



Early Indicators: Using Data to Keep High-Risk Students in the Classroom

The Spokane School District Story

We count on our educators to help students make sense of all sorts of information, but how can school districts help educators make sense of the information they have about their students? Our teachers' inboxes are clogged with everything from grade reports and attendance records to discipline reports, SAT results, state assessments and survey data. As every teacher and principal knows, there is massive divide between receiving static data from disparate sources and putting the pieces together to improve education and help individual students.

The Spokane Public School District has spent the past few years developing a breakthrough solution to this problem. Using Tableau Software, Spokane now provides educators with web-based data dashboards that integrate multiple data sources to track performance goals and priorities in near real-time, using an intuitive visual interface that highlights trends and outliers. For the first time ever, teachers and administrators have a clear and holistic view of what's really happening with their schools and students.

Spokane's most exciting project so far is the Early Warning System, designed to reduce student dropout rates. The interactive dashboard they've created correlates live student data with known risk factors, allowing educators to identify students who are at risk of dropping out as early as the third grade. The system has garnered enthusiastic attention from NPR and The Seattle Times, and it will soon be replicated throughout the state of Washington.

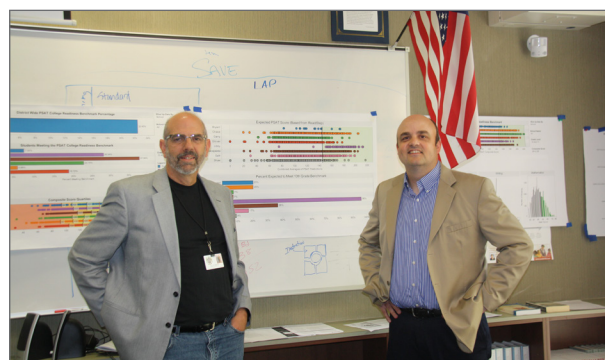
"I really believe that data has the power to drive change," says Steven Gering, Chief Academic Officer for Spokane Public Schools. "It gets people focused on what we need to do and why we need to do it. It leads to thoughtful decision-making and action. It gets us moving in a way that nothing else can."

Spokane is the second largest school district in the state of Washington, serving nearly 30,000 students. The district has 34 elementary schools, 6 middle schools, 5 high schools and about 3,500 employees. Spokane's poverty rate is higher than the state average,

and many schools are struggling. Just three years ago, one in three students at Rogers High School didn't graduate. Reducing dropout rates is a top priority throughout the district.

"Our goal is to keep kids in school and give them the highest quality education, so that they'll have choices in their lives," says Gering. "We want every single one of our kids in Spokane Public Schools to be able to support their families and be productive citizens in our society."

This is the story of how visual data is helping Spokane tackle that goal.



Marty Robinette, Assistant Principal at John R. Rogers High School, and Steven Gering, Chief Academic Officer at Spokane Public Schools.

The Problem of Data in Education

Most educators agree that data is critical to understanding and solving problems. But before turning to Tableau, Spokane faced numerous data challenges that are common across the educational system:

- **Overwhelming reports.** Especially at the administrative level, educators received massive volumes of reports that they were expected to somehow sift through and use. Each report addressed just one small piece of the overall picture.

- **“Dead” data.** Because of the time it took to create Excel spreadsheets or printed reports, educators often didn’t see data for at least 30 to 60 days, making it very difficult to identify or respond quickly to trends. Reports were essentially “dead” as soon as they were produced and had to be recreated with each new test, survey, assessment, or other data collection event.
- **Disconnected data.** Data from various reports were rarely correlated. Educators had to spend hours creating their own spreadsheets to get even a vague idea of what it all meant for their individual students and schools.
- **Multiple data sources.** Data are created and distributed through multiple systems at the school, district, state, and national levels. Integrating information from all these systems can be a significant—and expensive – technology challenge.

In short, computer data was not meeting the human need in Spokane. The resources spent attempting to process information were not being used effectively, and the insights that trickled down to educators were far from holistic or actionable.

Taking Control of Data

Making data a genuine driver of understanding and change in Spokane has not been an overnight process. Using Tableau to aggregate data and make it visual was an important first step, but the key was putting it directly into the hands of educators.

“We had Tableau for two years,” recalls Gering, “but we couldn’t get it to take off until we added the web-based tool. Now they can alter their data and play with their data. That’s what really got folks excited.”

