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Academic ROI: What Does the Most Good?

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When schools look at special education programs through a return-on-investment lens, both taxpayers and students win.

School district administrators all too often experience the anguish of cutting programs and staff to balance the budget. Typically, most of the reductions come from operations or general education. The severity and length of the current recession, however, has forced many districts to consider belt tightening in special education as well.

It feels terrible to take from our neediest students. But that doesn't need to happen. By focusing on *cost-effectiveness* rather than *cost reduction*, we can help students with disabilities while spending less.

Cost-effectiveness—along with its sister concept, academic return on investment—is both a mind-set and a decision-making tool. In essence, it requires that we formally evaluate all programs, efforts, and strategies using multiple measures, including effects on student learning, number of students served, and cost per student.

Common Sense, But Not Common

The idea of measuring return on investment in education can be uncomfortable. During a discussion when I was superintendent, I was asked to approve a \$150,000 purchase of new materials for our elementary writing program. Before answering, I asked how many students would be using the new materials and what gains we might expect in writing ability. The angry response surprised me: "It's just an update to our existing materials, so I don't expect anything will change. Moreover, the question is offensive. If only one student benefits, then that should be enough." It wasn't enough for me. I was thinking about what else we could do with the money to help more kids learn even more.

Long a foundation of resource allocation decisions in the private sector, return on investment has now entered the social service sector. When the Bill and Melinda Gates Foundation was first launched, its founders asked, How can we help the most people, with the greatest effect on their lives, for each dollar spent? At the time, HIV-AIDS was the front-page concern, but a careful review revealed that malaria, a seldom-mentioned scourge, also deserved their attention. The realization that a onetime expenditure of a few dollars on mosquito netting could save a child's life led to what is now a \$1 billion effort that has helped millions of people.

Academic return on investment (ROI) seeks to maximize achievement for the greatest number of students, given available resources. Many superintendents and school boards apply this concept intuitively. There is great benefit, however, in doing it explicitly. The formula for academic ROI is straightforward:

$$\frac{(\text{learning increase}) \times (\# \text{ of students helped})}{\$ \text{ spent}}$$

As a former private-sector CEO turned school board member and then superintendent, I found that this concept came naturally to me and served me well. During my six years on the Boxford, Massachusetts, school board, we applied academic return on investment to many aspects of our budget and programs. We nearly doubled the number of students scoring advanced in math on state tests, without increased spending. When I was assistant superintendent for curriculum and instruction in Harvard, Massachusetts (no relation or proximity to the university), we achieved best-in-state results despite spending less per pupil than about three-fourths of the districts in the state. And during my

time as superintendent in Arlington, Massachusetts, the process created significant gains in achievement. Despite annual staff reductions caused by shrinking budgets, the district

- Reduced the number of K–5 students reading below grade level by 65 percent.
- Decreased the special education achievement gap by 66 percent in both math and English by 10th grade.
- Increased proficiency rates for students with special needs by nearly 25 percent.

In my more recent work with the District Management Council (DMC), I have studied 50 districts across the United States and found that the academic return on investment concept can help school systems of all types and sizes.

Return on Investment in Special Education

When academic return on investment is applied to students with special needs, the gains can be even greater. Special education spending typically receives limited scrutiny for cost-effectiveness. The combination of wanting to do everything possible for our neediest students, legal complexities, and the murkiness of what actually happens in special education contributes to a less-than-systematic review. Despite our best intentions, this hands-off attitude has not served students with disabilities well.

Evaluating academic return on investment can yield particularly big gains for students and taxpayers in three areas of special education: (1) academic support, (2) speech and language services, and (3) paraprofessional scheduling.

Academic Support

Most schools use one of three service delivery models to provide academic support to students with special needs:

- *Push-in.* A special education teacher joins a general education class to support a few children with special needs. (Coteaching is a form of push-in support.)
- *Pull-out.* Students with special needs are pulled together to receive extra help outside the general education classroom (Resource room is a form of pull-out.)
- *Double general education classes.* Struggling students attend two classes a day in a particular course with a general education teacher.

The District Management Council's in-depth research in 50 districts indicates that tradition, personal preference, and gut feeling often drive the choice of a service delivery model. But which strategy has the highest academic return on investment? All school districts are different, but the experience of typical districts we have studied can help answer the question.

