



The Numbers We Need

Bringing
Balanced
Scorecards to
Education Data

If states and school systems focus single-mindedly on collecting data on student achievement, they will not have the tools they need to diagnose problems or manage improvement. Trying to pursue data-driven reform without essential operational and performance data is a recipe for frustration.

By Frederick M. Hess and Jon Fullerton

Successful organizations monitor their operations extensively and intensively. UPS and FedEx know where every package is in transit. Dell is famous for running an extremely tight supply chain, pushing the cost of holding inventory onto its suppliers by ordering only what it needs when it needs it. Baseball teams employ sophisticated statistical analyses in making personnel decisions.

Yet, few school districts understand their true costs of recruiting a new teacher. Few can determine whether one professional developer is more cost-effective than another. Few can reliably assess the efficacy of particular programs or staff.

One consequence is that school systems focus single-mindedly on the few metrics they do have — test scores and expenditures. Even districts that tout themselves as “data driven” often mean only that they

can break out test scores by teacher, subject, or student population.

Districts need reliable measures that illuminate performance in human resources, procurement, data management, and other areas. Tracking the appropriate indicators can enable leaders to revolutionize how schools work, how they support educators, and how they spend dollars.

ACHIEVEMENT DATA ISN'T ENOUGH

Over the past 10 years, there has been a concerted push to hold schools accountable for results by looking principally at student achievement data. Districts have been pushed to collect more of this data than ever before. Many suggest we're on the verge of a management revolution in using data to drive achievement. However, while the data most useful to parents and policy makers are often simple data on assessment results and graduation rates, the key data for district officials are measurements that shed light on why those results look like they do and what might be done about them.

Relying too much on achievement measures presents some fundamental problems. For one, they're often irrelevant to managing. Does it really make sense to hold a payroll processor responsible for reading re-

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sults? Wouldn't we rather hold her responsible for the speed and accuracy of her work? By focusing so relentlessly on student achievement, especially in just a few domains, many employees (including teachers in untested subjects) are either excused from results-driven accountability or held accountable for things over which they have little control.

Second, it's easy to give short shrift to the operations, hiring, and financial practices that support schools. We scarcely notice them until something goes awry. However, focusing on "instructional leadership" is difficult when the hiring process assigns instructors to schools with little time to prepare, when texts and supplies aren't delivered, or when teachers must wait weeks or months for assessment results.

Finally, student achievement data alone will not allow organizations to diagnose problems and manage improvement. If math scores are disappointing, why is that? Is professional development the problem? Is hiring? It's as if a CEO's management dashboard consisted of one item — the stock price. In fact, given the state of most student achievement data systems, the better analogy is to last year's stock price.

Education leaders should take a page from the "balanced scorecard" approach that has reshaped how private and public sector firms have approached data and management. Developed in the early 1990s by Robert Kaplan and David Norton, the balanced scorecard provides a quick but comprehensive view of performance. It includes standard financial metrics that reflect past and current success but, crucially, complements these with metrics on customer satisfaction, internal processes, and the organization's learning and innovation capabilities.

Relying solely on financial metrics too often led firms to sacrifice long-term viability in favor of short-term gains. Well-designed balanced scorecards develop a clear link between operational metrics and the "bottom line." Ideally, they bring together many disparate concerns, such as improving customer relations, boosting product quality, investing in R&D, and developing employees (Kaplan 1992).

MAKING DATA-DRIVEN MANAGEMENT A REALITY

Today, even school districts heralded as data driven have rarely invested in the technology and personnel or developed the requisite processes necessary for breakthrough management. Many schools are at the very edge of their capacities when they seek to produce achievement data in a timely fashion.

This is a problem. We don't term a hospital "well-

run" because its doctors use standard tools for diagnosing patients. We reserve that label for hospitals where staff are competent and efficient, supplies are carefully tracked and promptly refilled, data files are up-to-date, personnel needs are quickly handled, and so forth. Yet, schools that have embraced only the most basic tenets of professional practice are deemed paragons of modern management.

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What would it take for systems to start collecting data for breakthrough management? There are six keys. They form a rough hierarchy, so we'll start with the most essential:

1. **Accurate collection of basic data.** The first step is to collect the most fundamental data on what the organization does and how it spends its money. School systems are generally pretty good at this. Federal law requires systems to test students and collect basic achievement data, while financial management requires districts to track spending, enrollment, attendance, and payroll.
2. **Data linked across time.** Once districts have the building blocks, they need to link them across time. In general, a district that can collect its basic data accurately can also link it longitudinally. However, some systems don't maintain consistent identifiers across years for students or employees. Financial coding systems can't track organizational change. Districts may assign costs only to offices (such as the Office of Instruction) and not functions (such as math professional development). A district that reshuffles its organizational chart can't make comparisons over time.
3. **Customer service and satisfaction data.** Every company's existence depends on its customers, and great companies measure customer service from several sources to quickly diagnose potential problems. Making such data useful requires not just collection, but also ensuring that it's routinely and systematically mapped onto processes and programs and analyzed.
4. **Data with sufficient granularity to illuminate units and activities within departments.** Effi-

ciency and effectiveness require measuring outputs and processes in units that are too often overlooked. In human resources, for example, various measures might signal opportunities for improved productivity. Such measures might assess how long the HR department takes to vet, interview, and hire or reject an applicant. Typically, systems will know how much is spent on human resources and the number of staff, but not how much time the HR staff spends recruiting or responding to the needs of teachers.