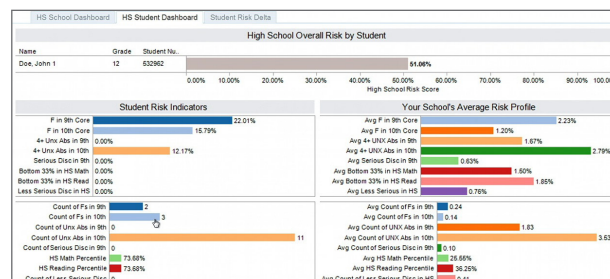
Spokane’s new approach to data includes these transformative features:

- **Accessible.** Every administrator and teacher in the school district can log in to Tableau. A secure

user authentication system ensures that each user will only see data for students they actually work with.

- **Timely.** Data dashboards draw on live data sources and are updated as new data comes in, usually within 24 to 48 hours. Attendance and discipline data are updated automatically every evening.
- **Visual.** Instead of columns of numbers, educators see data translated into colorful charts and graphs, making it much easier to identify trends and problem areas.
- **Interactive.** Educators can click through multiple levels of information to ask and answer their own questions. They can compare themselves to other schools in the district, focus on a particular time period, or drill down to a single grade level or individual student.
- **Actionable.** Making data easy to see, understand, and explore is all just a means to an end. “We’re really trying to shift our educators into doing the work they’re trained for and not having to spend hours and hours creating spreadsheets,” says Gering. “We want people to be able to act on the data.”

Spokane’s Early Warning System demonstrates how smart data can make a real difference for students. The system is based on a researcher’s analysis of 7,000 former students, which showed that about 86% of dropouts had early warning signs, or what Gering calls



The Spokane School District tracks an individual student's risk of dropping out of school.

“tipping points.” Specific “tipping points” were identified for third through sixth grade, middle school, and high school. In high school, for example, the biggest risk factor is getting an F in 9th grade. A student with one F in 9th grade is three-and-a-half times more likely to drop out than a student without. Spokane’s system analyzes student data daily to identify risk factors as they arise and display them visually.

If warning signs are recognized early enough, educators have a good chance of getting students back on track. When warning signs start piling up, a student’s chance of graduating reduces greatly. The Early Warning System provides an unprecedented advantage by allowing educators to identify those students in trouble before it’s too late.

The Results: One Student at a Time

It will still be several years before Spokane fully understands how the Early Warning System impacts dropout rates, but now that they can pinpoint at-risk students, educators can place their full attention on discovering the most effective ways to intervene.

Meanwhile, Spokane’s new approach to data is stimulating fresh energy. Gering reports that teachers, counselors, and administrators are delighted by how much time they saving with the new system, and they’ve begun to grasp its full potential. He’s receiving requests for additional types of visualizations, as educators realize they can now answer all sorts of questions that have eluded them in the past. And he’s able to respond to those requests quickly, because the district’s Assessment Department is no longer wasting time creating and recreating the same old reports.

There have also been unexpected benefits. As administrators gain a deeper understanding of exactly where students are struggling, they’re able to use that information to coach teachers more proactively. As one Spokane principal discovered, Tableau often changes

the dynamic of these conversations from defensive to productive. “You can imagine that the conversation doesn’t always go well when a principal walks into the classroom and delivers feedback that a teacher isn’t being effective. But when you bring in data that intelligently summarizes the situation, teachers instantly become more engaged. They naturally begin to problem-solve.”

Looking Ahead

For teachers, counselors, and principals, the fight to keep kids in school will continue to be a top priority. Having the Early Warning System in place allows them to identify at-risk students quickly. The real question now is how to support those students and keep them in school. As Gering asks, “How do you wrap your arms around these kids and get them back on track before it gets too far down, and then it’s much more difficult?”

If they can answer that question, Gering believes Spokane has an excellent chance of achieving single-digit dropout rates. “That’s our big goal,” he says. “Using these tipping points in a smart manner and keeping kids in school, that’s really what we’re about.”

About Tableau

Tableau Software helps people see and understand data. Ranked by Gartner and IDC as the world's fastest growing business intelligence company, Tableau helps anyone quickly and easily analyze, visualize and share information. More than 10,000 companies get rapid results with Tableau in the office and on-the-go. And tens of thousands of people use Tableau Public to share data in their blogs and websites. See how Tableau can help you by downloading the free trial at www.tableausoftware.com/trial.