Our observations indicate that push-in has the lowest return—more expense, less learning, and fewer students helped. Because each classroom in the districts we studied has just two or three students with an individualized education program (IEP), when a special education teacher goes into the room for an hour, he or she can help just two or three students at a time. If this teacher works in five classes a day, he or she may help about 15 students. Assuming that the average teacher compensation is \$75,000 (including the cost of benefits), that's \$5,000 per student helped.

The pull-out model makes it easier to group students: With a typical group size of five students, a pull-out teacher teaching five classes a day would be serving a total of 25 students, bringing the cost down to \$3,000 per student.

In the final option (the double class model), if we assume that a general education class has just 15 students, adding one extra teacher to teach five classes a day would serve 75 students, bringing the cost to just \$1,000 per student helped. In high schools that use this model, the student gives up an elective or a study hall to get an extra period of

math or English. In a variation of this model, many elementary schools provide a second dose of reading instruction each day for struggling students.

I suspect some readers are ready to put the article down at this point. It can seem heartless to reduce learning to dollars spent per student. And I agree. If we stop here, this isn't good education—it isn't education at all! It does raise the question, however: Does the more expensive option create more learning? Research suggests just the opposite.

Our work includes extensive classroom visits, and often we observe that during push-in, the most costly option, it is hard for students with special needs to make gains. The second (special education) teacher often isn't strong in the content. So if a special education student struggling in math has a question, he or she asks a non-math teacher, whereas the general education students ask the certified math teacher. If the special education teacher responds with a long explanation or minilesson, the student will miss the core instruction; no one can listen to two teachers at once.

Finally, in nearly all the districts studied, the push-in model provides struggling students with just one period of math each day, just like their non-struggling peers. Yet these struggling students need extra time to remediate previous years' deficits while mastering this year's content. High spending coupled with limited learning yields a low academic return on investment.

The pull-out model addresses some of these shortcomings. The student gets a full math class and then extra help in a resource room each day. Still, the instructor isn't a math teacher. In most of the schools studied, this extra help is noncategorical; students who struggle in math, language arts, and other subjects are grouped together, often across multiple grades. This hodgepodge makes formal instruction impossible. The class often becomes homework help in a study hall mode.

The final option provides two periods of general education instruction from a content-strong teacher. This ensures quality instruction and ensures that the supplemental time is closely connected to the core lessons. In Arlington, Massachusetts, we shifted from push-in and pull-out to double general education classes. The academic achievement of students with special needs increased dramatically in a few years. For example, the number of students with IEPs who reached 10th grade proficiency in math and English nearly tripled. Three times the learning at one-fifth the cost—that was a win for kids and taxpayers.

Speech and Language

Many students with disabilities receive services from a speech and language therapist. Our interviews and surveys with hundreds of therapists indicate that most of them tend to work in isolation; thus, wide differences often emerge from school to school or from district to district. Given the many divergent approaches to providing speech and language services, academic return on investment is a helpful tool to evaluate what makes the most sense.

Three big cost drivers—eligibility criteria, workload, and group size—can collectively shift staffing requirements by 30–40 percent without affecting student learning. One district that I know well is tightly managed and high achieving, with talented, caring therapists; but district leaders had never looked at their practices in terms of academic return on investment. When they did so, they began by asking, Who should receive speech and language services? They discovered that they served 25 percent more students than similar communities, in part because they kept students in the program for so long. They revisited their criteria for keeping students in speech and language therapy so that students exited the program at a more appropriate time.

Next, they asked, What is a reasonable group size for serving students? One-on-one instruction was the norm in the district, and that seemed good, but what was the academic return on investment? It turned out that many therapists in the district believed groups of two or three could be equally effective for most students. Research from the American Speech-Language-Hearing Association agreed.¹

The final question was, How many hours a week should therapists work with students, as opposed to providing consultation, conducting testing, and writing reports? It turned out that some therapists were with students 80 percent

of the week and others less than 40 percent. A thoughtful review of the value of this noninstructional time suggested establishing a target of 70 percent direct service.

Applying the concept of academic return on investment, the district reduced speech and language therapy costs 35 percent by creating small groups and thoughtful schedules. It was able to use these cost savings to hire more reading teachers, thus increasing overall student learning through an expanded reading program.

Paraprofessionals

Too often the discussion at the IEP meeting embraces the idea that if paraprofessional support is good, then more paraprofessional support must be better! Although it seems like common sense that an aide could only be helpful, the reality is just the opposite. The presence of an aide can reduce a student's contact with his or her teacher and prevent friendships from forming with classmates. A student struggling in math may need an aide in that subject but may be fine on his or her own for the rest of the day. Moreover, even when providing an aide initially appears to make sense, another form of support may prove both more effective and more cost-effective.

