

Building Capacity for Continuous Improvement: The Role of School District Data Systems

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Background: A Data-Focused Policy Context

The federal No Child Left Behind Act (NCLB) has brought a new focus on annual testing of students and on collecting data on student progress. Annual improvement targets have brought a heightened level of accountability for improvement of performance by all student subgroups as schools (and, ultimately, school districts) that fail to meet improvement targets become subject to various interventions and sanctions. The success of this new system is directly dependent on the ability of states to collect, analyze and report data.

Despite this policy focus on data, California has moved relatively slowly to build a state data system that reflects the entire package of NCLB requirements and that tracks all of the state's 6.5 million students. The California School Information Services (CSIS) currently assigns a "unique student identifier" to each student in the state and maintains a database that contains basic demographic and program participation data. The unique student identifier makes it possible for the first time to connect this information with the assessment data that is currently housed at the California Department of Education (CDE). In order to provide functionality for the state, a new longitudinal database must be designed and built to analyze this data. This new system – called the California Pupil Achievement Data System (CALPADS) – is scheduled to be launched in 2009.

CALPADS will be useful – but it is designed to serve many goals. The recent Request for Proposals released by the CDE for CALPADS calls for an initial focus on building a system that will support reporting for NCLB purposes, with relatively fewer resources allocated to feeding data back to school districts in ways that are useful for school and district decision makers. A second phase for CALPADS is envisioned that would focus more attention on data to support local improvement efforts, but this is clearly viewed as a secondary purpose. In a resource-limited environment, there is good reason to fear that these goals will get short shrift.

As an organization which works with school districts to build their capacity to use data to guide improvement efforts, Springboard Schools finds this situation to be cause for concern. We know how important it is for leaders at all levels of the system to have access to data that will inform their work. Excellent data systems are essential support for the effort to raise achievement for all students and close the achievement gap. However, while state data systems can inform the continuous improvement of *policy*, it is only local

systems that can provide the fine-grained data necessary to inform the continuous improvement of *practice* at the school and classroom level.

Local Data Systems: The Current State

Data systems currently in place in most California school districts serve five discrete functions. In most districts, the result is separate – and often disconnected – systems.

1) **Accounting systems track resources and expenditures.** California’s many categorical programs make financial management complex, but guidelines and expectations for these systems are relatively well-developed. *Missing in many cases are the connections between accounting systems and other data systems that would allow us to determine the how expenditures are impacting instructional practice and student achievement.*

2) **Student information system (SIS) are the interactive systems used on a daily basis for tasks such as attendance accounting and maintaining classroom rosters.** Most districts purchase off-the-shelf programs from private sector vendors for this purpose. Like accounting systems, the SIS systems are a key part of the data flow that generates and tracks funding and this ensures that maintenance of these systems is a priority. *These systems may be connected to assessment systems, but other key connections are often missing.*

3) **Assessment systems allow districts to manipulate data from state tests and often also provide a way to enter and display data from local assessments.** Some large districts have invested in creating their own systems, but many medium-sized and smaller districts purchase an off-the-shelf product. *Some of the systems available for purchase are quite sophisticated, and many features may go unused because of lack of funds and time for training.*

4) **Human resources systems that track data about teachers and teacher qualifications.** These systems are required for reporting on the “highly qualified teacher” requirements of NCLB. *These systems are almost always separate from the others. Often this disconnect reflects a concern about potential inappropriate use of student data for teacher evaluation.*

4) **Data warehouses store longitudinal data generated by, and make data available to, the other systems.** Data warehouses allow districts to track information about students over time. *In most cases data warehouses do not include data on financial resources, human resources, student services, and education services.*

Every district needs a data system that supports all of these functions and in the ideal case all of these components would be linked together into an integrated data system. However, the state has not provided separate funding to help districts purchase computers or software for what have traditionally been classified as administrative purposes, and as

a result, school districts in California have largely operated on their own in developing such systems. Years of lean budgets and the oft-repeated promise to “keep the cuts far from the classroom” have led to delays in building data infrastructure in many districts. Even in those districts that have invested in data, the first priority is almost always on building systems that generate required reports rather than systems that support continuous improvement, and California’s large number of highly-specified categorical programs helps ensure that state reporting is complex..

In general, these factors combine to ensure that many districts will continue to struggle to use data to inform their local improvement process. The variations in the quality and usefulness of local data systems constitute a significant equity issue for students who attend districts with limited data capacity.

Next Steps for School Districts

Improvement requires that teachers and principals have access to the kinds of summative data on progress that is provided by the state assessment system, but teachers also need formative or diagnostic data on what their students know and what they need. This means that both district and school leaders are especially interested in fine-grained data on student performance and progress in targeted standards-based subject areas, topics, processes, and skills. Such data may come from “benchmark assessments” which track students’ progress toward standards; or from curriculum-embedded assessments, which assess students’ mastery of the curriculum; and/or from diagnostic assessments which may focus on sub-skills such as reading fluency. Any of these tests may be invented locally by teachers but more often are purchased either as part of the curriculum materials, as part of the data system, or as a stand-alone assessment system. Whatever the source or type of test used – and there are advantages and disadvantages to each – fast feedback loops are crucial. To be most useful to teachers, data needs to be available quickly and just good enough to inform the next lesson and to indicate what kind of support is needed by those students who are struggling.

Moving from a system that is focused on compliance and reporting to one that is focused on continuous improvement requires investing in both technical systems and in human ones.

