A State Information System to Support Improvements in Productivity
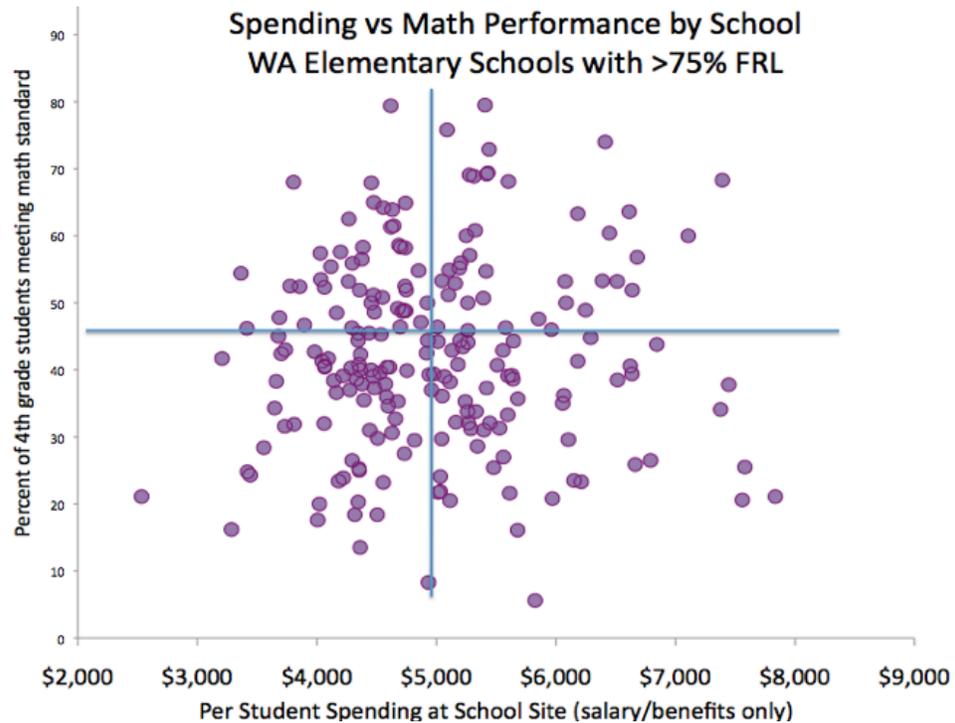
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May 2014

Array school-level spending for Washington State's high-poverty elementary schools against each school's math performance, and the fact becomes very clear: there is almost no relationship between how much money a school spends per student on personnel and whether its fourth graders are proficient in math. Chart other subjects, other schools, other districts, other states, and the evidence there too would likely show a weak relationship between spending and outcomes, even when controlling for differing characteristics of students.

Figure 1.

Spending vs Math Performance by School
WA Elementary Schools with >75% FRL

(Y-axis: Percent of 4th grade students meeting math standard; X-axis: Per Student Spending at School Site (salary/benefits only))

Source: Based on the author's calculations from the Washington State Office of Superintendent of Public Instruction, 2011–2012.

But nobody is taking this kind of look at the data. Our chart, shown in Figure 1, was created by aligning data from several sources; most states do not have the kinds of data systems that already merge data for these types of reports. Some schools are far more productive than others—they get better results for students for less money—yet states and school systems are not doing the work to figure out which ones, and why.

Instead, states and school systems focus exclusively on performance outcomes. On school report cards and in accountability systems, two schools with similar demographics that both achieve 75 percent proficiency appear equally successful. But if one school spends half what the other does, it is much better at leveraging its funds to maximize outcomes, and if its model is sustainable or scalable, its approach is more viable for the future.

Districts have proven reluctant to rethink how they apply resources among and within schools. Even when new, financially sustainable models of educational delivery arise, they do not spread—in large part because leaders are not in the habit of prioritizing productivity, and would not have the data to do so even if they tried. Districts and schools adopt innovations that add incremental expenses instead of thinking of ways to reallocate resources more sustainably, which leaves the new initiatives vulnerable to budget cuts.

In this era of constrained resources and growing demand for improved outcomes, it makes no sense to keep ignoring productivity. Everyone from state education agencies (SEAs) to school leaders needs to take seriously the productivity challenge—learning to use funds differently to maximize the benefit for students. This starts with SEAs assuming a proactive role, guiding systems toward retooling delivery models to achieve better outcomes at a more sustainable cost structure. SEAs hold the power to develop information infrastructures that enable administrators and systems to unlock the powerful clues they need to maximize outcomes per education dollar, and to make discussions about productivity a matter of course.

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DEVELOPING A CULTURE OF INQUIRY

Schools in the lower-right quadrant of Figure 1—those with high spending but low student outcomes—ought to be studying how those in the upper-left quadrant have been able to achieve greater proficiency with less money. They need to examine how their spending choices compare. But they cannot do so as long as they have no idea which quadrant the schools sit in.