For example, a traditional response to a student with a behavior challenge would be to assign a paraprofessional to help the student control any outbursts that occur. A better solution for both the student and the budget, however, may be to have a skilled behavior specialist work with the student and teacher for a few days to develop coping and prevention strategies. Spending more in the short run will result in a better outcome—and a lower cost over time.

Putting Student Achievement at the Center

These three examples of cost-effective ways to raise achievement for students with disabilities rewrite the equation that says that reductions in special education spending must hurt children.

Academic return on investment can be applied to general education, district strategy, and operations as well. Although the particulars vary, the concept is the same. Instead of assuming that all current spending is equally valuable, ask how much learning is taking place, how many students are being helped, and what the cost is per student served. (The suggestions outlined in "[What Works Better?](#)" on p. 38 can help you measure the effectiveness of individual programs or strategies.)

Managing a shrinking budget is never easy or fun. The academic return on investment approach provides a path to prevent politics, preferences, and tradition from guiding these difficult decisions. It puts student learning and student achievement data at the center of the resource allocation discussion.

Everyone trying to balance a school district budget, I suspect, intuitively tries to balance learning and cost. Few would lobby to keep an ineffective program or to cut a highly effective, low-cost program. The reason budget debates often get heated is that different stakeholders have their own assumptions about the value of particular programs. Having hard data won't make the process more enjoyable, but it will help keep the discussion calm, data-driven, and child-centered—just what we need in these tough times.

What Works Better?

Here are four tips for measuring the effectiveness of individual programs or strategies.

A Controlled Test

When rolling out new programs, purposefully plan to test effectiveness by creating controlled experiments that isolate all the variables except one. In one district, such an experiment happened by accident when one-half of the elementary schools used coteaching and one-half could only afford to provide resource room support to students with special needs. An analysis of student growth in math and English over multiple years revealed that students in cotaught classrooms gained at the same rate as their peers who didn't receive this costly intervention. These data suggested redeploying the millions of dollars invested in coteaching.

Pockets of Evidence

Districts have more controlled tests going on right now than they realize. For example, as superintendent, I asked a data analyst to identify classrooms, grades, or schools that significantly outperformed the rest of the district, taking demographic factors into account. The findings were striking. Our highest-poverty school had made steady gains in reading while other schools stayed flat. Donning our Sherlock Holmes caps, we asked why. After much interviewing and observing, it turned out that the reading gains came from a relentless focus on phonics, expanded time for instruction, and replacing noncertified tutors with fewer, but more skilled, teachers.

Common Formative Assessments

Because of the standards movement and Response to Intervention, schools today administer many common formative assessments and do lots of progress monitoring; a by-product of these activities is data that can help us measure program effectiveness. District directors of assessment and accountability often tell me something like the following: "You know, we have all of this common formative assessment data in the computer, like Dynamic Indicators of Basic Early Literacy Skills (DIBELS); Developmental Reading Assessment (DRA); and pre- and post-unit math tests. I had the computer compare end-of-year scores to beginning-of-year scores or pre-tests to post-tests, calculate the gains, and then sort by teacher or building. I made sure to control for demographics. I identified where big gains were happening, and the next time I was in the school, I asked around to see what was special. Often it was obvious."

Zero Is an Answer

We want to find out what works best, but knowing that something isn't working at all puts the question to rest. As obvious as this may seem, districts don't always check to see whether an effort has failed. When I was superintendent, we codified many measures of success. Some were easy—for instance, our dropout prevention program was designed to help students graduate, and our English remediation class was designed to raise writing achievement. Armed with these clear definitions of success, we were able to measure whether the programs were working. We discovered that over three years, 96 percent of students in the dropout prevention program dropped out of school. Students' grades on essays did not improve after one year of intensive writing support. We learned that these programs had zero academic return on investment and needed to be revamped. If they had demonstrated some success, it would have been harder to compare them with alternatives, but zero is an actionable answer.

Endnote

¹ Cirrin, F. M., Schooling, T., Nelson, N., Diehl, S., Flynn, P., Staskowski, M., Torrey, T., & Adamczyk, D. (2010). Evidence-based systematic review: Effects of different service delivery models on communication outcomes for elementary school age children. *Language, Speech, and Hearing Services in Schools, 41*, 233–264.

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