

White Paper: November 2008

Driving the Cycles of Inquiry: Using Data to Develop “Understanding Before Action”

Introduction:

San José Unified School District

The notion of Cycles of Inquiry was initially introduced in the area of scientific research, but the process has increasingly found a home among school districts needing to improve student performance among all groups. Such inquiry processes—which take constructive action based on critical dialogue, review of available data, and an examination of current and best practices—offer a more rigorous and systematic approach to addressing school improvement. An inquiry approach to continuous improvement puts the emphasis on understanding before action, rather than encouraging the rapid adoption of interventions that may appear appropriate at first blush.

A deliberative approach such as Cycles of Inquiry does run the risk of colliding with the need for speed in schools. In the final analysis there is only so much time available to bring any given cohort of students to mastery in key knowledge and skills. Students who do not learn this term’s curriculum may have difficulty finding opportunities to learn it in the future. In order to have a real impact on student achievement, educators must be able to rapidly form sound impressions based on assessment data so that they may move into the further steps of the inquiry cycle.

This paper will examine the ways in which the Cycles of Inquiry approach creates a demand for new data procedures, structures and technologies within schools and districts. It will focus on the experience of San José Unified School District, which has adopted this school improvement approach with great success.

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Cycles of Inquiry, Cycles of Improvement

As applied to education, the Cycles of Inquiry process requires teachers to:

- Focus on a high priority student achievement problem.
- Pose questions about the cause of student achievement gaps in this focus area.
- Implement strategies to address the gaps.
- Analyze data to determine the effectiveness of their strategies.

Cycles of Inquiry often focus on students who have been traditionally marginalized in schools. In California, for instance, the groups that most often score in the bottom 25 percent on achievement tests are Latino, African American, Filipino, Pacific Islanders, economically disadvantaged children and English Language Learners. Typically, educators begin the process by examining student achievement data, including diagnostic assessments, to determine which students are struggling in which areas. Because inquiry also looks for links between what teachers do and what students achieve, many schools adopt and give more frequent assessments. This allows teachers to better diagnose students' needs and fine-tune classroom strategies before students move on to the next grade.

Cycles of Inquiry at San José USD

Located 50 miles south of San Francisco in the heart of the Silicon Valley, the San José Unified School District (SJUSD) is one of 33 districts within Santa Clara County. Embracing the major portion of the city, SJUSD spans a geographic area of over 100 square miles. San José is a public unified K-12 district. As one of the large urban school districts in California, SJUSD has 27 elementary schools, six middle schools and seven high schools.

To ensure that SJUSD continues to address its strategic challenges, meets and exceeds federal and state targets and regulatory requirements, and achieves its strategic goals, the district uses a Continuous Improvement System (CIS). In its seventh year of implementation, the CIS has four elements: (1) strategic planning, (2) measurements and targets for every function, (3) department and site plans aligned to the district goals and measures, and (4) Plan-Do-Check-Act (PDCA) processes and Results-Oriented Cycles of Improvement (ROCI).

The Strategic Plan includes the district's Vital Priorities and annual district updates on key performance measures. Formative/Summative or In-process/End-process key performance measures are assigned to all Strategic Plan goals and Vital Priorities. Measures are reviewed regularly by senior leaders along with department and site staff in retreats, reflection days and staff meetings throughout the year. Student achievement measurements are tracked in the district's state-of-the-art databases. Data can be aggregated and disaggregated at the district, school, subgroup, grade and individual student level. All department and school site plans, initiatives and measures are aligned to the targets and measures of the Strategic Plan, which are in turn aligned to state and federal targets and mandates.

From those plans, managers create and conduct PDCA cycles of improvement on key initiatives and processes. Schools use PDCA/ROCI improvement cycles in which grade level teams analyze data after each benchmark assessment. Based on their analyses, these teams create and implement instructional plans and then review the plans and students' progress after the next benchmark assessment. This process enables teams to make adjustments in future curriculum pacing and instructional strategies and allows them to identify students who need additional support. School administrators then leverage school resources to assure that student success is realized for every child no matter their current level of performance. Administrators are evaluated on the attainment of district, site and department level goals and measures.

Continuous improvement is integrated into all of the district's operations and has been a successful approach to SJUSD's performance improvement. According to Marcy Lauck, SJUSD's Manager of Continuous Improvement Programs, Cycles of Inquiry are based on formative benchmark assessments administered to all students every six weeks—a total of 530 assessments across the district in the course of the year.

This constant cycle of assessment and response "makes a huge difference," Lauck says. "Schools that run tight cycles of inquiry around their data—creating plans for each six week cycle—have been able to make double-digit gains in performance for English Language Learners (ELL). Those schools consistently score highest in the county for improvement. They're doing a phenomenal job with disadvantaged students."

Turning Data Into Information

To help manage and make sense of all this data, the district recently adopted a set of data storage and analytics tools from Follett Software Company. First among these was TetraData® Warehouse, a strategic data platform that integrates and stores data from administrative and educational systems, enabling comprehensive and customized data analysis and reporting. Student demographic information, state test scores, district quarterly assessments, staff demographics and certification levels and more are fed into the data warehouse, where different sets of data are mapped onto each other so that integrated reports can be generated. As a result, the district can provide a constant stream of timely feedback for teachers, and for school-based data teams that make decisions on instructional interventions and teacher coaching.