Most districts keep their principals so insulated from financial data that many of them are not even aware of how much money is spent at their school, much less able to see how it relates to their outcomes, or how it compares to other schools. I have often asked sitting principals about their schools' expenditures, and most cannot even estimate their school's total or per-pupil spending, or guess whether it is greater or less than other schools. In a recent training session for school leaders, a principal was bemoaning the high cost of paying a contractor an hourly rate for nursing services while the school's nursing position went unfilled for a year. While the principal said the contracted service was great, she felt that the cost was much too high. After calling the school

system's payroll office and obtaining the average salary and benefits for nurses in the district, the Edunomics Lab calculated that even with the high hourly rates, the contractor cost much less than an employee would. The finding surprised the principal, who immediately requested that the district not fill the nursing vacancy and instead continue the contract arrangement.

Getting administrators to consider productivity like this, and act on it, requires a shift in systems and culture. School leaders are held accountable only for whether their initiatives improve student outcomes, not that they do so at a reasonable cost. They are allowed to add new programs and staff without explicit consideration of trade-offs. And in many districts they do not have the authority even to make those kinds of decisions— or they do but do not realize it.

> Districts and schools cannot attack the productivity challenge on their own; SEAs need to drive the agenda and provide the tools that leaders need.

A principal who has the incentive to seek out more efficient practices amid cost constraints may find that the highly productive school across town has hired all bilingual teachers instead of providing separate services for English language learners. Or it has adopted technology-based literacy instruction and diagnostics that reduce the need for reading interventions. Or it increased class sizes to free up funds for a longer school year.

The principal seeking greater productivity may decide to adopt some of those promising approaches, especially if he or she is allowed to apply the money that frees up toward other priorities. Even school leaders who do not make significant changes in delivery approaches may leverage productivity data to refocus staff time and priorities. For instance, at schools that are high-spending because they have very experienced teachers on staff, principals would have the spending data needed to call attention to this higher spending and leverage it in a way that sets high expectations for the staff. Or, by recognizing the high costs of a longtime librarian, the principal might consider using this position to more directly drive the school's reading agenda rather than, say, monitoring hallways or covering students during release time for homeroom teachers.[1]

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1. There may be schools with more senior staff where longevity pay results in higher spending but not proportionately higher outcomes. Even then, transparency around that issue may not be a bad thing. In fact, some locales might respond to the data with increased interest in changing the current compensation structure to one that does not create those patterns.

Superintendents can use this data as a motivator as well. They can point out to principals where they stand when it comes to productivity. They can celebrate the leaders of highly productive schools and pair them with peers who need help learning ways to better leverage their funds. Productivity needs to be part of the conversation for central office staff, too. Leaders in the human resources departments or the curriculum and professional development offices often are not aware of the cost of adding professional development days, paying substitutes while staff are in training, adding reading coaches, and the like. No less than principals, they should be able—and required—to weigh the productivity of their initiatives.

THE ROLE OF THE SEA

As SEAs shift from a focus on defining uniform delivery models and monitoring compliance with federal rules to managing performance, productivity should be a linchpin of their efforts. Districts and schools cannot attack the productivity challenge on their own; SEAs need to drive the agenda and provide the tools that leaders need.[2]

In recent years, most SEAs have expanded their data systems, largely in compliance with federal pressure from No Child Left Behind and Race to the Top. The newer data systems include more detailed information on student outcomes by school and student group and, in some cases, on teachers.[3] Some also incorporate characteristics of school inputs like staff counts, the percentage of staff with master's degrees, or number of computers. But even the best of these expanded data systems do not provide sufficient financial information and pair it with outcome data in ways that push district and school efforts to seek productivity gains.

Imagine a state system that incorporated student performance and school-level financial information from many schools and districts, with an analytics platform that could enable clear interpretations of the relationship between spending and performance.

Imagine a state system that incorporated student performance and school-level financial information into a new return-on-investment measure. Drawing

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2. A previous piece in this series called for states to promote productivity by building information systems for districts and schools, as well as three other ways: prioritizing flexibility so that districts and schools are free to try new delivery models, focusing attention throughout the system on productivity through training or awards, and using leverage to rethink long-term cost obligations. See Marguerite Roza. "Leveraging Productivity for Progress: An Imperative for States," in *Prioritizing Productivity: The SEA of the Future*, Vol. 2, ed. Betheny Gross and Ashley Jochim (San Antonio: Building State Capacity & Productivity Center at Edvance Research, Inc., 2013).
3. Many state data systems now include information on the percentage of teachers deemed "highly qualified," and some have added information that matches teachers with student outcomes data.

on data from many schools and districts, and incorporating powerful visual displays, the analytics platform could enable clear interpretations of the relationship between spending and performance, as our scatterplot does. Users could search and filter data to compare spending and outcomes among schools with similar characteristics (rural, high-poverty, east side of the city, and so on) and within a district, region, and state.

The information would list spending choices in detail, providing clues not only to which schools and districts are most productive, but why.[4] Users will want to know how the most productive schools balance spending between staff and technology, core academics and electives, salaries and benefits, and so on—and they will want to compute the potential impact of similar decisions at their schools. Typically, district budget and accounting documents summarize spending in large categories like "instruction" or "instructional support" or aggregate it into objects like "salaries." The spending data described here would instead list all expenditures for each school including all staff positions and their salaries and benefits, and charges for contracts, substitutes, stipends, and the like (see box at end of chapter). It would fold in demographic information to determine spending by student and student type, given that school spending differs depending on the mix of students, and data are only relevant if spending comparisons have properly accounted for student needs.