Essential investments in the capacity of the system include:

1. Building the technical infrastructure

If all district systems should be aligned to support high quality instructional practice, then good data systems must link fiscal, administrative, and assessment data services and build the ability to track longitudinal data to determine the impact of all work on student achievement.. District budgets must be restructured to ensure sufficient resources are available for both short term and long term data needs. For this to be possible, data

systems must be re-understood at the local level not as “administration” or “bureaucracy” but as key elements in a continuous improvement process that is focused on teaching and learning. The “silo” approach to data management must be replaced by a much more integrated system and districts must make a set of important strategic decisions about which of the many important links between separate systems they will build first.

2. Adopting assessments that will provide teachers with useful data on student learning.

Teachers need to have easy to use access to data on student learning that enables them to see connections between instruction and student achievement. Unless the assessments being used to populate the data system are valued by teachers, it will be difficult to create and maintain the political consensus needed to invest in the data system. For this reason, building the system primarily around the goal of providing analysis of the CST – which was never designed as a diagnostic measure for teacher use – is probably not the best approach.

3. Using the unique student identifier as part of a system that connects a number of data fields with individual students.

Disaggregating data by student subgroups, once controversial, has become the norm in public education. The new cutting edge is the ability to use the student identifier to track individual students and investigate more complex questions and issues. We are moving from asking questions like “what are test score trends for Hispanic eighth graders and how do these compare with trends for other ethnic groups?” to questions like “how do results for students who have been in the district for at least three years compare with results for newcomers?” or “how do results for students who participated in the after school program compare with results for similar students who did not?” The ability to answer questions about “value added” by particular budgetary actions, human resources decisions, educational programs or instructional practices is an important and achievable goal.

Investments in the capacity of the people include:

1. Building consensus and developing a plan for an integrated data system that supports continuous improvement

Both local decision-makers and the end-users of the district data system need to have a role in shaping a multi-year plan to develop it. School board members and superintendents play a key role in advocating for and planning for local data systems, while teachers and administrators play key roles in ensuring that the resulting system is useful for the central goal of improving teaching and learning.

2. Funding ongoing high-quality professional development and technical assistance, and building in time for teachers to work together

Staff development and training must be provided to enable administrators, teachers, clerical staff and other personnel to develop role-appropriate skills in administering assessments, using the technology, interpreting the data, and, for teachers, adjusting curriculum and/or instruction to respond to the needs that emerge. In the highest-performing, high poverty schools in the state, grade level or department teams of teachers meet in regularly-schedule collaboration time to review data from local assessments, to compare results, and to talk about implications for curriculum and instruction.

3. Creating new roles for district data coordinators, school based “data mentors” and coaches who can help teachers understand the data and make needed changes in their instruction.

Many districts and schools lack the technical skills needed to design and maintain data systems, and even purchasing “off-the-shelf” products from vendors is only a partial solution. Investing in technical assistance is essential. So is investing in building capacity for data use: many districts are experiencing success with creating teacher leader positions charged with taking on important roles in data analysis and in helping their peers understand and use data.

Conclusion: Recommendations for state policy

There is an emerging consensus in California that investment in the state data system is overdue. Still, the equally important role played by local data systems is less widely appreciated. Ultimately, though, the continuous improvement of teaching and learning can only happen at the local level and local data systems are a crucial tool in achieving this goal. State leaders need to move now to take coordinated action on two fronts:

Recommendation one: Build a state data system that also supports continuous improvement at the local level. This means:

1. Invest the resources to develop an integrated statewide relational database designed both for reporting to the federal government and also to support local use. Delaying the investment in creating a state system that will be useful to local users is shortsighted.
2. Create an advisory group that brings together experts from districts that are effectively using data to inform and support the design and construction of the state data system from the outset.
3. Build on the beginning work of the California School Information Services to create web-based training to help districts understand and use the emerging state data tools.

Recommendation two: Make a parallel investment in local data systems

1. Provide earmarked funding for districts seeking to develop, upgrade or maintain local data systems. Earmarked funding is essential to ensure an adequate level of investment in improvement infrastructure; however, this funding source can and should remain relatively flexible and not be over-regulated.
2. Target funding first to those districts with the least functional systems, but include incentive funding for districts with good systems who are seeking to “push the envelope” and improve good systems. These districts will be an important source of lessons learned and best practices.
3. Develop a set of guidelines for developing effective data systems and providing the professional development needed to support meaningful data use and ensure that these are reflected in guidelines for school district technology plans. The work at the national level of the “Data Quality Campaign” provides one model for encouraging better data systems without resorting to regulation.
4. Review the role of County Offices of Education in developing and supporting local data infrastructure for small districts.
5. Develop and support a “best practices clearinghouse” effort to identify and disseminate models of good local practice for using data and a “consumer reports” type review or buyers guide for districts purchasing off-the-shelf software packages.

About Springboard Schools and Sources for this Policy Brief

Springboard Schools is a nonpartisan, nonprofit organization whose mission is to work with education leaders to generate and put to use the knowledge needed to improve teaching and learning for all of California’s children. Springboard conducts research and provides research-based professional development and on-site coaching to partner school districts across the state. The recommendations of this Policy Brief are drawn from twelve years of experience as a reform support provider and from a research paper published by Springboard Schools as part of the “Getting Down to Facts” study commissioned by the Governor’s Committee on Education Excellence and the Superintendent of Public Instruction. For more information about Springboard’s paper and other Springboard research, see our website at www.springboardschools.org. For more information about the full study, go to www.irepp.stanford.edu.