5. **Data connected across content areas.** Do new teachers achieve better or worse student outcomes than teachers who came before them? Do they stay longer? Answering these questions requires connecting HR data to student-level longitudinal data, retention data, and survey data.
6. **Providing data in real time.** District managers should be able to find out instantly which schools are waiting for textbooks or which teachers have received what professional development.

Collecting and connecting these kinds of data allow school leaders to determine which programs are cost-effective, how their system compares to others on a range of activities, and where they need to do better.

Few if any school systems have all of these elements in place. Most are currently at step 2.

THE NUMBERS WE NEED

What kinds of data should systems report on a balanced scorecard? We identify six essential domains. Unfortunately, even those domains that districts have prioritized have been shortchanged by a focus on what elected officials demand, rather than on what will help improve schools.

Domain #1. Tracking student outcomes.

Today, most districts can provide coherent data on how well students perform on state assessments, but outcome metrics beyond state assessments can be difficult to come by. Key data include:

- Item-level analysis of assessment results at the individual student and classroom level that allows teachers to analyze whether all or most of their students miss the same items.
- Employment or enrollment status of students after high school.

Domain #2. Counting people and things.

Monitoring the number of students and teachers, facilities, and district assets provides important operational baselines. Key elements include:

- Authorized staff positions, the location of the positions, the purpose and reporting relationships of the positions, whether they're filled and by whom, and whether positions are full or part time.
- District assets and materials, where they're located, and the transfer of assets between locations (e.g., the delivery of textbooks).

Domain #3. Finance.

Few districts track expenditures in ways that permit their effects to be clearly assessed. A management-friendly system for tracking expenditures links dollars with programs, actual employee time, activities, and students. Key elements include:

- Whether dollars are actually spent in specific schools and classrooms or are spent by central administrators and "allocated" to school sites.
- Who decides to make the expenditure and for whom. For instance, does the district office of instruction or a principal decide to spend money for a school-based PD program?

Domain #4. Instructional and curricular operations.

Few districts track instructional and curricular services in a manner that informs judgments about program efficacy and efficiency. Key data include:

- What professional development is provided, for whom, when, for what length of time, and for what outcomes?
- Which schools use various programs? How well are those programs implemented, at what cost, and with what results?

Domain #5. Human capital operations.

Dramatically improving the quality of teaching requires a system that can monitor personnel, gauge performance, and competently manage hiring, transfer, benefits, employee concerns, and termination. Key metrics include:

- The quantity of applicants for positions and how rapidly they're screened, placed, and prepared.
- The performance of personnel on various relevant metrics other than student achievement.

Domain #6. Business practices.

Procurement, information technology, data management, and maintenance are crucial. These services should be measured not in terms of inputs but in terms of performance. Key metrics include:

- How long does it take the district to process a

supply request, how rapidly are supplies delivered to classrooms, and how does the system's cost per order compare to benchmarks?

- How rapidly can school personnel access the results of formative assessments, how satisfied are they with the user-friendliness of the data interface, and how do faculty use the data?

Collecting and employing these kinds of information will help professionals to fully use their skills; eliminate unnecessary or redundant tasks, programs, and personnel; and target resources where they're needed most.

As districts gain the ability to benchmark their operations against one another, superintendents and boards become better able to rapidly identify opportunities for improvement. The Council of Great City Schools has launched a comprehensive benchmarking process for district business operations, comparing districts on such "meat and potatoes" metrics as transportation costs per student, food services participation rates, and lead time required for procurement (Eugene, Carlson, and Hrowal 2007). One benefit of such processes is that they push managers to ensure that data are accurate.

WHAT'S THE PROBLEM?

This all seems pretty obvious; indeed, this is how most large, well-functioning organizations operate. So why, when it comes to schools, is the collection and analysis of basic student achievement data regarded as the cutting edge? **In practice, there are a series of essential steps that need to be taken if data-driven strategies are to fulfill their promise.**

First, and most significant, school systems don't reward leaders for pursuing new efficiencies, redeploying resources, or coming up with innovative delivery mechanisms for school services. Indeed, superintendents who try to eliminate redundant personnel or ineffective programs may suffer severe professional penalties. Similarly, because statutes, salary structures, and existing commitments limit school officials' ability to redeploy resources, school leaders don't have much incentive to collect data designed to steer such decisions.