> SEAs should provide whatever resources are needed to make sure everyone understands the data and the context that surrounds them.

WHERE THE DATA LEAD

Even though it is crucial for leaders to learn from highly productive schools and programs, it would be a mistake to assume that there is one correct way to apply funds. Different schools may realize improvements in productivity through a range of approaches, including those that reflect the unique needs of their students, their communities, and the strengths and weaknesses of their staffs.

What is important is not the precise conclusions the information leads to, but rather that the information is made available and used thoughtfully and appropriately. This is where SEAs are especially important. Ideally, SEAs would use the data they make available to ensure that productivity becomes part of everyone's efforts to improve education. The information should be public and

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4. Most systems will be unable to fully account for private or philanthropic funds. Fundraising accounts for less than 2% of total spending in most systems, and generally does not flow through the public accounting structures.

easily accessible by all stakeholders including community groups, parents, and the media. SEAs should provide whatever resources are needed to make sure everyone understands the data and the context that surrounds them, and should ensure that—unlike a lot of available state and federal spending data—it reflects the current year.

SEAs can use their communication platforms to draw attention to variations in productivity and to celebrate highly productive schools. When people in school communities request increased services, SEAs might challenge the schools to explore trade-offs to fund the new initiatives. When certain initiatives are shown to be exceedingly and unsustainably expensive for their outcomes, district leaders can use this information to help neutralize pressure from the groups that support the inefficient practices. When communities notice that, based on the data, underfunding may be contributing to their schools' poor performance, they might press to have funding formulas changed to be more equitable. Likewise, the evidence might counteract pressures for successful but high-spending schools to draw down a disproportionate share of a district's resources.

> The first step is the most simple: states can act right away to augment their information systems to incorporate school-level spending.

SEAs should expect that leaders need training to first understand what the data tell them, then to translate that information into smart choices about service delivery. Toward that end, SEAs could use their authority to require that administrators are exposed to the productivity concepts in order to receive certification, as they do with academic topics. School boards too could be required to receive training on how their districts and schools stack up on productivity comparisons. Partnerships with school board associations or regional districts could support such trainings.

As soon as they are developed, productivity measures can be incorporated into school report cards for information purposes. In the long run, it may make sense to weave productivity measures into accountability systems for schools and administrators, but it is too early to do that now in most states. Thus far, most districts and schools have never been asked to measure or optimize their productivity. Imposing consequences based on productivity outcomes too early could discourage people in the system from seeing the information as helpful.

The potential for smart use of these data stretches beyond traditional district spending. Mayors, charter authorizers, and portfolio district leaders could factor productivity into their consideration of which schools to replicate and

which to restructure or close. States would be wise to consider the productivity and thus the financial viability of the school turnaround models they promote. Innovators would have an easier way to analyze how the new delivery models they are creating could enhance a school's productivity.

Getting people to think about productivity is imperative, but it will not be easy. The first step is actually the most simple: states can act right away to augment their information systems to incorporate school-level spending. SEAs may worry that this imposes a new cost for them—but the cost of missing this opportunity to leverage spending for students is far greater.

Building Spending Data by School

Just because many district financial documents do not report spending by school does not mean the information does not exist. It is possible to create a school spending measure from existing data sources without redesigning accounting systems or building new account codes.

The first step is to add up salary and benefits by school. For any personnel funds not assigned by school or student type, and the approximately 10 percent of district funds that are not personnel-related and other district costs that cannot easily be attributed school by school, the total costs can be divided by all students in the district to get a per-student amount. These amounts are then assigned to each school according to its enrollment. Where central expenditures are focused on a student type (say, high school students, bilingual education students, etc.), then those funds should be allocated across that student type throughout the district. Preferably, pension payments would also be included, although ensuring these funds make it into the mix can be tricky depending on the state.[5]

To make comparisons across schools in different districts, spending by school should reflect the district's full operational costs, including those for centrally managed expenses such as legal and transportation costs.[6] The sum of all schools' expenses should total the district's entire budget, including all federal and local revenue streams (perhaps excluding costs associated with long-term debt).

Undoubtedly, leaders will worry that the data will not perfectly account for everything. Some schools might have an unusual set of students who are not properly recognized in the demographics (such as youth enrolled in correctional systems). Others might have one-time expenses in a given year due to an unforeseen event, and so on. These concerns are legitimate, and imply that caution should be used in interpreting all the data, but should not keep the system from getting started down this path.

5. In some states, pension payments are made directly from state coffers, and might not be apparent in district financial documents.
6. Adjustment for any unusual expenditures is something each district can do to understand its own information. For a remote rural district with high transportation costs, district leaders can see the effects of those costs, and perhaps compare themselves with other remote rural districts where use of technology or other innovations might preclude such a high investment in busing.