With TetraData Analyzer™, San José queries the data warehouse to easily compare data that would normally reside in disparate systems throughout the district. The application allows staff to access and analyze data with an intuitive drag-and-drop functionality and a wizard-based step-through interface, providing simplified access that helps transform data into actionable knowledge. The TetraData Analyzer application allows for a number of advanced data operations without the need for complicated programming:

- Longitudinal analysis for a student or group of students.
- State, district, school and grade population counts by ethnicity, gender, lunch type, a variety of special programs, vocation or other dimensions.
- Analysis of the program participation of students who meet or do not meet specific standards.
- Scholastic and student trend information analysis in graphical or charted data views.
- Ad-hoc query capabilities ranging from state- or district-wide trends to specific student records.

According to Lauck, data centralization has done more than simply provide fast answers to familiar questions; it also leads staff to think about information in new ways. "When your data isn't centralized, you don't always even know what's possible in terms of how you organize a report. When you have the ability to quickly produce almost any kind of report you want, you have to start asking staff what they really want to see. We

found that in the past, our staff often didn't ask certain questions because they assumed it wasn't possible to get the answers."

One example of this expanded awareness emerged as the district began to examine test scores for ELL students, something the TetraData solution made technically easy to do. The instruction and assessment programs for ELL students varied from school to school. Some offered structured English immersion and sheltered instruction, and their ELL students were administered benchmark tests in English. Other schools offered an Academic Language Acquisition program, in which students were instructed in Spanish, and also took their benchmark in Spanish. Producing unified reports that meaningfully combined the results of benchmarks in two different languages proved to be a hurdle. "The complexity has been very challenging," Lauck said. "But we've come up with some good models based on all of the feedback we've received from teachers and other staff. We just kept revising them until we had what we wanted."

Using Information for Improvement

The use of data-driven Cycles of Inquiry has made a major impact on student and school performance in San José USD. "As a result of our data work, we are reversing the trend of schools going into Program Improvement," said Lauck. "In 2006 our first school came out of PI [Program Improvement], and their data work was pivotal to that effort. The next year, we learned that four more of our most challenged elementary schools exited PI. A sixth school exited PI in 2008. And again, having timely access to data is what has made these gains possible."

"Given the right data and tools, teachers are able to skillfully support increased achievement of even the most at-risk students," Lauck said. "For example, they are moving, on average, more than 50 percent of their students out of Far Below Basic on the California Standards Test and similar percents of students out of Below Basic and Basic into Proficient. Not surprisingly, their teaching practices are focused on well-defined Cycles of Inquiry based on data."

Lauck said that the information the school data teams receive from the TetraData Warehouse gives them the tools they need for school improvement. "They know precisely how students are progressing and how to regroup them according to their needs. Using the longitudinal capabilities of our warehouse, we also have been able to identify those extraordinarily skilled teachers whose students consistently make strong gains. Even more exciting is that we will be using the technology and observation decks of our Professional Development School this year to videotape some of these teachers in action so that we can disseminate their best practices as models throughout the district," she said. For instance, the percent of second-through fifth-grade students at Proficient and Advanced levels in the California state benchmarks in the 2007-2008 school year was actually 16 percent higher than the district's AYP target.

San José USD has also received recognition across the state and nationally for its achievements. Editorial Projects in Education, a national nonprofit research group, recognized SJUSD as having the second highest graduation rate among the 50 largest urban school districts in the nation. SJUSD's high school student graduation rate is 93 percent compared to graduation rates of the County (84 percent) and State (83 percent). Yet the district is able to maintain these high graduation rates despite having extraordinarily rigorous graduation requirements. "In order to graduate from SJUSD, our students must complete the course requirements for entrance into the University of California/California State University system," Lauck explained. "But as we discovered, when we set the goals high and provide students with the supports to meet them, they can do it. Setting high expectations is critical, but equally important is to ensure our data is timely and aligned to those goals so that students, teachers and administrators have the information they need to accomplish them. Otherwise you just have random acts of improvement."

- Since 1999, SJUSD has closed the achievement gap between white and Hispanic students by 37 percent.
- SJUSD recognitions include 34 California Distinguished School Awards, 11 National Blue Ribbon Awards, one New American High School Award, one 21st Century School of Distinction Award, six California Association of Bilingual Education Seal of Excellence Awards, including one for a Model District, a CA Model Continuation High School award and one Leader School for Service Learning award.

Closing the Gap

The district's gains have been so impressive that in 2007 State Superintendent Jack O'Connell chose one of its schools—Lowell Elementary—as the site of his annual press conference to announce state test scores. The school had raised its Academic Performance Index score by 42 points in one year, posting huge gains for its most challenging students: 41 points for Hispanic students, 47 points for Title I students and 59 points for English-learners. "That's incredible," O'Connell said at the press conference. "That's our definition of closing the achievement gap." The district has since received visits from state legislative policy analysts to learn more about what they consider to be an exemplary use of data-driven decision making in schools.

Summary

The Cycles of Inquiry approach to continuous school improvement encourages educators to make sure they have thoroughly understood the factors behind student performance before adopting interventions to address it. Yet in real world schools, interventions must be put in place rapidly if they are to have any meaningful impact on a student's achievement by the end of the school year. This potential conflict—the need to develop "understanding in a hurry"—can only be addressed through the implementation of advanced data technologies, along with the staff training and organization required to make the best use of these tools. However, as the experience of San José USD illustrates, such solutions are indeed available and practical. If adopted and rigorously applied, they can allow schools to rapidly close the achievement gap among economically disadvantaged, minority and limited English proficiency students.



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