDOE and the superintendent produced a series of videos for the VDOE You Tube Channel:

- School Quality Profiles: Unmasking achievement gaps - <https://www.youtube.com/watch?v=SMmmq19Zigc>
- School Quality Profiles: Bringing data to life - <https://www.youtube.com/watch?v=EYEhln2Nwc>
- School Quality Profiles: School performance beyond SOL tests - <https://www.youtube.com/watch?v=k2wALJuMiBI>
- School Quality Profiles: A new level of accountability - <https://www.youtube.com/watch?v=XdbTvdsp-il>
- School Quality Profiles: A clearer and deeper look into school quality and performance - <https://www.youtube.com/watch?v=tJStjustl>

User feedback during the soft launch led to several functional improvements to the user experience while navigating the website.

Significance

VDOE's School Quality Profiles demonstrate a thoughtful marriage of data architecture and information management strategies to make public data more transparent, meaningful and useful.

Through use of a visually pleasing and technically masterful website, dashboards demystify school data and make it more accessible to parents, school management, policy makers, elected officials, citizens and other stakeholders.

The SQPs reflect the objectives of Gov. McAuliffe's Executive Directive #7, "Leveraging the Use of Shared Data and Analytics," and his stated priorities as published on <https://governor.virginia.gov>:

- Achievement Gap: Improve educational success in struggling schools; expand access to quality early education for all children
- K-12 Education: Promote great teaching and learning through accountability reform, emphasize creativity and critical thinking skills, and strengthen support for teachers and educational leaders
- Transparency: Collaborate across secretariats to improve citizens' access to government data and decision-making processes
- Innovation: Pursue innovative strategies to increase government efficiency or to reduce government costs for needed services
- Fiscal Stewardship: Manage public resources efficiently and effectively in challenging economic conditions
- Cyber Security and Upgraded Technology: Enhance current technology platforms and infrastructure while protecting all data
- Accessibility: Encourage user-friendly online services for all citizens

The SQP project aligns with NASCIO's Top Strategies, including: Security and Risk Management; Consolidation/Optimization; Cloud Services; Budget, Cost Control and Fiscal Management; Legacy Modernization; Enterprise IT Governance; and Data Management and Analytics.

Benefits

Today, VDOE manages its vast amounts of education data as a strategic asset. Cutting edge strategies and solutions now use, process, and manage data.

Transparency of that data is enabled, while student privacy is protected stringently. Improved visibility into school, school division and commonwealth performance is made universal and public.

The SQP puts the data to work, enabling real-time actionable insights that inform state and federal regulatory goals and are useful to elected and appointed officials, agency and school staff, 1.25 million students and their parents, media and citizens.

Interactive graphics enable over 265,000 data comparisons at the school, division and statewide levels. Each can now be used to tell a richly illustrated story to the public about student achievement and school performance over time.

“Snapshot” reports and detailed presentations are organized by topics - accountability, assessment results, enrollment, finance, learning climate and teacher quality. Multiple user-driven navigation avenues provide a unique experience for each visitor.

Sharing is fast and simple. With a click, SQP graphs and tables can be posted into reports and presentations, and on any number of social media outlets such as Twitter, Facebook, Google +, email and more.

User feedback during the soft launch was used to expedite functional improvements to the user experience while navigating the website.

SQPs can be accessed on an array of mobile devices and are fully accessible to the visually handicapped. The reports are Section 508 compliant, satisfy all the Virginia state IT accessibility requirements and Virginia.gov state website standards, and meet Americans with Disabilities Act (ADA) standards for accessible design. Improved visibility into school, school division and commonwealth compliance with federal Section 508 and ADA requirements is a helpful by-product.

Use of open source tools reduced licensing and development costs. Hourly rates for open source developers also generally are lower and more candidates are available for open source than for .NET.

Development and posting of VDOE’s SQP video on YouTube created communication opportunities for the schools – reinforcing a better informed citizenry. For example, Salem City Schools, in Salem, VA, posted DOE’s SQP video on its own website:

<https://www.salem.k12.va.us/vdoe-school-quality-reports/>

Public interaction with the SQP site since Oct. 31, 2016 has been lively:

- 50,898 sessions
- 34,985 unique users
- Average 5.02 pages per session with 4:06 minute duration average

Future uses now are being developed. The system has already proved that it can effectively query performance of public schools. Soon, it will be used to face challenges that are known to impact learning and achievement.

For example, the state Board of Education is in the process of revising the commonwealth's accountability standards and is considering use of chronic absenteeism as a measure of school quality. The SQP introduce this potential accreditation factor to the public as an interactive pie chart displaying percentages of students absent for each school, school division and the state as a whole.

The state board also already has identified additional reports to be added, including: gifted education programs, average class size and statistically valid surveys of students, teachers and other school employees.

Recognition for project excellence has begun. As this narrative was being completed, the Richmond Technology Council presented its public sector "Innovation in Utilization" award to the Virginia Department of Education for School Quality Profile reports. The annual award recognizes the creative use of existing technology to enhance processes, methodologies and/or services for the benefit of an organization or the public.

The SQP has enabled VDOE to better prepare for compliance with changing federal regulations, especially as states are submitting responses to the new regulations set by the Every Student Succeeds Act (ESSA).

Virginia's SQPs have enabled transparency and informed decision making. They have brought education data to life and made it accessible and useful. Based on this success, the Virginia Department of Education is committed to continuing its path towards more open government, school improvement and support of policy goals.