Second, public education has underinvested in information technology. Updating such infrastructures

is expensive. When faced with the choice between spending millions on IT or "putting that money into the classroom," few superintendents are eager to defend spending for data systems.

Moreover, installing a new financial or HR system can be a massive undertaking. Even when successful, benefits may not emerge for several years, while the headaches and costs are immediate. If not managed

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carefully, new systems can prove disastrous — especially given limited expertise among district personnel. Los Angeles spent over a year sorting out problems caused by its new integrated financial and business operations system. The United Teachers of Los Angeles established an RV camp outside district headquarters to highlight teacher payroll errors.

Third, the cultures of school districts are not data driven in any fundamental sense. Educators have had little exposure to fact-based decision making inside their school systems and, given their career paths, few educators have the opportunity to see how management is practiced beyond K-12 schooling. So there is often limited familiarity with how data can be collected or employed more aggressively. This helps foster a strong bias for "inside-the-classroom" metrics rather than measures of organizational performance.

Fourth, districts have done poorly at developing and rewarding the behaviors and skills required to collect, analyze, and report information. Even when potentially useful data exist, there has to be internal capacity to examine, use, and probe them. Few districts have any spare capacity of this type.

Finally, the current focus on "data-driven decision making," because it concentrates on pupil achievement and school performance, has districts starting at what may be the most difficult entry point. Reaching reliable inferences about what drives student achievement can be difficult even in the best of circumstances. Tackling this with imperfect data, under conditions fraught with potential bias and measurement error, and in a highly visible environment, is daunting.

WHAT TO DO?

These obstacles suggest just how difficult it will be for schools to become data-driven organizations. Be-

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cause the greatest need is for management data, the challenge is not one for federal officials or state bureaucracies but for districts. Thus we have five recommendations for educators, reformers, and policy makers.

1. Create opportunities and change the incentives.

The first step in convincing education leaders to embrace data-based management is to allow them to actually manage. This means unwinding the webs of input-based policies and regulations governing staffing formulas, class size, service delivery, and procurement and permitting districts to devise their own ways of doing business. To do this, state legislatures, state boards, and school boards need to evaluate school systems in new ways that depend more on various outcome metrics and less on procedures. It is also essential that district and school leaders who use operational data to enhance performance or improve cost-effectiveness be recognized and rewarded — especially since such efforts will inevitably ruffle feathers.

2. Get started. Much of the data needed to measure and manage performance already is being collected and just waiting to be assembled by a skillful analyst. The key is not a new computer system, but a focus on outcomes, analysis, and the requisite political will and organizational skill. A shiny new IT system will not fix a broken human system.

3. Got money? Got talent? District leaders looking to assemble the appropriate data face two immediate challenges. First, collecting and connecting the existing data is a labor-intensive process. Second, even once assembled, there is a need for skillful analysis. While investing in performance measurement and management should ultimately save districts money, any serious move toward performance management will require more research and analytic capacity. Private foundations can provide the needed start-up funds, tools, and technical assistance and can identify talent from nontraditional pools to help districts get performance management started.

4. The state role. States drive districts' core operational, financial, and student reporting requirements. If a state designs these requirements to capture financial data in a managerially useful way, then districts can compare and benchmark their costs against one another. States can facilitate this process by creating a forum for districts to meet regularly, share metrics, compare data, and benchmark processes and results against one another.

Moreover, just like districts, state education agencies collect mountains of data for reporting purposes. States should feed these data back to school districts with comparative metrics. One terrific example is provided by the Los Angeles County Office of Education (LACOE). L.A.'s 80 school districts are required to report financial performance, revenues, and expenses to LACOE. Rather than sit on this information, LACOE produces and disseminates a report providing comparative per pupil data for all 80 districts on each measure.

5. Support management change. Advocacy groups, business leaders, local media, mayors, and even governors can give district managers the political support they need. Business leaders can provide assistance in tracking organizational performance and can highlight the gains that are made. Advocacy groups can help the public draw connections between seemingly nonacademic management issues and student achievement. One compelling example has been the New Teacher Project's work on district hiring in New York City, where collecting and reporting data on teacher hiring and transfers fostered awareness of an overlooked issue and led to changes in the collective bargaining agreement and district behavior.

There are promising developments under way. District leaders in such places as New York City and Washington, D.C., and such charter school systems as Edison Schools and KIPP have made operational data a priority. Collaborative efforts, including the Schools Interoperability Framework and such vendors as SchoolNet, Wireless Generation, and S&P have brought a new level of sophistication to collecting data for management. Nevertheless, if schooling is to enter an era in which data are truly a tool of breakthrough management, the real work lies ahead. **K**

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